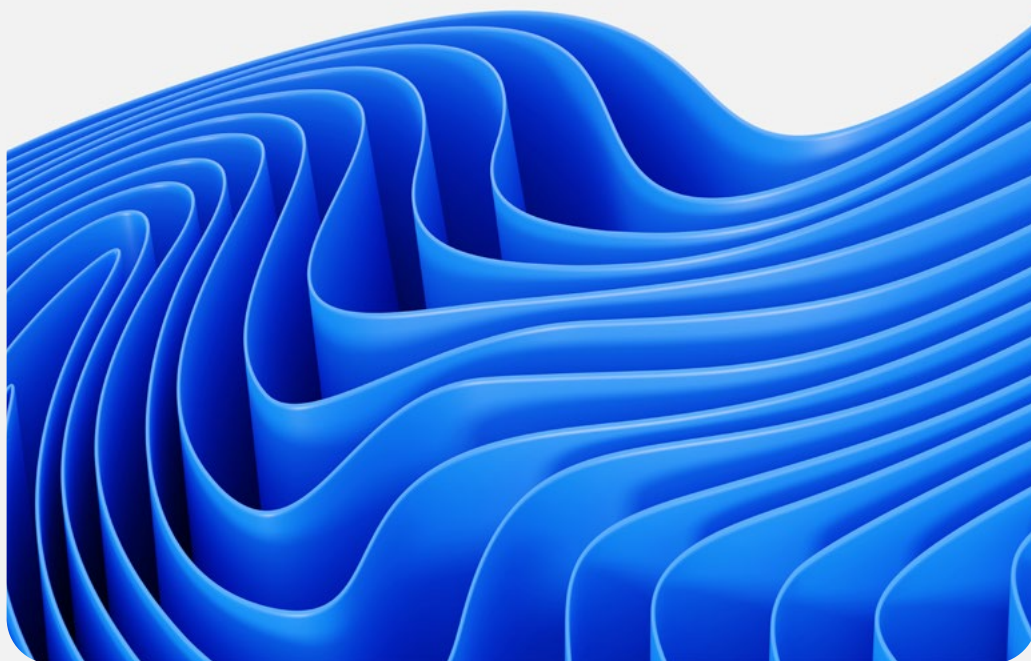


FY2022/23

Report

Report on the Management of the Government's Portfolio



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1.0

Letter from the CEO

Investment Environment

The disruptions associated with persistent inflation and chronic geopolitical risks remain relevant today. A potential structural shift to a regime of higher interest rates and the impact of generative AI are two new disruptions to grapple with.

GIC's Purpose



In an era of continued uncertainty, we will stay committed to our purpose of safeguarding Singapore's financial future.

Our People

GIC can only carry out our mission with the strong commitment and capabilities of our people. We continue to invest heavily in upskilling our teams and fostering greater diversity.

1.1

Letter from the CEO

Investing in a world of disruptions

Dear Stakeholders,

The global investment environment continued to change in fundamental ways over the last year.

The Russian invasion of Ukraine has persisted, inflicting growing human and economic tolls. Together with highly expansionary macroeconomic policies in the major economies, the war also contributed to the jump in global inflation rates, ending a 40-year disinflationary trend. To rein in inflation, major central banks embarked on aggressive interest rate hikes. In the US, the energy transition saw a major boost following the passage of the Inflation Reduction Act. Since late 2022, generative artificial intelligence (AI) has caught on at an unprecedented speed and scale, with its wide-ranging but uncertain impact creating optimism or pessimism, depending on where you sit. In China, the surprise decision to end its strict Covid policy raised hopes for better global growth this year.

For investors, 2022 was also a watershed year, where global bonds fell by 16%¹ and equities by 18%² in US\$ terms, posing a challenge to portfolios which were relying on bonds to offset equity risk. The valuations of businesses with distant future cash flows were hit particularly hard. At the same time, financing conditions in capital markets tightened significantly, resulting in a steep drop in investment deal volume.

We are not out of the woods yet. The consequences of the policy tightening are still being felt in the economy and markets. Some banks face the prospect of low profitability due to higher funding costs and potential loan losses. Housing markets relying on floating rate mortgages are also experiencing refinancing pressures. At the same time, de-globalisation pressures continue to build up, fuelled by intensifying great power rivalries. In addition, climate risk continues to rise, manifesting in more natural climate disasters.

Despite these challenges, GIC's long-term performance has remained resilient. As at 31 March 2023, for the 20-year period from 1 April 2003, the annualised US\$ nominal return of our portfolio was 6.9%. Adjusting for global inflation, the annualised 20-year real return stood at 4.6%, a slight increase from last year's 4.2%.

GIC's expected long-term returns are used to calculate the annual Net Investment Returns Contribution (NIRC), which is derived from up to 50% of the investment returns from the Monetary Authority of Singapore (MAS), GIC, and Temasek Holdings. It is a significant contributor to the Singapore Government's budget. For FY2023, the NIRC is an estimated S\$23.48 billion.³

An era of continued uncertainty

In my letter last year, I highlighted the disruptions associated with persistent inflation and chronic geopolitical risks. They remain relevant today. In addition, there are two new disruptions to grapple with.

¹ Benchmark data source: Bloomberg Global Aggregate Bond Index

² Benchmark data source: MSCI ACWI Gross Total Return USD Index

³ Ministry of Finance (2023): [Overview of the Budget for Financial Year \(FY\) 2023](#)

The first is a potential structural shift to a regime of higher interest rates. With last year's quick succession of interest rate hikes and persistent inflation, we are likely to see interest rates being "higher for longer". Absent another major shock to financial markets or economic growth, we have likely left behind us the world of zero interest rates. While the resulting higher prices of capital will benefit long-term investors, the transition to a higher interest rates world will be difficult for many businesses and even countries. Those with business models reliant on very low interest rates will need to make significant, and sometimes painful, adjustments. Even their viability may be in doubt.

The second is the impact of generative AI. While AI has been around for years, the recent advent of generative AI, including large language models, raises great promise as well as hazards. Many real-world use cases are appearing, and multiple variants of open-source AI models are being released at a rapid pace. Financial markets are digesting the news, with more assets being repriced. While technology companies are the current focus, all businesses will soon need to adapt. AI has the potential for creative destruction and could also deliver productivity improvements that help keep inflation in check. It also naturally brings with it worries of threats to cyber security and societal norms. Naturally, governments are taking a deep interest in this development.

Investing through disruptions

To navigate these disruptions, GIC is guided by our core investment principles of taking a long view, diversifying our exposures and, importantly, preparing instead of predicting. In this era of continued uncertainty, making our portfolio more resilient is a key focus. We will continue to seek out investment opportunities with stable long-term returns.

Building a resilient portfolio

This era of high uncertainty started several years ago. In particular, investors have been concerned with the prospects of poor average returns and a wide range of likely returns even over the long term. Consequently, GIC embarked on an effort to strengthen our portfolio resilience. We began to integrate market (beta) with active (alpha) returns, and to take a more granular approach in adjusting our exposures.

A specific portfolio action was to raise the liquidity of our portfolio. While valuations have corrected to some degree in the past year, we remain cautious. We have also been emphasising stable income-generating assets that protect our portfolio against inflation. Finally, in response to shifts in supply chains, we have incrementally moved our capital to sectors and countries benefiting from these shifts.

Infrastructure assets

GIC has been building up our infrastructure assets as part of a long-term effort towards resilient returns. In this report, we dedicate a feature article to the unique proposition that infrastructure assets offer to the GIC Portfolio. The article explains the risk and return characteristics of these assets, as well as our investment process.

Sustainability efforts

We have also made further progress in integrating sustainability into our investment and corporate processes. Last year, we established a central Sustainability Office to raise our research and policy capabilities, and to support our investment teams in their decarbonisation trajectories. As a long-term investor, we see promising opportunities in the green transition, which we are seizing through focused teams across asset classes. In the Public Equities Department, we set up the Climate Change Opportunities Portfolio to deploy more capital towards climate mitigation and adaptation; in the Private Equity Department, we created the Sustainability Solutions Group to invest in early-stage energy transition opportunities; and in the Fixed Income & Multi Asset Department, a new Transition and Sustainable Finance Group was formed.

Strength in our people and partnerships

There have been a few leadership changes in GIC, at the Board level and in senior management.

Mr Tharman Shanmugaratnam, Deputy Chairman of GIC since 2019, resigned from the GIC Board on 7 July 2023. As Chairman of our Investment Strategies Committee since 2011, he has guided GIC through numerous international uncertainties and shifts in the economic landscape with a steady hand, sharp insights, and a steadfast commitment to long-term performance. Mr Lawrence Wong, Singapore's Deputy Prime Minister and Minister for Finance, as well as a GIC Board director, was appointed Chairman of Investment Strategies Committee effective 7 July 2023.

This year, we appointed Mr Sam Kim as Deputy Chief Operating Officer and Mr Goh Chin Kiong as Deputy Chief Investment Officer for Real Estate. These appointments will strengthen our leadership bench.

GIC can only carry out our mission with the strong commitment and capabilities of our people. We continue to invest heavily in upskilling our teams and fostering greater diversity. We are now close to our target of having 30% of our senior leadership be women.

GIC benefits greatly from our extensive network of business partners. Through many one-to-one and group collaborations, including our flagship forums such as GIC Insights, Partnership Forum, and Bridge Forum, we create significant value for our portfolio and the investment community. GIC also works to serve local communities through programmes such as GIC Sparks & Smiles and GIC's Learning Journey. Recently, we added a partnership with Ray Of Hope to launch a donation matching platform for employees to support ground-up community groups reach more disadvantaged communities.

Committed to our purpose

A world of disruptions holds many challenges but also opportunities for investors. GIC will continue to prepare for them, and stay anchored in our mandate, values, and investment principles. Most importantly, we will stay committed to our purpose of safeguarding Singapore's financial future.



Lim Chow Kiat
Chief Executive Officer, GIC

Thank You



Mr Tharman [Shanmugaratnam](#) resigned from the GIC Board on 7 July 2023 to be available for public office. He has been on the Board for over 19 years, and Deputy Chairman for the past four years. He was also the Chairman of the Investment Strategies Committee for 12 years.

Mr Tharman has been instrumental in providing strategic direction of GIC's investment policy and long-term asset allocation strategy for the reserves under management. We deeply appreciate his insights, wisdom, and contributions to GIC.



Mr [Lam Kun Kin](#) stepped down as a member of the GIC Risk Committee on 31 August 2022 after serving for six years. We thank him for his dedicated service and contributions to the deliberations on risk policy matters.

Board Committee Appointments

On 7 July 2023, we welcomed a new appointment for our board directors:

- [Mr Lawrence Wong](#) as Chairman of the Investment Strategies Committee

Senior Leadership Movements

On 1 April 2023, the following leadership appointments took effect:

- [Mr Sam Kim](#) was appointed Deputy Chief Operating Officer
- [Mr Goh Chin Kiong](#) was appointed Deputy Chief Investment Officer for Real Estate

2.0

Investment Report

GIC's mandate is to preserve and enhance the international purchasing power of the reserves placed under our management by delivering good long-term returns above global inflation.

2.2 Investment Backdrop

GIC's diversified portfolio and cautious investment stance have helped to cushion the GIC Portfolio's performance from the market correction over 2022.

2.1 Overview

Annualised Rolling 20-Year Real Rate of Return of the GIC Portfolio since 2001

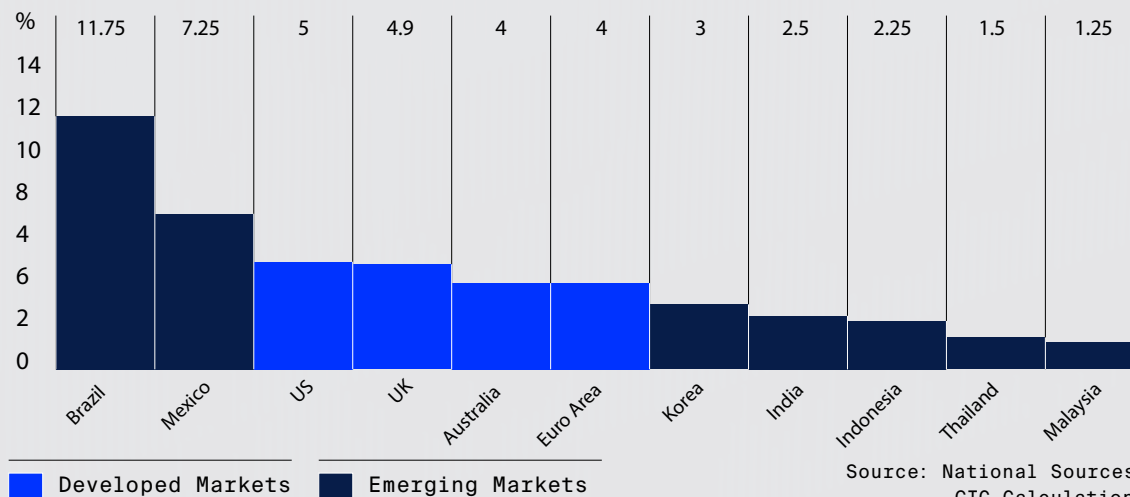
4.6%

The 20-year real return of the GIC Portfolio stands at 4.6% this year.

2.5 Investment Outlook

Hike in Policy Rates

While real yields have backed up and look more attractive, the likely ensuing impact of policy tightening has yet to fully play out.



Source: National Sources, GIC Calculations

2.1 Overview

Long-term Investment Performance

GIC's mandate is to preserve and enhance the international purchasing power of the reserves under our management over the long term. The primary metric for evaluating GIC's investment performance is the annualised rolling 20-year real rate of return.

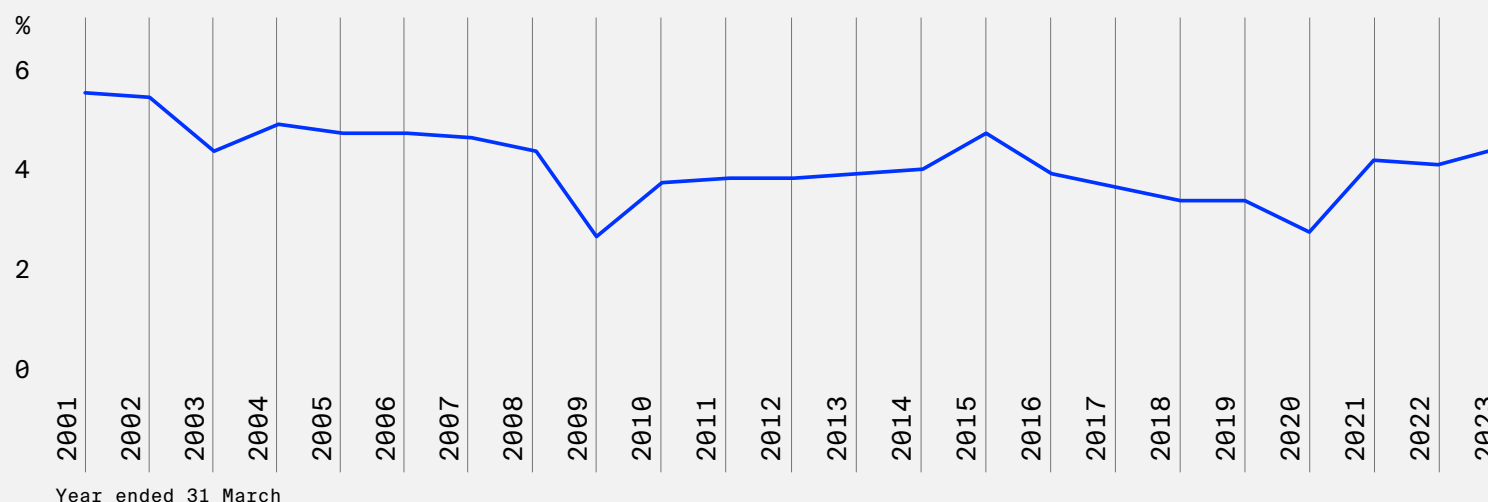
The 20-year real return of the GIC Portfolio stands at 4.6%¹ this year, 0.4% up from the

previous year. This means that over a 20-year period, on top of having protected the value of the portfolio against global inflation, the portfolio generated a return averaging 4.6% per year (see Box 1 for more detail on the mechanics behind the calculation of the rolling 20-year return).

With higher inflation, the role of generating real returns has become more critical and challenging. This is further coupled with the global economic slowdown, and heightened risks in the medium to long term (see Box 2).

¹ The annualised rolling 20-year real return of 4.6% translates to a nominal 20-year return of 6.9% in USD terms. This means that US\$1.0 million invested with GIC in 2004 would have grown to approximately US\$3.8 million today.

Figure 1. Annualised Rolling 20-Year Real Rate of Return of the GIC Portfolio since 2001



Understanding the Mechanics of the Annualised Rolling 20-Year Return (Box 1)

GIC reports our performance as an annualised 20-year real return, which is the average time-weighted portfolio return over that period. A time-weighted return² measures the fund manager's ability to generate returns as it removes the impact of cashflows into or out of the portfolio and directly attributes the performance to the investment decisions made by the portfolio manager.

The return figure is a rolling return, which means that last year's 20-year return spanned the period 2003 to 2022, while this year's 20-year return spans 2004 to 2023, and next year's return will span 2005 to 2024. For each new year added, the earliest year is dropped out of the

measurement window. The change in this rolling return figure is therefore determined by the return from the earliest year that drops out and the latest year that is added.

Even though the rolling 20-year real rate of return is intended to measure returns over the long term, it can still reflect a significant cyclical element. This is particularly evident when the cycles are very pronounced at the start or end of the 20-year window. For example, a 20-year period from 1999 to 2018 would include both the sharp rise in valuations resulting from the dot-com boom in 1999 and 2000 and the subsequent bust in 2001, whilst a 20-year period from 2001 to 2020 would be negatively affected by the large decline in asset prices from the dot-com bust in 2001.

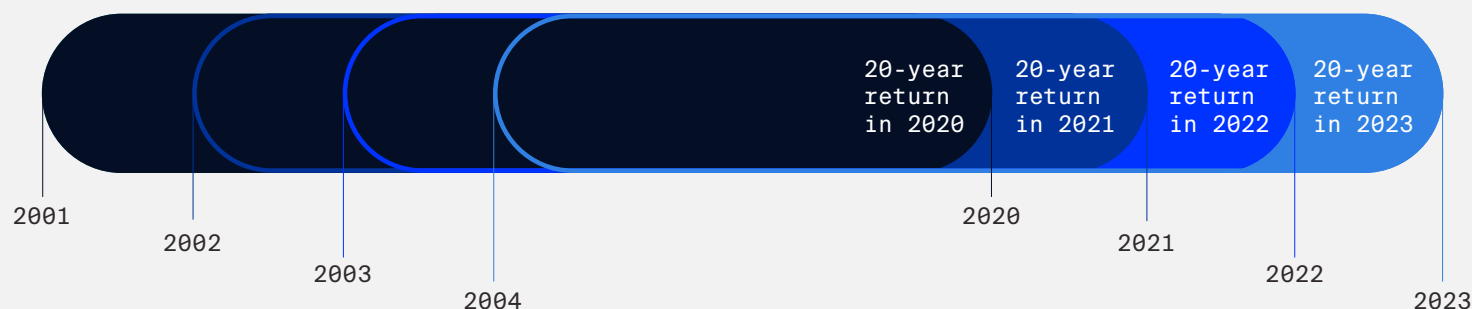
Over the long term, the GIC Portfolio's performance is largely driven by the dynamics of the global economy and our asset allocation strategy. Skill-based strategies undertaken by our active strategy investment teams seek to add returns above market benchmarks. In total, we strive to achieve good and sustainable long-term returns for the GIC Portfolio across a broad range of economic scenarios, within the risk parameters set by the Client. This is described in greater detail in the chapter 'Managing the Portfolio'.

Over the long term, the GIC Portfolio's performance is largely driven by the dynamics of the global economy and our asset allocation strategy.

2

A time-weighted return measures the total rate of return over a specific time period by compounding the returns across multiple sub-periods.

Fig 2. Illustration of a Portfolio's Rolling 20-Year Return



2.2

Investment Backdrop

2022 was a difficult year for the global economy. The pick-up in inflation from mid-2021 saw many countries record their highest inflation rates in decades. In early 2022, Russia's invasion of Ukraine further impacted global commodity prices and aggravated Covid-19 related supply shortages. The deterioration in US and China relations has also raised the spectre of serious geo-economic fragmentation.

Global central banks have been focused on restoring price stability, through an accelerated pace of monetary tightening in 2022. Both equity and bond markets have corrected in this difficult market environment. Bank failures in the US and Europe, coming after substantial corrections in the prices of unprofitable growth stocks, Special Purpose Acquisition Companies (SPACs), and crypto assets, in part reflect tighter monetary conditions and higher credit costs.

These financial sector strains raise the prospect of a significant tightening in credit conditions in the real economy and increase

downside risks to growth. They also add to the risk of financial instability, further complicating the work of policymakers. These are important reminders of pockets of vulnerability which have been built over years of low interest rates, abundant liquidity, and compressed volatility.

GIC's diversified portfolio and cautious investment stance have helped cushion the GIC Portfolio's performance from the market correction over 2022. This posture was held throughout FY2022/23, given elevated asset valuations and uncertainty arising from stagflation and geopolitical risks.

GIC's diversified portfolio and cautious investment stance have helped to cushion the GIC Portfolio's performance from the market correction over 2022.

We have kept our emphasis on being prepared for multiple scenarios, maintaining price discipline, adding optionality, and expanding our bottom-up investment activities.

2.3

The GIC Portfolio

Over the year ending March 2023, the share of nominal bonds and cash fell while that of real estate increased.

This is in line with the Policy Portfolio adopted in 2013, where we continue to gradually increase the share of private equity and real estate, aided by robust deal activity and strong asset performance.

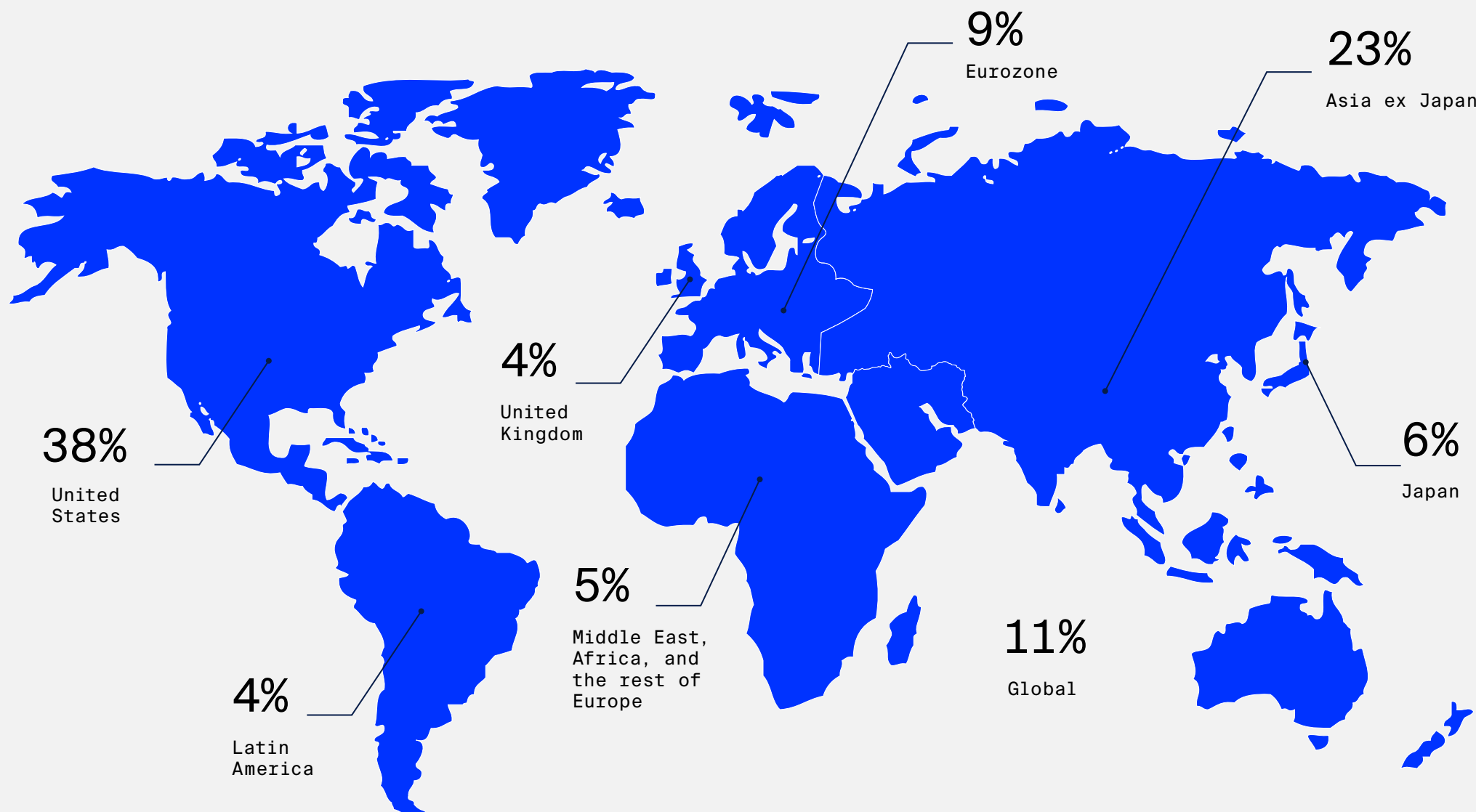
The geographical distribution of the GIC Portfolio as at 31 March 2023 is set out in Figure 3 below. This reflects the global market composition of our asset allocation strategy and bottom-up opportunities sourced by our investment teams worldwide. While we do not allocate our assets by geography, we monitor our exposures across them.

Table 1. Asset Mix of the GIC Portfolio

Asset Mix	31 March 2023 (%)	31 March 2022 (%)
Developed Market Equities	13	14
Emerging Market Equities	17	16
Nominal Bonds and Cash	34	37
Inflation-linked Bonds	6	6
Real Estate	13	10
Private Equity	17	17
Total	100	100

Figure 3. Geographic Mix of the GIC Portfolio as at 31 March 2023

Geographic mix as at 31 March 2023: United States (38%); Latin America (4%); United Kingdom (4%); Eurozone (9%); Middle East, Africa, and the rest of Europe (5%); Japan (6%); Asia ex Japan (23%); Global (11%).



2.4

Intermediate Markers of Investment Performance

While the primary metric for tracking the GIC Portfolio's investment performance is the rolling 20-year return above global inflation, we also monitor our ongoing intermediate investment performance. Table 2 shows the nominal (i.e. not adjusted for inflation) US\$ returns over 10 years and five years and the

corresponding portfolio volatility. We include 20-year nominal numbers for completeness here.³

Over the 20-, 10-, and 5-year periods, the GIC Portfolio returned 6.9%, 5.1%, and 3.7% in nominal US\$ terms respectively, in line with the broader asset markets.

The 5-year return was impacted by further slowdown in the global economy from the end of FY2021/22 into FY2022/23, despite the slight recovery towards the end of FY2022/23.

Table 2. Nominal Annualised Return and Volatility of the GIC Portfolio

(in US\$, for periods ending 31 March 2023)

GIC Portfolio

Time Period	Nominal Return ⁴	Volatility ⁵
20-Year	6.9%	8.8%
10-Year	5.1%	7.1%
5-Year	3.7%	7.9%

³ GIC's primary performance measurement metric is the rolling 20-year real rate of return, which we described earlier in this chapter.

⁴ The GIC Portfolio rates of return are computed on a time-weighted basis, net of costs and fees incurred in the management of the portfolio.

⁵ Volatility is computed using the standard deviation of the monthly returns of the GIC Portfolio over the specified time horizon.

We also monitor the performance of a Reference Portfolio which comprises 65% global equities and 35% global bonds.⁶ The Reference Portfolio is not a performance benchmark for the GIC Portfolio but represents the risk the Client is prepared for GIC to take in generating good long-term investment returns. On occasions when GIC is more risk averse than the risk profile of the Reference Portfolio, such as when market exuberance leads to heightened valuations, GIC may lower our risk exposure. Conversely, GIC may increase

our risk exposure when the opportunity arises. This is part of a disciplined and professional approach to long-term value investing. Given high valuations, weakening fundamentals, and rising market uncertainty, GIC reduced risk-taking before 2020 in markets that were assessed to be overvalued, and this posture has continued into FY2022/23.

Table 3 shows the nominal US\$ returns over 20-, 10-, and 5-year periods, and the corresponding volatility for the Reference Portfolio which acts as a risk reference

for the GIC Portfolio.⁷ Over all three time periods, and particularly over the last five years, the GIC Portfolio had lower volatility than the Reference Portfolio due to its diversified asset composition and pre-emptive measures to lower portfolio risk in recent years. Over the 5- and 10-year horizons, the GIC Portfolio has returned less mostly due to its underweight in Developed Market Equities which performed strongly during the periods.

Table 3. Nominal Annualised Return and Volatility of the Reference Portfolio

(in US\$, for periods ending 31 March 2023)

Reference Portfolio

Time Period	Nominal Return ⁸	Volatility ⁹
20-Year	7.1%	11.2%
10-Year	5.7%	10.5%
5-Year	4.4%	12.9%

⁶ The Reference Portfolio was adopted from 1 April 2013 and reflects the risk that the Government is prepared for GIC to take in its long-term investment strategies. It comprises 65% global equities and 35% global bonds. For more details, please refer to the chapter 'Managing the Portfolio'.

⁷ The figures exclude adjustments for costs that would be incurred when investing.

⁸ The Reference Portfolio rates of return are provided on a gross basis, i.e. without adjustment for costs and fees.

⁹ Volatility is computed using the standard deviation of the monthly returns of the Reference Portfolio over the specified time horizon.

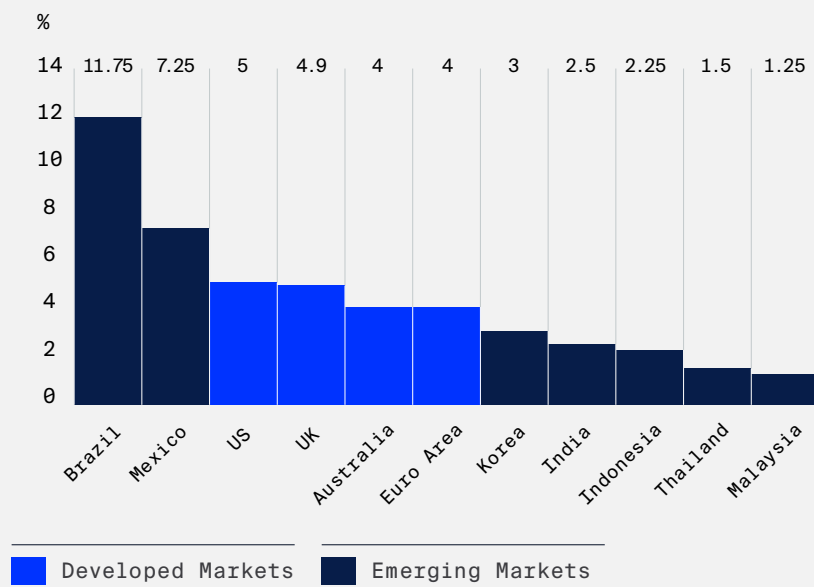
2.5

Investment Outlook

The global economy faces headwinds from tight monetary and fiscal policies (see Figures 4 and 5). Together with recent banking stress and tighter lending conditions, this has raised the risk of a recession in core advanced economies. The current services- and consumption-led recovery in China, as opposed to investment-led ones in the past, has resulted

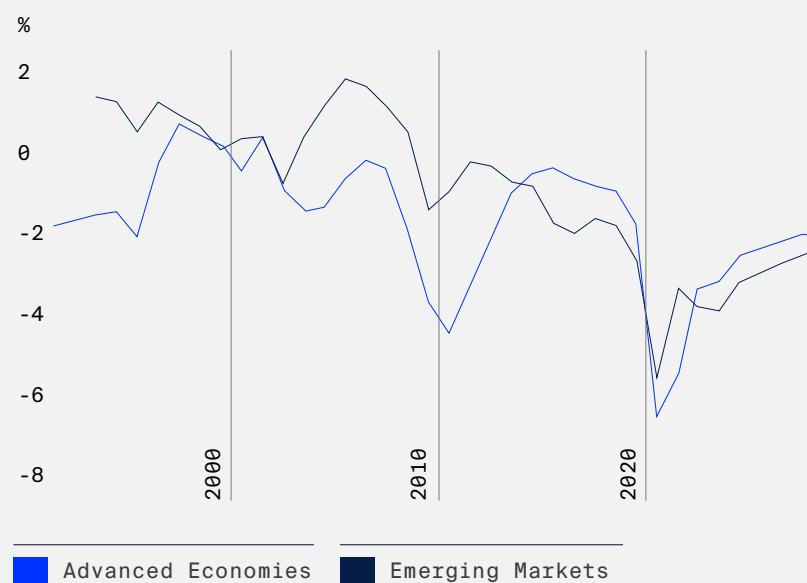
in smaller positive growth-spillovers to other economies. Global growth is therefore expected to slow in 2023 (see Figure 6). But medium-term return prospects remain low relative to history with risk-reward tilted to the downside.

Figure 4. Hike in Policy Rate from Lowest Level since 2020 to end-June 2023



Source: National Sources, GIC Calculations

Figure 5. Cyclically Adjusted Fiscal Primary Balance¹⁰ (% of Potential GDP)



Source: International Monetary Fund, GIC Calculations

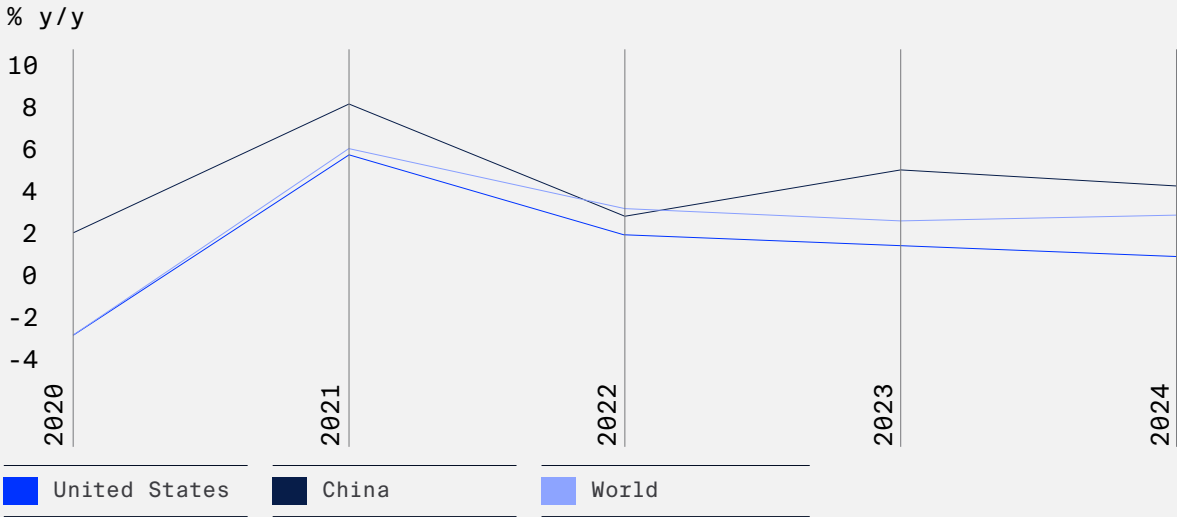
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The cyclically adjusted general government primary fiscal balance shows the underlying balance, excluding interest rate expenses, when revenues and expenditures are adjusted for the cyclical impact. It therefore better illustrates the discretionary fiscal stance. If the cyclically adjusted fiscal deficit narrows from one year to the next, it implies that fiscal policy is being tightened, and vice versa, if the deficit widens.

While headline inflation is beginning to ease (see Figure 7), underlying inflation remains sticky. The decline in headline inflation has been driven by lower commodity and goods prices plus easing supply constraints and demand. Meanwhile, core inflation has been more persistent due to second-round effects from past cost increases and tight labour markets that have kept wage growth strong. This could force central banks in core advanced economies to keep policy rates elevated for longer to bring inflation closer to target levels. Elevated policy rates mean that businesses and households face higher debt servicing costs, slowing growth.

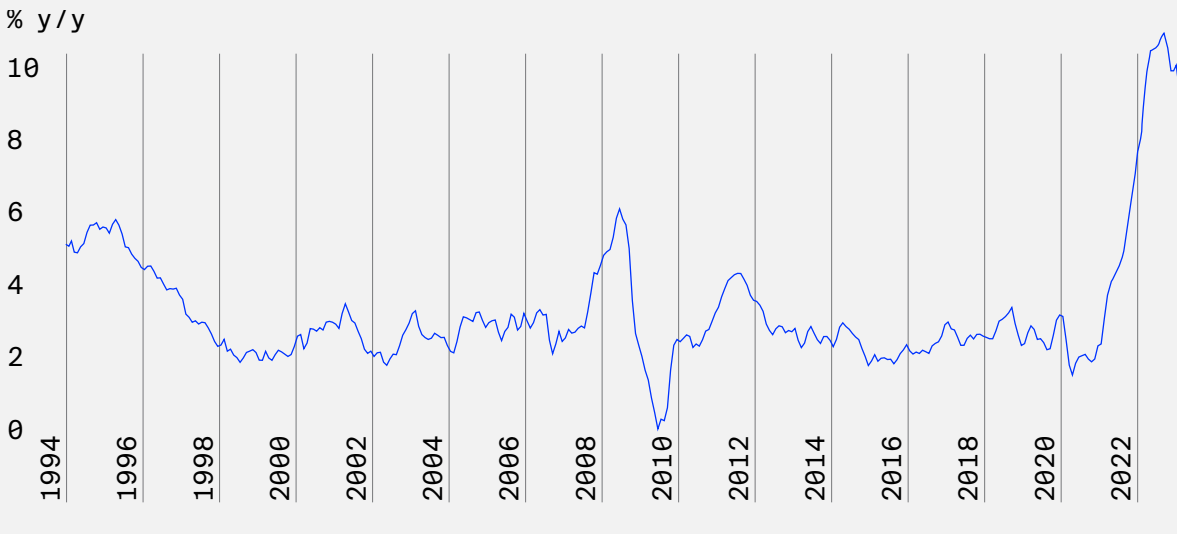
While the probability of certain tail risks has declined, there are still downside risks to our baseline global outlook. The more resilient macroeconomic data out of Europe so far this year and better relative performance of equity markets imply a reduced risk of stagflation. However, higher-than-expected inflation could still force further policy tightening in core advanced economies and a deeper recession. Persistent inflation could turn bond-equity correlations positive, meaning that bonds would not offer the same protection for an investment portfolio. More severe banking sector stress and an associated credit crunch is another downside risk. In addition, further Russia-Ukraine escalation or tension between the US and China could increase uncertainty and risk premia.

Figure 6. Real GDP Forecasts



Source: International Monetary Fund (IMF)

Figure 7. Global Inflation



Source: Macrobond, GIC Calculations

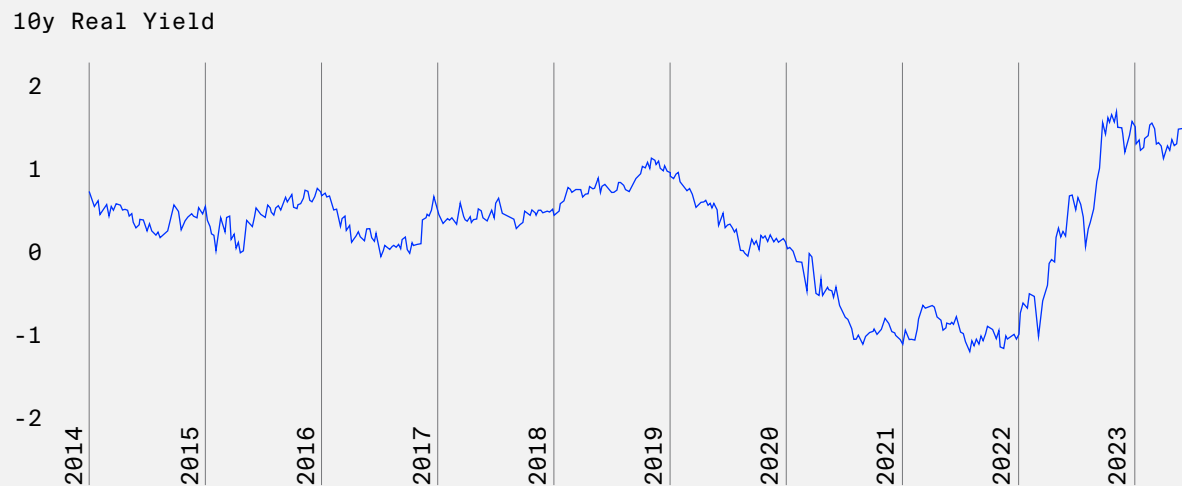
While real yields have risen and are now more attractive (see Figure 8), valuations of risk assets remain relatively high. Moreover, the weak fundamental outlook and the downside risks are not fully discounted by risk assets nor reflected in earnings expectations, especially for US equities (see Figure 9). This weighs down forward returns of risk assets, making risk-reward less compelling.

Companies and the global economy will have to adapt to new structural challenges. These include:

- i. A dimming of globalisation, weighing on growth, productivity, and development globally;
- ii. Chronically higher geopolitical risks, adding to geo-fragmentation risks;
- iii. The need for a green transition requiring significant investments; and
- iv. Prospects of persistently higher inflation due to aging, (i), and (iii).

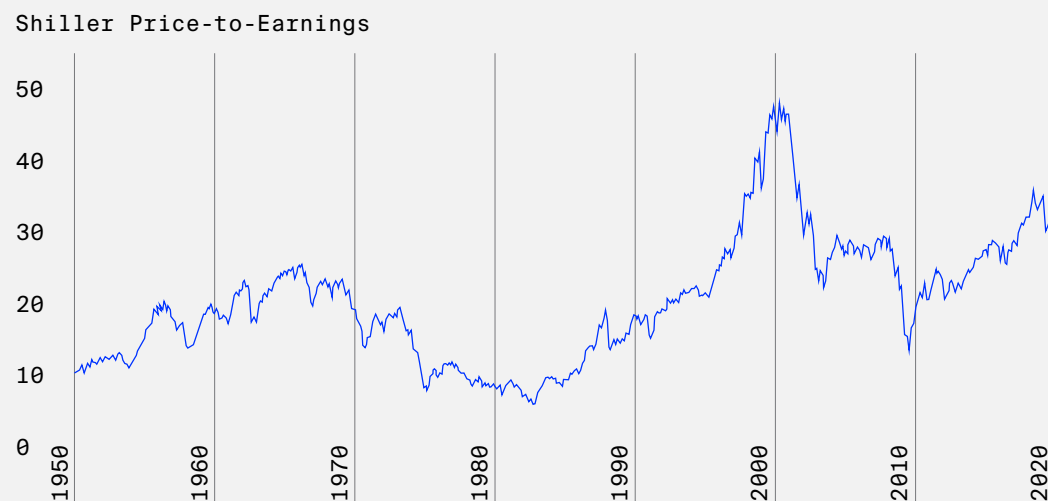
GIC's strategy in this environment will be to navigate the evolving portfolio risks, while seeking out emerging investment opportunities including those coming out of new technologies and business models (see Box 2).

Figure 8. US Real Yields



Source: U.S. Department of Treasury, GIC Calculations
Note: Weekly data based on first business day of each week

Figure 9. US Equity Valuations



Source: Robert Shiller, GIC Calculations
Note: Monthly data based on first business day of each month

Structural Challenges and Opportunities (Box 2)

While strong cyclical forces are weighing on the nearer-term global economic and market outlook, strong secular forces are shaping the structural outlook, presenting both challenges and opportunities.

Last year's report highlighted that the appetite for globalisation had reduced due to lower conviction in its benefits, great power rivalry, and need for resilience. This has in turn, led to more trade and non-trade barriers. This means less tailwinds for competition, productivity, as well as reduced trade and investment opportunities for emerging economies and less access to cheaper products from developing economies for consumers in advanced economies. Through its impact on capital flows, it is also slowing financial deepening and technological diffusion in destination countries. Open economies, including many in Asia, are most exposed to these threats. If global economic fragmentation goes too far, the economic costs will be significant. However, some countries may benefit from the supply chain realignment in terms of greater foreign investments and trade, which in turn may create investment opportunities.

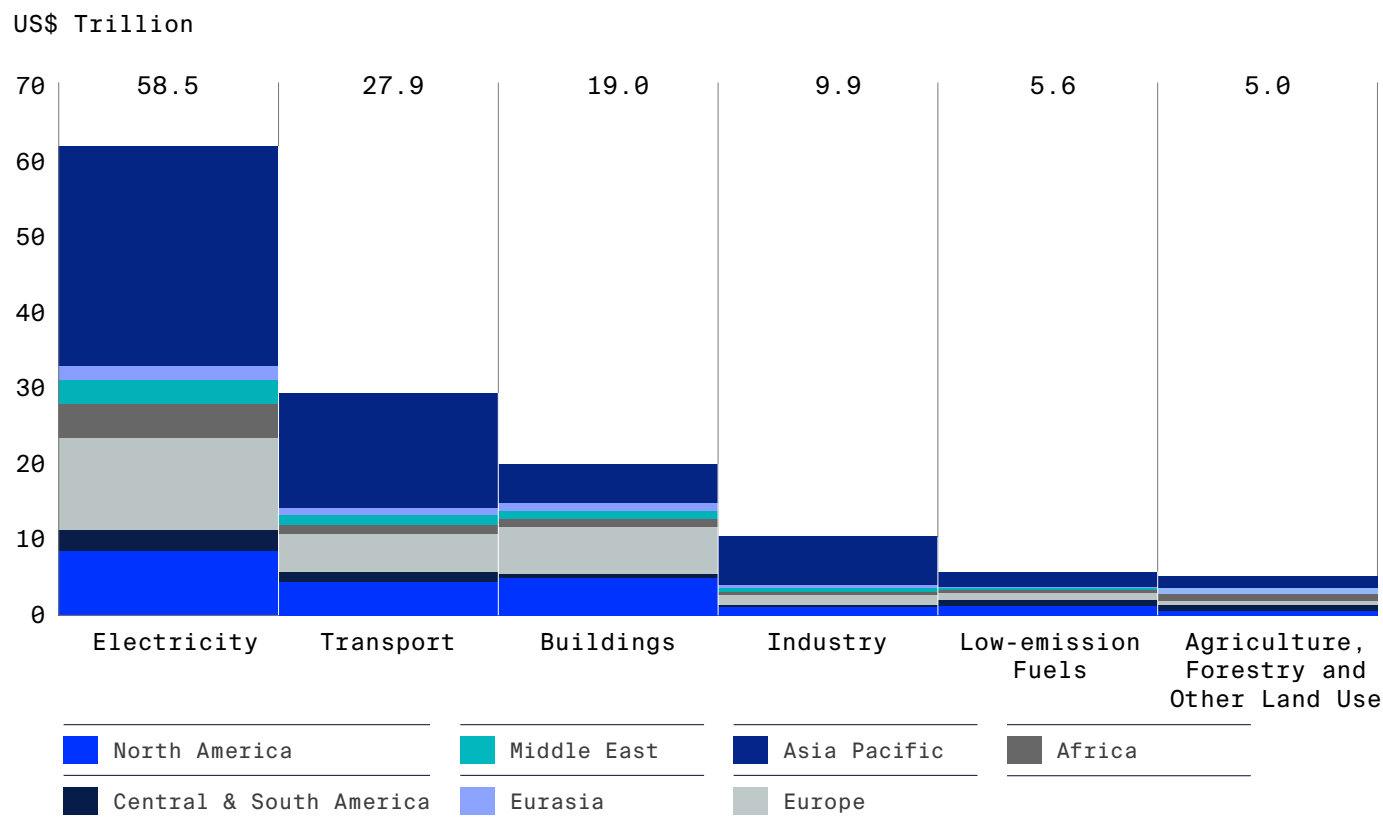
Another set of challenges and opportunities are in the green transition. Substantial investments are needed for energy and other transitions. These investments are a must-do globally, given the severe negative

climate and return consequences of a transition failure.

The role of climate finance was a focal point at COP27. Based on the International Energy

Agency (IEA)'s "Net Zero Emissions by 2050" scenario, transition in the real economy will require an additional US\$126 trillion from now until 2050, and almost half of this money is needed in

Figure 10. Investment Needs in IEA Net Zero Emissions by 2050 Scenario (2019 US\$ Trillion, aggregate for 2021-2050)



Source: Vivid Economics analysis based on IEA, Food and Land Use Coalition (FOLU), Food and Agriculture Organization of the United Nations (FAO), and Network for Greening the Financial System (NGFS) data, as published in the Institutional Investors Group on Climate Change (IIGCC) Climate Investment Roadmap report

Note: Figures exclude investments in fossil fuels.

the Asia-Pacific (see Figure 10). Capital providers for such investments could potentially earn good returns. New green technologies and transition capital are expanding opportunity sets for investors. The chapter on “Investing Sustainably” highlights some of GIC’s investments in this space.

The rapid adoption of generative AI both raises great promises and comes with potential pitfalls. On the positive side, it has the potential to boost productivity and economic growth while reducing inflation. This could partially counter some of the adverse economic effects from aging, changing globalisation, and green transition discussed in this box. Meanwhile, the impact on employment is uncertain. There will be sectoral impacts, but higher incomes could lift overall labour demand and the complementary nature of AI could benefit less-efficient workers. AI also comes with worries of threats to cyber security and proliferation of fake news. Encouragingly, governments are already engaging stakeholders and formulating solutions.

Finally, finding inflation-resilient assets is an important task as inflation could remain more persistent for a number of reasons, including:

- i. shrinking labour supply and lower savings due to aging;
- ii. inefficient factor allocation due to economic fragmentation driven by geopolitics and resistance to globalisation; and
- iii. the green transition involving (a) significant investment in renewables, (b) little or no investments in fossil fuelled energy needed for a while still, and (c) rising demand for copper and other commodities needed for the transition.

As we carefully navigate these structural forces, we will stay anchored in our mandate, values, and investing principles – diversifying, adopting a long-term approach, building optionality, pursuing bottom-up opportunities, and adding value to our investments.

3.0

Managing the Portfolio

GIC's investment strategy is to build a portfolio of asset classes and strategies that generates good long-term real returns, while adhering to the Client's (the Singapore Government) risk parameters.



3.7 Managing Risks

Operational Resilience

As a global investor, GIC is affected by significant market events that occur around the world, and is exposed to a myriad of investment and non-investment risks that arise from these events. To ensure operational resilience and our continued ability to manage the GIC Portfolio through a range of different stress scenarios arising from these market events, we have put in place appropriate policies and control processes to enhance our preparedness.

3.1

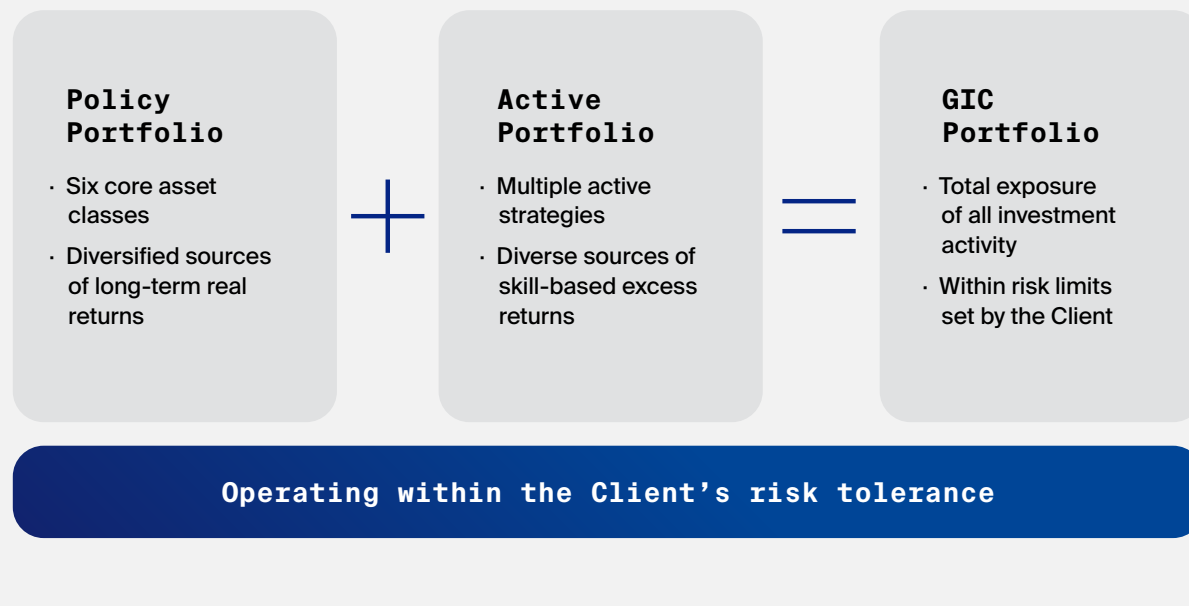
Overview

Our Portfolio and How We Manage It

Our mission is to preserve and enhance the international purchasing power of the reserves placed under our management by delivering good long-term returns above global inflation.

In 2013, we established an investment framework to guide us in an increasingly complex and challenging investment environment. This framework maximises GIC's strengths, including our long investment horizon, significant capital pool, global reach, best-in-class capabilities, and robust governance structure.

Figure 1. GIC's Investment Framework



3.2

Building the Portfolio

The Client owns the funds that GIC manages and decides on the overall risk that the GIC Portfolio can take in pursuit of good long-term returns.

GIC's investment process begins with the Policy Portfolio, which defines the key asset classes that drive the GIC Portfolio's long-term returns. The Active Portfolio aims to add value to the Policy Portfolio through skill-based active strategies, while keeping within the total portfolio's risk parameters. Together, the Policy Portfolio and Active Portfolio form the GIC Portfolio.

Policy Portfolio: Key Investment Driver

The Policy Portfolio represents GIC's long-term asset allocation strategy, which seeks to harvest risk premia in a balanced manner that is consistent with the Client's risk tolerance.

The Policy Portfolio comprises six asset classes: Developed Market Equities, Emerging Market Equities, Nominal Bonds and Cash, Inflation-linked Bonds, Private

Equity, and Real Estate. Diversification enables the Policy Portfolio to generate good, risk-adjusted returns over the long term.

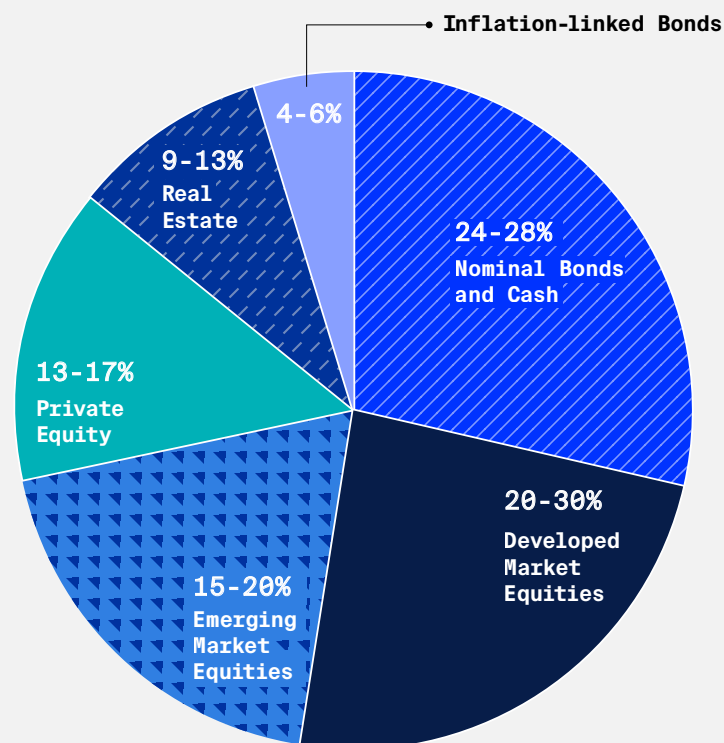
The Policy Portfolio has a long investment horizon and is generally maintained through market cycles. GIC's rebalancing process ensures we keep to the allocated ranges of asset classes in the Policy Portfolio. Rebalancing involves systematically buying assets that have decreased in price and selling assets that have increased in price to keep the asset composition in our portfolio steady over time. When an asset class such as equities does particularly well, the rebalancing rule compels us to sell. Conversely, when equities do poorly, such as after the burst of an economic bubble, rebalancing calls for us to buy. There will be rare occasions when GIC adjusts our Policy Portfolio's asset allocation temporarily in response to medium-term dislocations in the global investment environment in particular assets or in countries.

Over the past few years, we have been

increasing our allocation to private equity given the favourable risk-reward profile of the asset class, as well as improved internal capabilities in sourcing deals and adding value to our investee companies arising

from our long investment track record. The cumulative shifts have resulted in an increase in the target range for the asset class in our Policy Portfolio.

Figure 2. Asset Class Distribution in the Policy Portfolio



Active Portfolio: Skill-Based Strategies

The Active Portfolio comprises a group of investment strategies that adds value to the Policy Portfolio from our teams' skills and competitive advantages, while broadly maintaining the same level of systematic risk.

Each active strategy is funded by the sale of a Policy Portfolio asset class or combination of asset classes with a similar overall risk profile. This funding is the cost of capital for the active strategy, over which the strategy is required to generate additional returns. For example, active strategies designed to outperform public equities are funded from passive public equity holdings in the Policy Portfolio. This way, passive investments in the Policy Portfolio are replaced by an active strategy with the potential for greater returns without increasing the systematic risk of the portfolio. One example of an active strategy is infrastructure.

The GIC Board sets an active risk budget that the GIC Management can use for its active strategies. These strategies are stress-tested so we can understand and quantify their performance under various extreme but plausible market conditions, including macroeconomic and geopolitical events. The active risk budget establishes the total level of risk for the Active Portfolio. For example, marketable alternatives or hedge funds typically invest in liquid markets and vary their market exposures via a

combination of long and short positions, depending on market conditions. The risk and return profile of this strategy is similar to a combination of Developed Market Equities as well as Nominal Bonds and Cash, and will be funded by these asset classes.

GIC Portfolio

Through the Policy Portfolio and Active Portfolio, the GIC Portfolio is diversified across asset classes and strategies, each with a different risk and return profile. Growth assets and strategies, such as

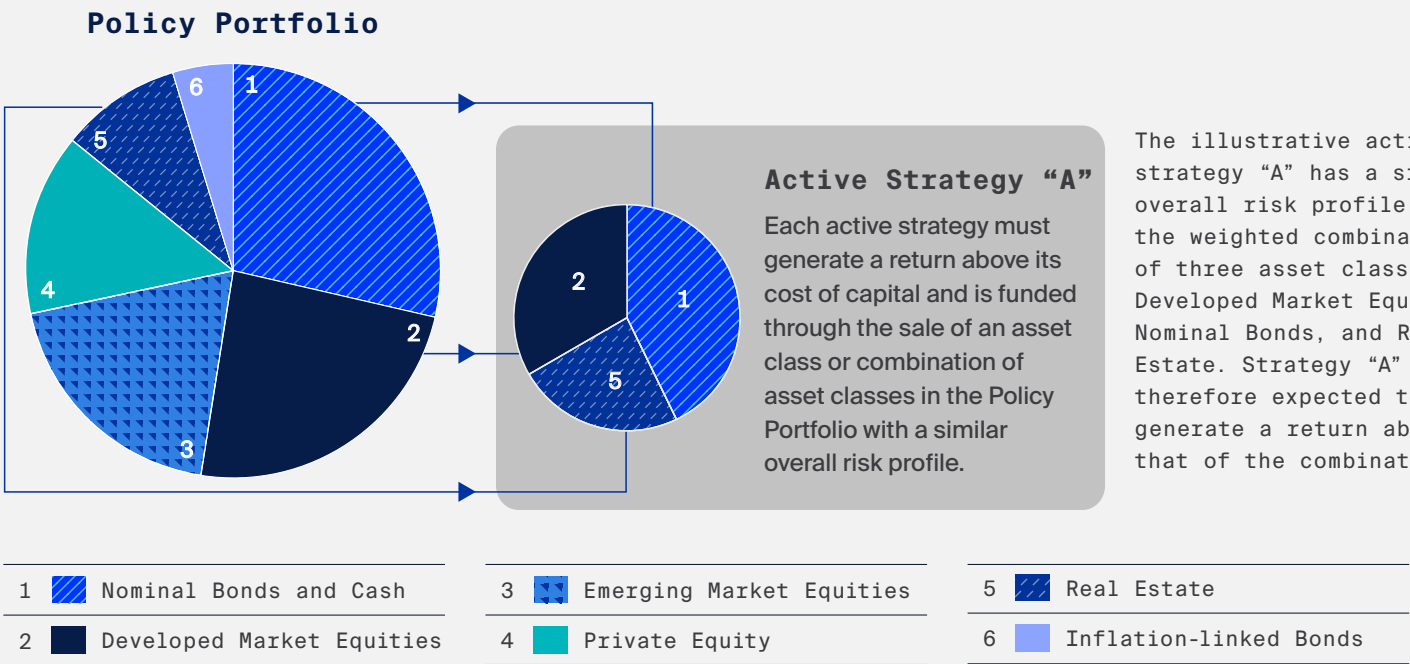
equities, generate higher returns, but are riskier. Defensive assets and strategies, such as sovereign bonds, offer lower returns for lower risk and protect the portfolio in market downturns. We optimise and allocate across asset classes and strategies using a holistic total portfolio perspective.

The GIC Portfolio is constructed to be resilient across a broad range of possible market and economic conditions, while generating good returns above global inflation in the long term.

Principles of Portfolio Construction

At GIC, portfolios are constructed to give them the best chances of achieving their intended purposes over appropriate horizons and within appropriate risk limits. For the GIC Portfolio as a whole, this means achieving good long-term risk-adjusted returns over 20 years while limiting potential downside over the shorter term.

Figure 3. Construction of an Active Strategy from the Policy Portfolio



The illustrative active strategy "A" has a similar overall risk profile as the weighted combination of three asset classes - Developed Market Equities, Nominal Bonds, and Real Estate. Strategy "A" is therefore expected to generate a return above that of the combination.

We take a structured and diversified approach to seeking investment opportunities. This approach to portfolio construction is founded on the following principles that define the fundamental basis upon which we allocate capital:

1. **Playing to one's strengths** – We allocate to active strategies within the GIC Portfolio according to our investment capabilities. This means putting more capital into areas where we think GIC has better access to market opportunities, better understanding and ability to structure and manage the investments, and greater confidence that our investment theses will play out.
2. **Focusing on fundamental value** – Our investing approach is underpinned by our philosophy to distinguish price from value. In the short term, an asset's price is driven largely by market sentiment, while its value lies in its fundamental worth. Anchored by this perspective, we appraise value diligently and adhere to price discipline, even when it sometimes means going against prevailing market sentiment. To determine where fundamental value lies, we use both top-down and bottom-up analyses to identify and assess drivers of long-term value.
3. **Portfolio diversification** – This starts with a clear understanding of the real underlying risks of each investment in various scenarios. We then put together

different combinations of investments in various amounts and stress-test their overall risk. Finally, we choose the portfolio combination that abides by our risk limits even in bad scenarios and gives us the best prospective return. Such a portfolio will invariably be diversified to a large extent, taking advantage of the fact that risks are not perfectly correlated and therefore work best in combination rather than in concentration.

4. **Disciplined and judicious portfolio management** – It is important to ensure that ongoing management of investment portfolios is disciplined and based on good analysis and judgment. The GIC Portfolio is rebalanced regularly to preserve the intended asset class mix. Actively managed portfolios are reviewed regularly in light of changing market conditions and developments in our active management capabilities.

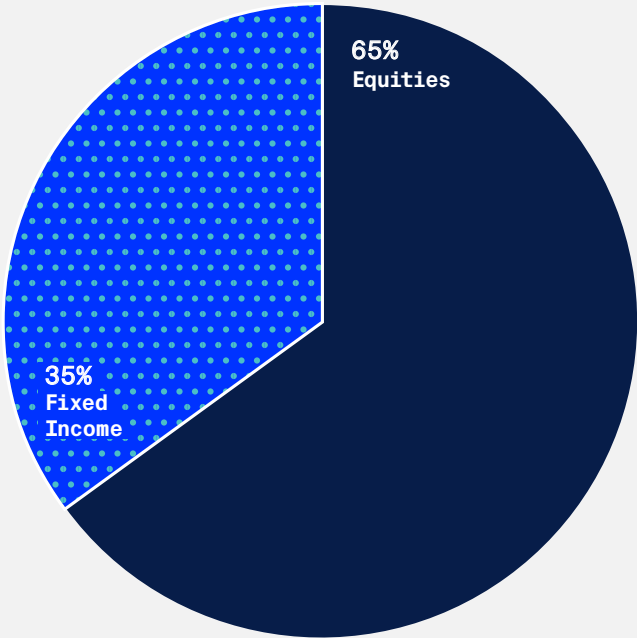
Operating Within the Client's Risk Tolerance

GIC's client has characterised its risk preference using a portfolio of 65% global equities and 35% global bonds ("65-35"). We refer to this as the Reference Portfolio. The Reference Portfolio is not a benchmark, but an expression of the overall risk that the Client is prepared for the GIC Portfolio to take.

GIC's investment strategy is to build a portfolio comprising asset classes that can generate good long-term returns above global inflation while adhering to the Client's risk parameters. There will be differences in exposures and the level of risk between the GIC Portfolio and the Reference Portfolio. GIC allocates to a better diversified range of assets beyond just equities and bonds. We may also adjust our level of risk in times of market exuberance or when significant opportunities arise. This is all part of a disciplined, professional approach to long-term investing.

Figure 4. Distribution of Asset Classes in the Reference Portfolio that Characterises the Client's Risk Preference

Reference Portfolio



Governance of the Investment Framework

The investment framework encapsulates the various long-term risk and return drivers for GIC. It also clarifies the responsibilities of the GIC Board and Management. The Reference Portfolio characterises the Client’s risk appetite, while the GIC Board approves the Policy Portfolio that is designed to deliver good long-term returns. The GIC Management is empowered to add value within the Client’s risk tolerance through the Active Portfolio which comprises active, skill-based strategies.

The Investment Board provides an independent layer of oversight on GIC’s active investment management and process. Investment Board members come from the private sector and are not necessarily on the GIC Board. Together, they offer extensive experience in various types of investments across geographies. The Investment Board ensures that GIC invests in a sound and disciplined manner. It also ensures that GIC considers potential reputational risks arising from investment activities.

The table below summarises the governance of the investment framework:

Responsibility	
GIC Board	<ul style="list-style-type: none">• Approves the Policy Portfolio and active risk budget.
Investment Strategies Committee	<ul style="list-style-type: none">• Reviews GIC Management’s recommendations on the Policy Portfolio and active risk budget.
Investment Board	<ul style="list-style-type: none">• Oversees GIC’s active strategies and large investments.• Ensures GIC does not incur undue reputational risk in pursuit of returns.
Risk Committee	<ul style="list-style-type: none">• Advises the GIC Board on risk matters.• Sets the overall direction of risk management policies and practices in GIC.• Reviews significant risk issues arising from GIC’s operations and investments.
GIC Management	<ul style="list-style-type: none">• Designs and recommends the Policy Portfolio.• Adds value by constructing and managing the Active Portfolio within the Client’s risk tolerance and GIC’s mandate.
Investment Teams	<ul style="list-style-type: none">• Implement the Policy Portfolio and active strategies.

3.3 Investment Implementation

At GIC, long-term portfolio construction and asset allocation are determined top-down by the Economics & Investment Strategy Department, while individual investment opportunities are pursued by the bottom-up investment teams. Our core bottom-up investment groups are Public Equities, Fixed Income & Multi Asset, Private Equity, Real Estate, and Infrastructure. In addition, our Integrated Strategies Group evaluates and invests across public and private asset markets. Our External Managers Department oversees external fund managers who supplement the expertise of our core internal investment groups, while the Portfolio Execution Group and Investment Services teams further support the implementation of investment decisions.

We are open to investing in all countries outside of Singapore, but do not invest in countries that are subject to United Nations Security Council sanctions. We monitor our investee companies and exercise ownership rights, with the intent of preserving and enhancing long-term investment value and protecting the interests of the Client.

Table 1. Teams Involved in GIC's Investment Implementation Process



Economics & Investment Strategy

The Economics & Investment Strategy Department articulates GIC's strategic outlook, determines asset exposures and benchmarks, analyses and implements new return streams and investment models, and optimises the risk-reward of the GIC Portfolio. The Department is responsible for GIC's long-term Policy Portfolio and medium-term asset allocation, as well as capital allocation to internal active strategies.

Total Portfolio Solutions

The Total Portfolio Solutions Department optimises the performance of the GIC Portfolio by creating, executing, and managing top-down cross-asset investment strategies. The department is also responsible for optimising and implementing the rebalancing of the GIC Portfolio.

Investment Groups in Public and Private Markets

GIC invests in both public and private markets. In public markets, we invest in public equities in both developed and emerging markets, absolute return strategies (hedge funds), fixed income, and cash. We manage a diversified portfolio to produce good, risk-adjusted performance. In private markets, we invest in opportunities that have the potential to generate high long-term real returns and the ability to diversify the portfolio. Real estate and infrastructure

assets, in particular, also serve as a hedge against inflation.

Public Equities

Our equity investing effort is carried out by a team of in-house research analysts and portfolio managers. The team is organised by regions (Developed Markets, Emerging Markets, Asia) and by product groups specialising in total return, relative return, and quantitative strategies. The team conducts in-depth due diligence and research to identify businesses with the potential to generate good long-term returns.

Fixed Income & Multi Asset

The Fixed Income & Multi Asset Department is broadly organised along three areas: Global Macro, Multi-asset Credit, and Cross-asset Systematic investing. We invest across the entire fixed income spectrum which includes government bonds, emerging market bonds, corporate bonds and loans, convertible bonds, hybrid securities, securitised products, structured credit, and global currencies. Our multi-asset strategies also include multi-asset macro, alternative credit, and systematic investing.

Portfolio Execution

The Portfolio Execution Group seeks to deliver top-tier trade execution, manage total portfolio liquidity and

enhance asset utilisation. Our role encompasses trading, implementation research, total portfolio rebalancing, liquidity management, equity beta replication, and securities finance. Our trading teams operate around the clock to execute investment decisions for all public market asset classes. The department further ensures that all portfolios are funded and hedged, while generating value-add by capitalising on funding market opportunities and extracting value from GIC's balance sheet. We leverage market and microstructure insights generated by in-house research to ensure optimal trading, portfolio implementation, and rebalancing strategies.

Private Equity

Our private equity universe includes buyouts, minority growth, pre-IPOs, venture capital, private credit, and special situations such as distressed debt, and secondary private equity. We invest in companies directly and through funds. The direct investment programme is focused on taking minority equity positions and providing junior and senior debt financing in buyouts. Our funds strategy aims to identify and invest with leading private equity, venture capital, private credit, and special situations funds globally and grow with them in the long run. We have built up a network of over 100

active fund managers. The investment teams add value to the boards and management of the investee companies by providing advice and access to a global business network.

Infrastructure

Our Infrastructure Department takes a multi-pronged approach to investing. We invest mainly in private infrastructure assets with a high degree of cash flow visibility and which provide a hedge against inflation. These include mature, low- to moderate-risk assets in developed markets, complemented by investments with higher growth potential in emerging markets. We also invest in infrastructure funds, non-investment grade infrastructure debt, and structured investments in listed infrastructure companies. We have a dedicated asset management team which works alongside our investment professionals and industry experts to monitor and enhance the governance and operations of our portfolio companies.

Real Estate

GIC was an early entrant among institutional investors in real estate. Our investments in the space now include traditional private real estate (brick-and-mortar assets), public equities, real estate investment trusts, and real estate-related debt

instruments. Our real estate assets span multiple property sectors, including traditional office, retail, residential, industrial, and hospitality and newer economy sectors such as data centres, life sciences, and healthcare properties.

Through active asset management, GIC can further generate income and enhance the market value of its assets through tenant management, market positioning, leasing, and capital improvements.

Integrated Strategies

Our Integrated Strategies Group invests across public and private asset markets and in less conventional investment opportunities, develops thematic investment strategies, and actively expands GIC's network of relationships beyond traditional domains. Our team has developed strong relationships and invests with family offices, family-owned businesses/entrepreneurs, corporates, and individuals with specific expertise (fund-less sponsors). We also invest with differentiated fund managers. We provide bespoke solutions to our partners for various uses including growth capital, M&A financing, shareholding restructuring, etc. With a flexible investment mandate, we can invest across the capital structure and hence find the right investment structure for our partners.

External Fund Managers

GIC engages external fund managers to access investment capabilities and opportunities in various sectors and geographies. External managers enable GIC to gain exposure across public and private markets. They also provide us with valuable investment insights.

Technology Investments

GIC has been investing in the technology space for more than 40 years. Our long-term orientation and flexible capital allow us to invest in all stages of the financing lifecycle, including venture, growth, and IPO/public equity. Our multi-asset experience and global footprint provides ground-level insights enabling us to invest directly, alongside co-investors and through funds. Our broad exposure enables us to curate purposeful connections between our partners for meaningful value creation. Our Technology Business Group comprises specialists from different asset classes and regions. It assesses industry trends and recommends GIC's overall technology portfolio size, composition, and partnership strategy. Our Technology Investment Group handles most of our early-stage investments through venture capital funds, growth equity funds, co-investments, and direct investments. We also have sector specialists for public and private market investments.

Investment Services

GIC has dedicated investment services departments that support public and private market investment activities. They provide support for deal closing, investment and data operations, investment reporting, management reporting, portfolio accounting, valuation, and financing.

Technology and Data

Our data strategy and investment insights groups work with our investment teams to leverage data and analytics, including those based on machine learning and artificial intelligence, to enhance our investment decisions and processes. This has meant increasing the ingestion, analysis, and combination of data across all industries and asset classes. Such efforts allow GIC to harness the growing complexity and power of technology and data to respond to emergent scenarios and deal opportunities in an agile manner.

3.4

Managing Risks

Investing involves prudent risk-taking. Identifying and managing risk is therefore a core responsibility of every GIC employee. Each employee has individual accountability and clearly defined responsibilities within our risk management framework.

This ensures that risks taken are in line with the risk tolerance set by the Client.

GIC's risk management objectives are to protect the Client's interests and avoid permanent impairment to the Portfolio.

The objectives ensure that:

1. The investment strategies pursued are in line with the Client's long-term real return objective and risk tolerance;
2. The risks associated with each investment are well-understood;
3. Policies, guidelines, and control processes are in place to reduce the likelihood of significant losses to the assets under management; and

4. Any reputational impact to the Client and GIC due to our actions is carefully managed.

Risk Governance

The GIC Board provides ultimate risk oversight. The Board approves the Policy Portfolio, which is constructed with the Client's long-term real return objective and risk tolerance in mind. Deviation of asset allocation exposure from policy benchmarks is constrained by a set of operating bands around the Policy Portfolio's target weights. In addition, the GIC Board sets an active risk budget to limit the risk arising from the deviation of the Active Portfolio from the Policy Portfolio. The GIC Board is supported by the Board Risk Committee, which advises the Board on risk matters. The Board Risk Committee sets the overall direction of risk

management policies and practices in GIC. In addition, it reviews significant risk issues arising from GIC's operations and investments.

The Group Executive Committee is the highest management body in GIC. It deliberates on investment and risk issues before they are submitted to relevant board committees. It is also the forum that assesses and makes determinations on fiduciary risk and reputational risk issues.

The Chief Risk Officer (CRO) is a member of the Group Executive Committee and reports to the Chief Executive Officer (CEO) and the Chairman of the Board Risk Committee. The CRO is accountable to the Board of Directors, primarily through the Board Risk Committee, on all risk-related matters.

The CRO chairs the Group Risk Committee that is vested with the responsibility to oversee implementation of risk policies and review significant risk issues from investments and operations, as well as ensure the resolution of these issues.

Three Lines of Defence

GIC's risk management model operates along three lines of defence, which ensures that there is clarity and transparency in risk ownership and accountability:

1. The First Line: Operating Units

People are the cornerstone of any risk management system. All GIC employees are expected to act with integrity and exercise sound judgement; they need to understand, evaluate, and carefully manage the risks they take. All operating units own and are primarily accountable for the risks inherent in their activities. They are responsible for ensuring that an appropriate risk-and-control environment and robust processes are in place as part of their day-to-day operations. Our risk assessments are forward-looking and form an important element of our long-term approach. We consider a broad spectrum of risks with potential long-term impact, including sustainability risks, and risks from activities managed by appointed agents.

2. The Second Line: Risk Management and Control Functions

Risk management and control functions independent of the risk-taking business units are the second line of defence. They provide appropriate day-to-day risk

oversight and control. These functions include risk management, legal and compliance, information and technology risk management, reputational risk management, and tax and finance. While they each have their defined set of responsibilities, they also work collectively to provide the requisite checks and balances to the risk-taking activities of GIC's investment groups.

3. The Third Line: Internal Audit

Our Internal Audit Department (IAD) forms the third line of defence. IAD provides independent assessment and assurance on the adequacy and effectiveness of our internal risk management controls. It reports functionally to the Chairperson of the Audit Committee, and administratively to the CEO.

Risk Management Approach

Our approach to risk management is multi-pronged to address the different types of risk faced by GIC:

- I. Managing portfolio investment risk to ensure that any risk taken is consistent with our mandate and commensurate with expected returns;
- II. Managing legal, regulatory, and compliance risks to safeguard the reputation and interests of the Client and GIC, and to comply with applicable laws and regulations;
- III. Managing tax risk to ensure compliance with the tax laws of applicable jurisdictions;
- IV. Managing operational risk through an effective system of internal controls

and processes to support GIC's operations;

- V. Managing cyber security, technology, and information risk to ensure that our technology resources and information are well-protected;
- VI. Managing counterparty credit risk to minimise the impact to GIC if any counterparties were to default;
- VII. Managing reputational risk;
- VIII. Managing business disruption risk; and
- IX. Managing people risk.

This multi-pronged approach to risk management, complemented by the three lines of defence, ensures that risks within the portfolio are looked at in a comprehensive manner. While risks remain, they are well-identified and managed within an established risk tolerance.

Figure 5. Three Levels of Risk Management



Operational Resilience

As a global investor, GIC is affected by significant market events that occur around the world and is exposed to a myriad of investment and non-investment risks that arise from these events.

To ensure operational resilience and our continued ability to manage the portfolio through a range of different stress scenarios arising from these market events, we have put in place appropriate policies and control processes to enhance our preparedness. GIC conducts scenario planning on a regular basis to identify potential enterprise risk events that can negatively impact the portfolio. The potential portfolio and operational impact of these events are evaluated through different stress tests and bottom-up assessments. For scenarios with potentially significant operational impact to GIC, operating manuals and contingency plans have been established to guide departments on the appropriate actions, laying out clear roles and responsibilities. To assess the robustness of these plans, cross-departmental table-top exercises are carried out regularly. During these exercises, dedicated workgroups, comprising representatives from relevant departments, will test the rigour

of these plans to identify any gaps or areas of improvement.

In the past year, the Russian invasion of Ukraine and subsequent war tested GIC's operational capabilities and preparedness. The range, complexity, and extent of sanctions applied, and operational challenges encountered were difficult to predict and constantly changing.

To safeguard our investments, each GIC employee had to be vigilant, agile, and remain steadfast to GIC's mission, in order to navigate the complexities and challenges. Preparatory work before the war, such as the mandatory e-learning course on sanctions compliance and the table-top exercise on the impact of sanctions, proved to be invaluable. These preparations allowed us to achieve a high level of collaboration across various departments amidst the volatile and evolving situation.

Recent US bank failures and stresses in the European banking systems have also put our operational readiness to the test and affirmed GIC's prudent approach in managing counterparty risks. Banks that were vulnerable to potential contagion were identified and precautionary actions were taken. Cyber security surveillance was also stepped up in the uncertain environment to prevent rogue actors from taking advantage of the many rerouted payment and

settlement instructions that ensued.

We recognise that it is not possible to predict the full range of scenarios that may arise in a crisis. Nonetheless, we remain fully vigilant in monitoring the external environment for potential events and preparing our appropriate contingency measures. We will continue to sharpen our ability to respond to and manage the portfolio through such events in a prudent manner, in order to deliver the best possible outcome for our Client.

To safeguard our investments, each GIC employee had to be vigilant, agile, and remain steadfast to GIC's mission, in order to navigate the complexities and challenges.

Managing Portfolio Investment Risk

Policies, guidelines, and processes are established to ensure consistency and clarity across the firm, while reducing the likelihood of significant unexpected losses to the assets under management. The policies and guidelines translate our investment mandate and risk management principles into standards that guide our day-to-day activities. For example, the group-wide investment approval framework sets out the approving authorities for investments based on size. Another example is the cost-of-capital framework which determines an appropriate performance hurdle for each active strategy that includes the cost of funding these strategies and a premium for additional risk undertaken. We identify, measure, report, and monitor all the risks that are assumed. GIC employs a suite of measures including volatility, risk concentrations, sensitivities to risk factors, liquidity profile, and expected shortfall to identify and analyse the risks in the portfolio from both top-down and bottom-up perspectives. Each measure is designed to highlight a specific aspect of the portfolio that could lead to an undesirable outcome. These statistical measures are supplemented by a set of stress tests and scenario analyses. Reverse stress tests further help to identify otherwise undetected risks that could lead to large or sustained drawdowns. The risk management function sets and monitors performance and risk review thresholds independently to highlight

potential changes in risk-taking behaviour and inconsistencies with the stated risk and return assumptions.

Managing Legal, Regulatory, and Compliance Risks

Legal and regulatory risks relate to uncertainties in the interpretation and application of laws and regulations, the enforcement of rights or the management of potential litigation, and breaches in contracts, laws, or regulations. Compliance risk refers to the risk of legal or regulatory sanctions, financial penalty, or reputational damage arising from non-compliance with applicable laws and regulations.

GIC's compliance programme comprises robust policies, procedures, effective controls, monitoring, surveillance, and the enforcement of disciplinary actions against violations or misconduct. The implementation of a rigorous compliance programme is underpinned by a strong culture of ethics, risk management, and compliance. All staff are required to observe the policies and procedures set out in GIC's Compliance Manual (incorporating the Code of Ethics), comply with all applicable laws and regulations, uphold exemplary conduct and the highest ethical standards, and act with integrity at all times. Regular and targeted in-person and online training is conducted, and an annual Compliance and Risk Refresher Training and Quiz is administered to reinforce awareness and

understanding of key compliance and corporate policies and strengthen GIC's risk and compliance culture. The compliance programme also requires that all staff adhere to their confidentiality obligations and responsibilities.

The investment and operations teams collaborate with the legal and compliance function to manage legal, regulatory, compliance, and reputational risks arising from the group's investment and operational activities. The legal and compliance function monitors compliance with applicable laws and regulations, including but not limited to laws on securities trading and investment, competition law requirements, financial crimes and sanctions compliance, licensing, and regulatory approvals and reporting. We expect our investee companies to comply with all applicable laws and regulations and apply strong corporate governance and stakeholder engagement practices. Emerging legal and regulatory issues and proposed regulatory changes are also closely monitored. Additionally, the in-house legal team works with external lawyers to address legal risks.

Managing Tax Risk

GIC's Tax Governance Framework underscores our commitment to be compliant with the tax laws, rules, regulations, and obligations set by the respective governments of the jurisdictions in which we invest and operate in. We ensure

that tax-related decisions are handled with professional skill, care, diligence and with the relevant documentation that evidences the facts, considerations, and decisions taken. We seek written advice, opinion, or confirmation from independent external professional expertise, where appropriate, to substantiate our tax positions. Our tax positions and obligations are clearly represented in line with applicable tax laws and regulations. We also engage with tax authorities in an open, constructive, and professional manner.

Managing Operational Risk

All investment and operations staff are required to identify, evaluate, manage, and report risks in their own areas of responsibility and to comply with established risk policies, guidelines, limits, and procedures. For example, new investment products or strategies are subject to a risk identification and assessment process conducted by a cross-functional group. This ensures that all risks associated with the new product or activity are identified and analysed prior to investment or engagement. We must be satisfied that the required people and infrastructure, including systems, risk modelling, procedures, and controls, are in place to manage these risks before the investment is permitted. We continuously assess the control environment to ensure that any control weakness is promptly identified and addressed. Policies and procedures are established

to safeguard the physical security and integrity of GIC's technology and data assets. Throughout the year, internal and external auditors scrutinise all operations and business processes. Any deficiencies identified must be addressed within set time frames and reported to senior management.

Managing Cyber Security, Technology, and Information Risk

As GIC adopts advanced information technologies (IT), we recognise the importance of having strong cyber security defences and robust internal controls for our operating environment. A dedicated team of cyber security and IT risk management professionals maintains our cyber defence capabilities, as well as oversees technology operations and the use of IT across the organisation. With the evolution of our business and the IT landscape, we continue to invest in people, processes, and tools to protect GIC's technology resources and information. GIC also engages independent external professional expertise to augment internal resources where applicable.

Managing Counterparty Credit Risk

GIC adopts a strong control orientation in managing counterparty credit risk, trading only with financially sound and reputable counterparties. A stringent selection and approval process is in place to appoint counterparties. We review the counterparties and monitor our counterparty

exposure against set limits. Counterparty profiles are regularly reported to senior management. Other measures to mitigate credit risk include using netting agreements and programmes requiring counterparties to pledge collateral.

Managing Reputational Risk

Managing reputational risk is part of GIC's overall risk management framework. Our governance and investment processes

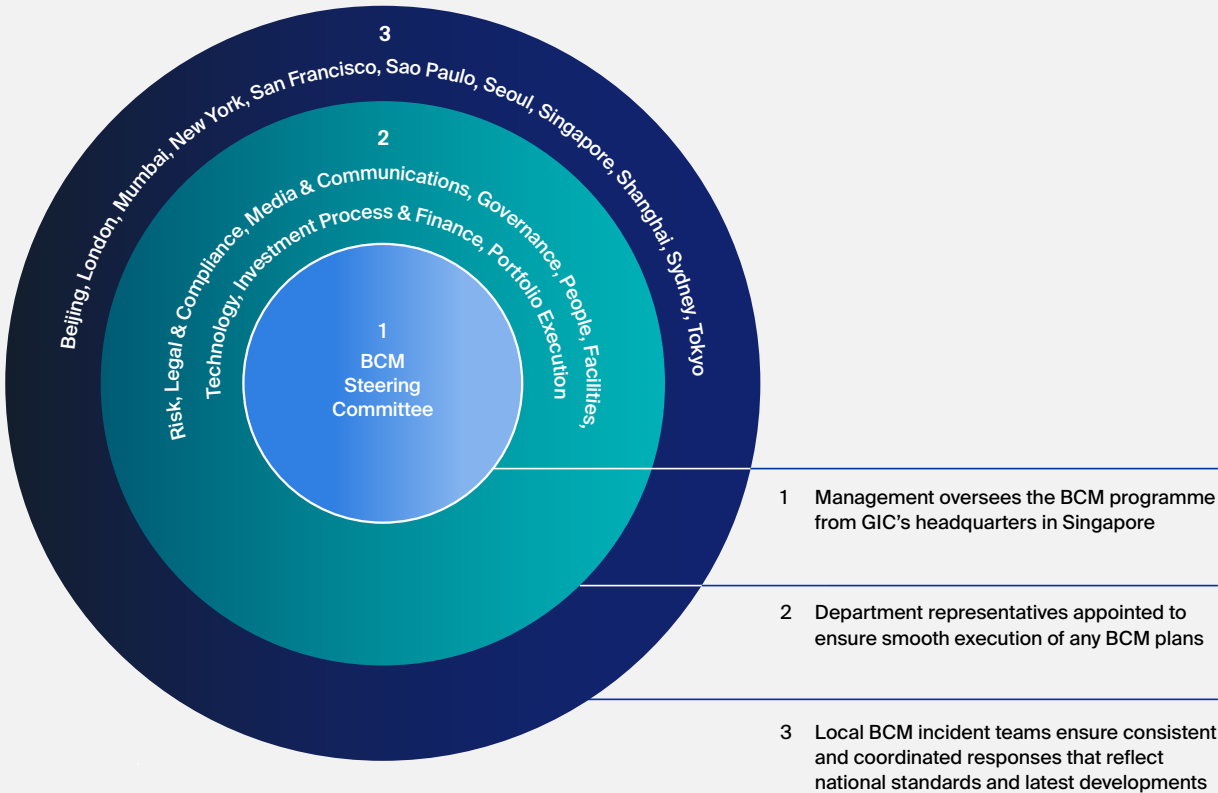
ensure that we exercise caution and do not take on undue reputational risk in our pursuit of returns.

Managing Business Disruption Risk

We maintain a robust crisis management and business continuity programme to ensure that the organisation is well-equipped to respond to crisis events including but not limited to threats to staff safety or the continuity of GIC's business

operations. Ensuring business continuity is a coordinated effort that involves representatives from all of GIC's offices and departments. The Business Continuity Management (BCM) Steering Committee, chaired by the Chief Operating Officer, oversees the development and review of GIC's overall BCM framework and reports to GIC's Group Executive Committee. The BCM Steering Committee manages crises with the BCM Working Group and local BCM Incident Management Teams

Figure 6. GIC's BCM Programme



which implement response activities on the ground. During a disruption, they collectively ensure consistent communication, coordination, and monitoring across GIC globally as well as timely activation of business continuity plans. Additionally, the local teams adjust and implement measures based on the latest local standards and developments. We also leverage technology for the efficient management of our business continuity programme. A standardised tool for GIC's risk assessment is used for data collection, analysis, and development of strategies. The tool serves as the central repository for all BCM resources, enabling clarity and transparency.

GIC's BCM programme was established in 1999. To meet evolving standards and business needs, our business continuity plans are reviewed regularly through external certifications and internal exercises. Our global programme is certified under ISO 22301, the international standard for business continuity management.

Retaining our organisational resilience, agility, and ability to take calculated risks are long-term critical issues.

Managing People Risk

Our PRIME values serve as the compass in the management of our people, processes, and portfolio. The assessment of these values is included in our staff appraisals. We require our staff to conduct themselves in an exemplary manner at all times and uphold GIC's fiduciary duty to the Client. This includes observing the applicable laws and regulations, as well as GIC's internal policies and procedures. Consistent with our long-term orientation, GIC's remuneration policies and talent practices support and reinforce a prudent risk-taking culture as well as recognise and reward our people on the basis of long-term results, behaviours, and PRIME values.

Retaining our organisational resilience, agility, and ability to take calculated risks are long-term critical issues. We are committed to developing our employees to their full potential through learning programmes and growth opportunities. We continue to develop a strong leadership bench for GIC, build new investment capabilities, and extend our investment and operating platforms, while reinforcing organisational culture and conduct.

4.0

Investing Sustainably

Investing sustainably is integral to our mandate as a long-term investor managing the reserves for Singapore. We believe that companies with good sustainability practices offer prospects of better returns over the long term. GIC is committed to enabling the global transition to a net-zero economy through our investments and operations.

4.2 Our Approach

GIC's approach to enabling the transition

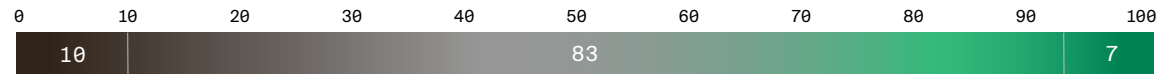
Decarbonisation will look different across industries and companies. To support companies in their differing decarbonisation journeys and capital needs, GIC has adopted three main strategies.

MSCI All Country World Index (ACWI), Percentage by Market Capitalisation

(As of 31 December 2022)

Carbon Intensive Sectors

Green Solution Providers



GIC's Approach

Manage risks from potential stranded assets

Support transition efforts by companies, through active engagement and strengthening the ecosystem for sustainability disclosures

Direct capital to green solutions and enablers

GIC has adopted 3 main strategies to enable the net-zero transition in the real economy. The proportion of the MSCI ACWI for which each of these strategies is relevant has been estimated for illustrative purposes only.

4.4 Protecting Our Portfolio

Thematic Investment Platforms

GIC is taking more steps to capture sustainability-related investment opportunities via the Sustainable Investment Fund (SIF) and by creating focused teams within asset classes. In particular, the following investment platforms have recently been established to accelerate our investments in the space:

- The Climate Change Opportunities Portfolio (CCOP)
- The Sustainability Solutions Group (SSG)
- The Transition and Sustainable Finance Group (TSFG)

4.1

Our Beliefs

Sustainability is fundamental to the long-term health of the global economy. It is integral to GIC's mandate, which is to preserve and enhance the international purchasing power of the reserves under our management.

We believe that companies with strong sustainability practices offer prospects of better returns over the long term, and that this relationship will strengthen over time as market externalities get priced in and are incorporated into the decisions of regulators, businesses, and consumers.

GIC is committed to enabling the global transition to a net-zero economy through our investments and operations. To do this, we have begun to step up active engagements with portfolio companies on their climate transition plans, and fund the adoption and scaling-up of green technologies.

We take a holistic and long-term approach towards sustainability across our investment and corporate processes. Investments may entail trade-offs between different sustainability objectives, especially in the short term. For example, retiring coal-fired power plants on an aggressive timeline may be positive for the environment, but without a holistic transition plan in place, this could undermine energy security and hurt affected communities through loss of livelihoods and increased costs of living.

4.2

Our Approach

Sustainability is a top management priority at GIC. We are guided by our framework for sustainability - capturing opportunities, protecting our portfolio, and developing enterprise excellence and partnerships.

GIC's Approach to Enabling the Net-zero Transition in the Real Economy (Box 1)

According to the Intergovernmental Panel on Climate Change, worldwide emissions must fall by 43% by 2030 from 2019 levels¹ to keep global temperature rise under 1.5°C. GIC's research on climate signposts² finds that the probability of the scenarios where the Paris temperature goals are not met remains high despite a step up in net zero pledges by governments and businesses, and increased investments in green solutions since 2019.

Getting the economy onto a Paris-aligned pathway will require the world to pivot to renewable energy, low-

carbon transportation, green buildings, and industrial processes as well as sustainable agricultural and land use practices. The decarbonisation journey will be different across industries and companies, and long-term investors will need to balance between supporting the capital needs of the transition, and managing the investment risk to their portfolio.

GIC approaches the task by dividing the investment universe into three categories:

- On one end of the spectrum are companies deriving a high percentage of their revenues from renewable energy and other decarbonisation solutions. Such companies only make up a small part of the MSCI All Country World Index (ACWI) today.³ We expect to see more

companies increase their participation in the green economy, which will give rise to sizeable investment opportunities in the development and scaling-up of green solutions.

- At the other end of the spectrum, companies in carbon-intensive sectors such as power utilities and transport make up about 10% of the market capitalisation of the index but contribute 40% of the overall index's weighted average carbon intensity (WACI).⁴ The transition of these companies will be important for the decarbonisation of the economy. Companies in this space that are unable to transition their businesses to more sustainable operating models risk becoming stranded.

¹ Intergovernmental Panel on Climate Change (2023). Climate Change 2023: Synthesis Report. A Report of the Intergovernmental Panel on Climate Change. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

² GIC (2023). [The GIC Climate Signposts: An Investor Tool for Navigating an Uncertain Future](#).

- Most companies in the index are in between these two ends of the spectrum. They have lower emissions intensity compared to those within the most carbon-intensive sectors, but they also need to transition.

These three categories of companies would require different capital needs and approaches to manage their decarbonisation journeys. To create and

capture these opportunities, and to protect our portfolio, GIC has adopted three main strategies, to:

1. Direct capital towards green solutions, or enablers, of the low-carbon transition;
2. Support transition efforts by companies, through active engagement and strengthening the ecosystem for sustainability disclosures and;

3. Manage the risks from assets that face high stranding risk due to their inability to transition their businesses.

These three strategies form GIC's overall approach to enable the net-zero transition in the real economy.

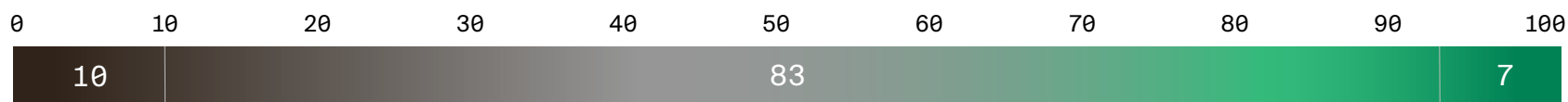
Figure 1. MSCI All Country World Index (ACWI), Percentage by Market Capitalisation

(As of 31 December 2022)

MSCI All Country World Index (ACWI), Percentage by Market Capitalisation

Carbon Intensive Sectors⁴

Green Solution Providers³



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³ GIC sources estimates from FTSE Russell's Green Revenues database, which references its Green Revenues Classification System (GRCS), to identify companies with significant revenue exposures to green business activities. For this analysis, we considered companies with green revenues exceeding 30% of total revenues as green solution providers. Free-float adjusted market cap and distribution based on MSCI ACWI as of 31 December 2022; GIC calculations.

⁴ GIC classifies the following sub-industries, which are in the 95th percentile of Scope 1 and 2 carbon intensity, as carbon-intensive: Aluminium, Autos (ICE), Cement, Coal Mining, Coal Power, Construction Machinery, Heavy Trucks, Buses, Rail & Logistics, Industrial Gases, Metals & Mining, Oil & Gas, Oil Sands, Shale Oil, Steel; S&P Trucost and GIC Calculations. Excludes companies that are identified as green solution providers.

4.3

Capturing Opportunities

GIC recognises that new investment opportunities will emerge as regulators, consumers, and businesses increasingly act on sustainability issues. We aim to capture these opportunities by:

- Investing thematically in opportunities arising from climate change and other sustainability trends;
- Integrating sustainability into our investment processes, including due diligence, risk assessment, and monitoring; and
- Actively engaging our portfolio companies on sustainability issues that are material to their long-term business prospects.

Investing Thematically

To align existing energy systems to a pathway aligned to net zero by 2050, the world will need to incur over US\$126 trillion⁵ of additional capital expenditures from 2021-2050. At the same time, investments are needed to shore up aging infrastructure and physical assets, to

ensure that businesses remain resilient to increasing physical stresses resulting from global warming. Secular trends of climate change mitigation and adaptation are playing out simultaneously and require long-term investment capital to enable the scaling up of solutions. GIC is taking more steps to capture sustainability-related investment opportunities via the Sustainable Investment Fund (SIF)⁶ and by creating focused teams within asset classes. In particular, the following investment platforms have recently been established to accelerate our investments in the space:

- The Climate Change Opportunities Portfolio (CCOP), which is a portfolio within the Public Equities division, has been set up to deploy long-term, dedicated public equity capital towards investments aligned with the themes of climate mitigation and climate adaptation.
- The Sustainability Solutions Group (SSG), which is a dedicated team within Private Equity, seeks to deepen GIC's exposure to early-stage energy transition opportunities.

- The Transition and Sustainable Finance Group (TSFG), which is a dedicated team within Fixed Income & Multi Asset (FIMA), invests capital in sustainability-related opportunities across the FIMA universe.

⁵ Based on GIC Sustainability Office analysis of Vivid Economics estimates based on IEA, FOLU, FAO and NGFS data, as published in the [IIGCC Climate Investment Roadmap report](#).

⁶ The Sustainable Investment Fund is coordinated across our public and private market investment groups to invest in opportunities across a wide range of sustainability-related themes.

Investing in Enablers of the Low-Carbon Transition (Box 2)

Companies providing green solutions have been growing rapidly in number and size. In the past five years, the revenues attributable to such solutions has grown at close to 18% annually. However, these companies represent less than 7% of the broader market by market capitalisation today.⁷ We expect the opportunity set to expand further as policymakers continue to drive the adoption of low-carbon technologies.

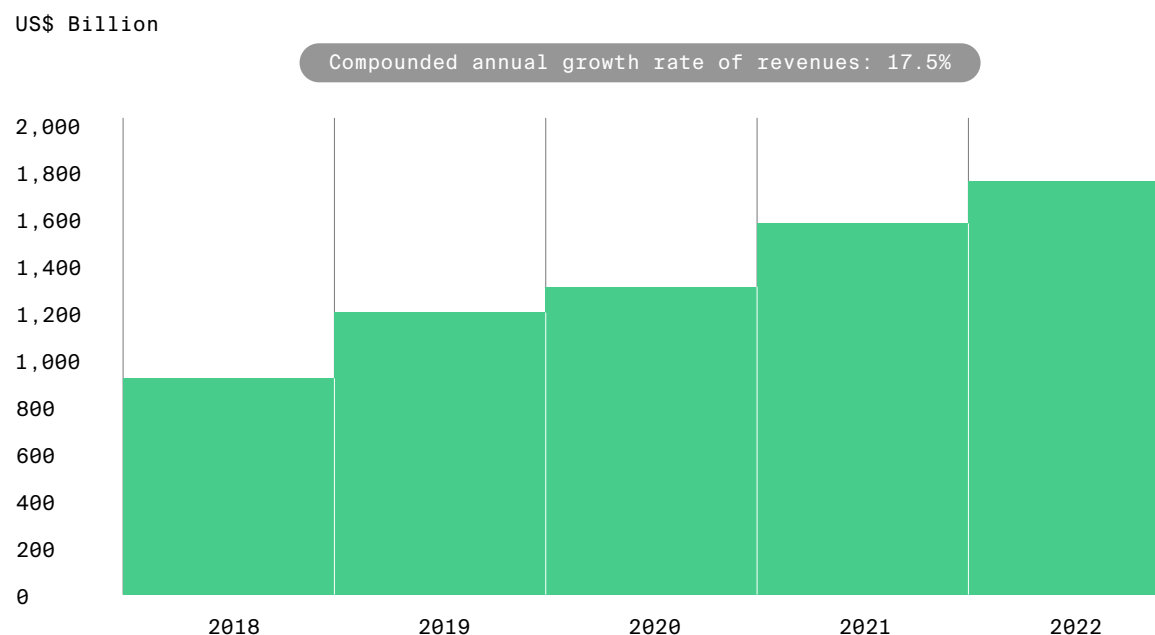
Many of these companies will require significant amounts of capital for the development and commercialisation of their technologies. GIC has supported several such innovative solution providers across a range of industries and geographies.

“At GIC, we invest in ambitious and innovative companies both in the green economy and in the larger part of the global economy that has to make a transition to a low carbon future. We believe that GIC can help these companies scale solutions that enable the net-zero transition, and create sustainable value for the GIC portfolio in the long term.”

Choo Yong Cheen,

Chief Investment Officer for Private Equity
on investing in sustainability solutions

Figure 2. Green Revenues from Green Solution Providers Over Time



⁷ Market capitalisation and distribution based on MSCI ACWI as of 31 December 2022; GIC calculations.

Developing Multi-Day Energy Storage Technology (Example 1)

Intermittency of renewable energy has been one major challenge for the transformation of the electricity grid towards 100% clean energy. GIC has invested in Form Energy, an innovative company helping to overcome this issue through the development of dispatchable 100-hour multi-day energy storage technology. The company aims to bring the cost of energy storage down to below \$20/kWh in the next decade, which would be a fraction of the cost of lithium battery energy storage today.

GIC's funding will enable the firm to build its first 500 MW manufacturing facility in West Virginia and deliver on over 3.5 GWh of projects announced to date with major US electric utilities, as soon as 2025. Since we invested in 2022, the company has continued to achieve technical milestones in developing its battery technology, announced new demonstration projects with major utilities, and selected a site for its first full scale battery manufacturing facility.

Scaling Direct Air Capture to Remove Atmospheric Carbon Dioxide (Example 2)

GIC has directed capital to support a range of carbon dioxide removal (CDR) solution companies, including one of the leaders in the Direct Air Capture (DAC) field, Climeworks. DAC is a technology-based solution to capture and remove carbon dioxide from the atmosphere. Once captured, the carbon dioxide is returned to the earth and stored away safely for a long time. Since its founding in 2009, Climeworks has pioneered DAC technology, and launched the world's largest commercial DAC facility combined with storage in September 2021. Its Orca plant in Iceland has a nominal capture capacity of up to 4,000 metric tons of CO₂ from the atmosphere per year.

GIC's capital will contribute to Climeworks scaling its operational capacity towards its goal of at least 1 metric gigaton of CO₂ per year by 2050. In the past year, our investment has helped to fund the construction of Climeworks' Mammoth, its second DAC and storage facility in Iceland. Climeworks broke ground on the facility in June 2022 and plans for the plant to become operational in 2024.

Integration

Our investment groups across public and private markets integrate sustainability considerations into their decision-making processes, focusing on the issues material to each company's long-term economic prospects.

Teams regularly engage with portfolio companies on sustainability risks and opportunities and vote responsibly. We also engage with external fund managers and general partners on their sustainability policies and practices to ensure our investments with them are managed in a manner consistent with GIC's sustainability approach.

Bolstering the Sustainability Data Ecosystem (Box 3)

Investors need to integrate climate change and other sustainability considerations into their decision-making processes, and work with companies to implement long-term transition plans with shareholder support.

High quality sustainability data is a fundamental building block for climate risk integration, and it provides the basis for more focused company dialogues on their exposure to potential risks and opportunities. Comparability and materiality of company disclosures are critical determinants of quality.

A globally applicable sustainability disclosure standard that enables comparability between listed and unlisted companies within similar industries, would be an important milestone for investors. To accelerate the development of such a framework, we are supporting platforms and companies across the sustainability data disclosure ecosystem.

We have been a supporter of the Task Force on Climate-related Financial Disclosures (TCFD) and a CDP investor

signatory since 2020. CDP's platform for climate change, water security, and forests-related disclosures provides a structured framework for companies to make comparable, TCFD-aligned disclosures of material sustainability issues on an annual basis. In 2022, GIC joined 260 financial institutions in CDP's Non-Disclosure Campaign (NDC) to reach out to over 1,400 companies that had not responded to its requests for climate, forests, and water disclosures in previous years. Our investment teams have started engaging portfolio companies to encourage them to provide environmental metrics via CDP's database.

The availability of relevant disclosures for unlisted assets remains a challenge for diversified, multi-asset class portfolios. GIC has invested in sustainability data and analytics platforms that have developed solutions to bridge this gap. One of these platforms is a global leader in business sustainability ratings for global supply chains. With over 100,000 companies within its ratings coverage, the platform helps to drive transparency on sustainability performance across the supply chain, and enables companies, investors, and other stakeholders to better manage sustainability risks and pursue targeted improvements. We believe the company has strong potential to further scale its platform and address

the challenge of data availability and comparability, especially in private markets.

4.4

Protecting our Portfolio

Sustainability issues across the domains of the environment, social issues, and business governance pose investment risks.

We protect our investments by:

- Regularly screening our existing portfolios for material sustainability risks;
- Conducting additional due diligence for companies and assets exposed to greater sustainability risks and adjusting our long-term valuation and risk models accordingly; and
- Stress-testing our portfolio and significant holdings against a range of climate scenarios and carbon price projections.

Enhancing Portfolio Resilience to Transition Risks (Box 4)

Through actions by regulators, companies, and consumers, externalities from greenhouse gas emissions are increasingly becoming priced in. Policy actions may target emissions-generating activities directly through carbon or fuel taxes, or indirectly through energy efficiency standards or subsidies for low-carbon technology, among other measures. Companies that are unable to address or pass through the higher costs from carbon pricing, risk becoming uncompetitive as the rest of the world transitions. To protect our investments, we have put in place processes to measure, mitigate, and manage transition risks in the portfolio.

Measuring Portfolio-level Transition Risks:

We size the impact of transition risks attributable to carbon prices across a range of plausible net-zero scenarios at the portfolio level, using Carbon Earnings-at-Risk Scenario Analysis. We apply forward regional carbon prices based on the selected scenario towards the forward-looking carbon intensity profile of each company, calibrated by their announced targets. We also consider the company's ability to pass through or absorb the carbon costs. This enables us to identify individual companies that could be significant contributors to the portfolio's earnings-at-risk.

We then conduct deeper dives on selected companies to validate the stress test

bottom-up, and determine an action plan for the investment.

Mitigating Asset-level Transition Risks:

Transition risk can be mitigated by a company taking active steps to shift the business towards more sustainable models. We recognise this and will continue to engage portfolio companies to provide support in identifying potential transition actions and long-term capital to facilitate their implementation of those plans, where such investments are value-accretive and aligned with GIC's investment objectives. Some of our portfolio companies are already taking actions, such as reducing the energy demands of their operations through energy efficiency and recycling initiatives; replacing fossil fuel-based energy and feedstocks

with renewable sources; or accelerating the retirement of certain high emissions assets, among others.

Managing Stranded Asset Risks:

We remain vigilant to evolving stranded asset risks across a range of carbon-intensive industries by systematically assessing factors such as product substitutability, industry cost structure, and transition prospects. Commitments to transition should be accompanied by changes in business strategy, governance, and risk mitigation, but this will happen only when underpinned by the willingness and resolve of company management. Some companies may refuse, or be unable, to develop credible transition plans despite being in businesses facing the most severe stranding risks. In such instances, we have taken steps to remove the companies from our investment benchmarks, and to divest until we assess that adequate action has been taken to mitigate those risks.

4.5

Developing Enterprise Excellence and Partnerships

How we operate sustainably as an organisation is as important as the way we invest.

Since FY2020/2021, GIC has been committed to monitoring and managing our footprint by avoiding and reducing unnecessary carbon emissions. We do this by:

- Managing our operational resource use and emissions through environmentally conscious office design and smart technologies, in line with leading green building certification programmes;
- Switching to renewable energy sources where available;
- Communicating clear expectations for sustainable behaviour in our business partners; and
- Encouraging employees to adopt more sustainable behaviours at the workplace and beyond.

As we continue to prioritise efforts to reduce our carbon emissions, we currently offset our residual emissions with credits that have been certified by globally-recognised carbon credit programmes. We will adapt our offset strategy as we monitor the developments in the global and local standards on how corporates can best manage their residual emissions.

Partnerships

We are making serious efforts to reduce our carbon emissions. Sustainability is a field that continues to evolve. All organisations, including GIC, can benefit from learning from one another as new standards are developed. GIC collaborates with fellow asset owners through platforms such as the Asia Investor Group on Climate Change (AIGCC), CDP, Climate Action 100+, and TCFD. To advance the understanding of sustainability issues, GIC also engages in research, content, and event partnerships

with organisations such as the Investment Management Association of Singapore (IMAS), the World Economic Forum,⁸ the Milken Institute,⁹ and others. In 2022, GIC joined the Wellington Climate Leadership Coalition (WCLC)¹⁰ to deepen understanding of the physical and transition risks associated with climate change and to enhance the integration of climate science to address the world's climate investment needs.

⁸ World Economic Forum (2023). [How climate scenarios can help investors build portfolio resilience](#).

⁹ GIC (2022). [Mitigating the Physical Risks of Climate Change: An Investor Perspective](#).

¹⁰ WCLC is a collaboration between Wellington Management, Woodwell Climate Research Center, the Massachusetts Institute of Technology Joint Program on the Science and Policy of Global Change, and eight global asset owners.

5.0

Feature Article

Infrastructure: A Resilient Strategy in Uncertain Times



GIC set up a dedicated team in 2005 to invest in infrastructure businesses and was an early entrant in the sector. In the two decades since, it has refined its investment strategy through multiple economic cycles. Today, infrastructure investments form a large and critical part of GIC's portfolio.

2005



What is Infrastructure?

GIC defines infrastructure as investments with a combination of stable and predictable cash flows, ability to pass through inflation, and low risk of obsolescence. These investments offer a unique proposition to the GIC portfolio. Their returns tend to be resilient across macroeconomic cycles due to the defensive nature of the underlying assets.

Infrastructure assets undergird economies and are essential for safe modern living. Quality infrastructure provides us with access to clean water and reliable electricity supply, as well as digital and physical connectivity.

GIC's infrastructure portfolio includes companies that develop and operate **airports, seaports, electricity utilities, renewable energy generation, fiber networks, and telecommunication towers.**

Airports



Seaports



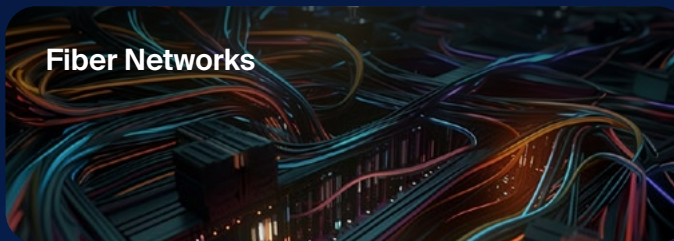
Electricity Utilities



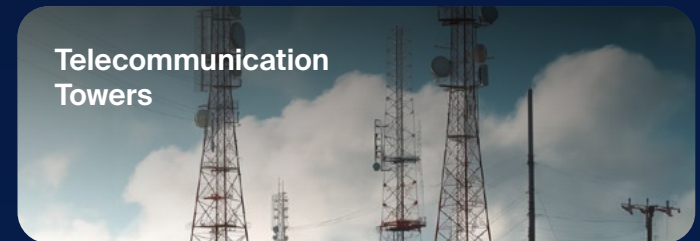
Renewable Energy Generation



Fiber Networks



Telecommunication Towers



The range of infrastructure investments evolves with the emergence of new needs and technologies. This has generated healthy growth in investment opportunities for GIC.

First, existing infrastructure businesses require consistent, long-term investments to continue serving their communities effectively. Second, awareness and criticality of climate change and energy security have widened opportunities in energy transition. Third, digitalisation trends such as increased data consumption and cloud migration have been turbocharged by the Covid-19 pandemic and the advent of artificial intelligence, requiring increased [digital infrastructure capacity](#). ➔



Telecom tower by Cellnex

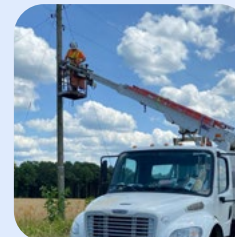
Case Study

GIC's Investments in Digital Infrastructure Opportunities

GIC's Investment in **Searchlight Fiber Alliance**

2022

targeting suburban areas across the US



Cellnex Tower Site Base

147k

over the past five years



GIC's Investment in **Cetin Group**

2021

with a 30% stake



In line with the world's growing demand for data and bandwidth, the digital infrastructure sector has seen a marked increase in investments across various markets.

Cellnex: Europe's largest independent telecom tower company which signs long-term, inflation-indexed contracts with network operators and enables the provision of broad and fast connectivity to individual consumers and businesses. GIC first acquired a minority stake in Cellnex in 2018. Since then, we have supported its growth (both organic and inorganic) through additional financings, contributing to its more than five-fold growth to more than 147k tower sites today.

Cetin Group: This is the largest provider of network infrastructure in the Central and Eastern European ("CEE") region. In 2021, GIC acquired a 30% stake in Cetin, which was established through carve outs of fixed and wireless telecommunication infrastructure assets

of CEE mobile and broadband network operators. These operators continue to serve as Cetin's key customers and provide stable revenues to Cetin via long-term contractual agreements.

Searchlight Fiber Alliance: In 2022, GIC invested in this fiber-to-the-home ("FTTH") platform targeting suburban areas across the United States that lack access to high-speed broadband. Searchlight adopts a partnership-driven approach to lower build costs and accelerate build timelines via partnerships with electric utility companies, and, where available, incorporates government incentives to ensure affordable services.

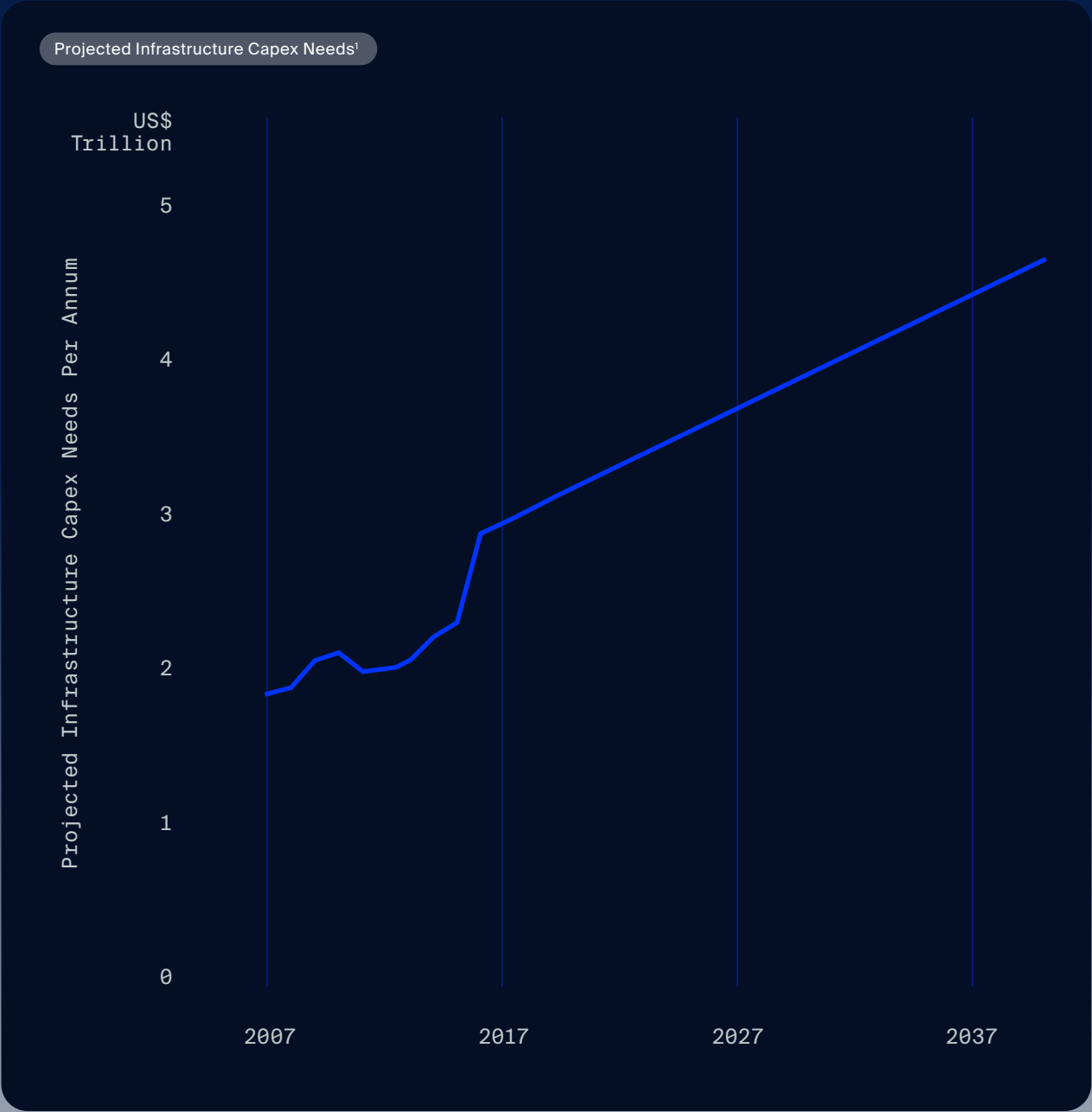
Infrastructure lies at the heart of these pursuits.

Global infrastructure investment needs are expected to total **US\$94tn** between 2017 to 2040. This implies an average of **US\$3.9tn per annum**.

In an increasingly uncertain macroeconomic environment, it is unsurprising that infrastructure has become a popular asset class for large institutional investors and fund managers.

This has led to increased competition and high entry prices for investors. The larger opportunity set has also widened the nature of risks. Regulatory risks have gone up in some jurisdictions, due to national security concerns and the need to mitigate inflationary pressures.

Infrastructure investors need to be attuned to the multitude of risks, account for the needs of a wide range of stakeholders, and invest mindfully.



¹ Global Infrastructure Hub (2017). [Global Infrastructure Outlook: Infrastructure investment needs, 50 countries, 7 sectors to 2040](#).



The Role of Infrastructure Investments: Resilience for the GIC Portfolio

GIC typically invests in infrastructure businesses with high barriers to entry, regulated returns, and/or long-term contracted revenue models.

Such businesses generate stable, predictable, and often inflation-protected cash flows across macroeconomic cycles. GIC also chooses businesses that can remain competitive in the long term and have good potential for growth.

To date, our infrastructure investments have yielded healthy and stable returns for GIC's total portfolio and supports GIC's long-term investment mandate. They also help to diversify the total GIC portfolio because of their low correlation with other asset classes.

Each infrastructure investment is assessed for five key characteristics that speak to the qualities of its business and underpins its investment thesis.

Key Characteristics of Infrastructure Investments

Cashflow Predictability

Revenues are underpinned by long-term, price-certain offtake contracts, or regulated return models,² and have a higher degree of cashflow predictability.

Inflation Linkage

Infrastructure assets can pass on some cost inflation due to their essential nature. Regulations often build in inflation protection, though this may be lagged or capped.

Barriers to Entry

High barriers to entry may arise from the capital-intensive provision of an essential service.

Yield Certainty

The underlying ability to generate cash flow is enhanced through good risk management, cost discipline, and an appropriate capital structure.

Low Obsolescence Risk

Assets with low risk of obsolescence from trends such as technological advancements, energy transition, or demographic changes are likely to hold their value over the long term.

²

A regulated market is one over which government or independent regulatory bodies exert a level of oversight and control. In the infrastructure space, the allowed financial returns of a regulated asset are periodically reviewed by the regulator according to transparent and reasonable cost of capital.

Even as we ensure investee companies have cash generative assets today, our team maintains strong awareness of obsolescence risk. We constantly try to position ourselves early for opportunities in evolving sectors that mature and become less risky over time.

For instance, to prepare for the energy transition, GIC has made early investments in renewable energy companies, future fuels such as green hydrogen, long-term energy storage, and carbon capture and sequestration. ➔



Solar panels on the 405 MW Ninh Thuan solar farm in Vietnam owned by ACEN

Case Study

ACEN

GIC's Investment

2020

with a minority stake

ESG Initiatives

246MW

coal-fired power plant divested



ACEN is the renewable energy platform of the Ayala Group, one of the largest conglomerates in the Philippines and a long-time partner of GIC.

In 2020, GIC invested in ACEN to help fund the development of its renewable energy project pipeline, enabling it to accelerate and expand its green impact across the Asia-Pacific region. Our investment helped ACEN to double its attributable operating and under-construction capacity to ~4GW in the Philippines, Australia, Vietnam, Indonesia, and India.

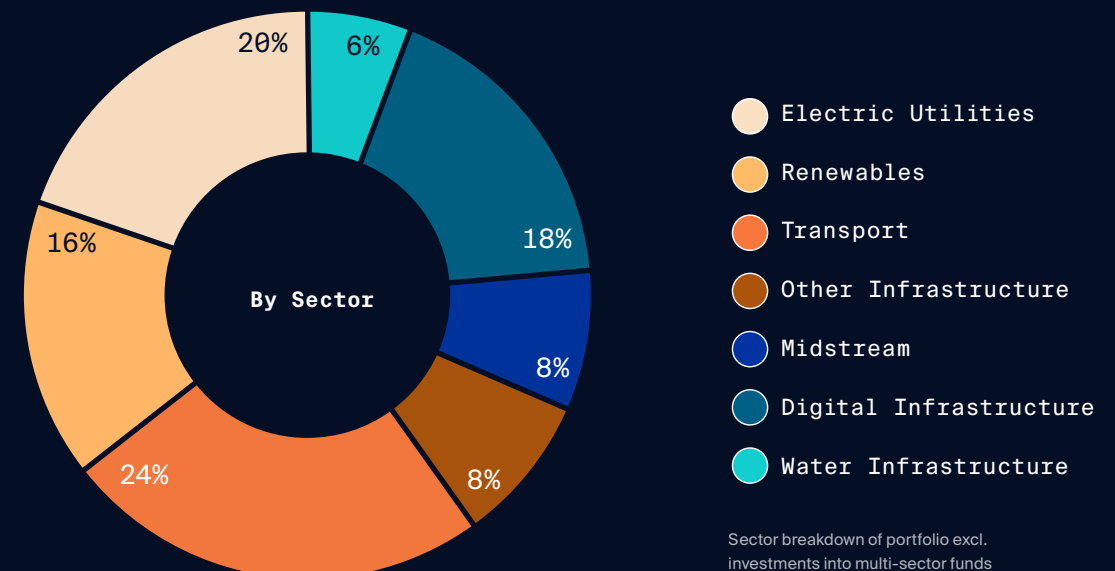
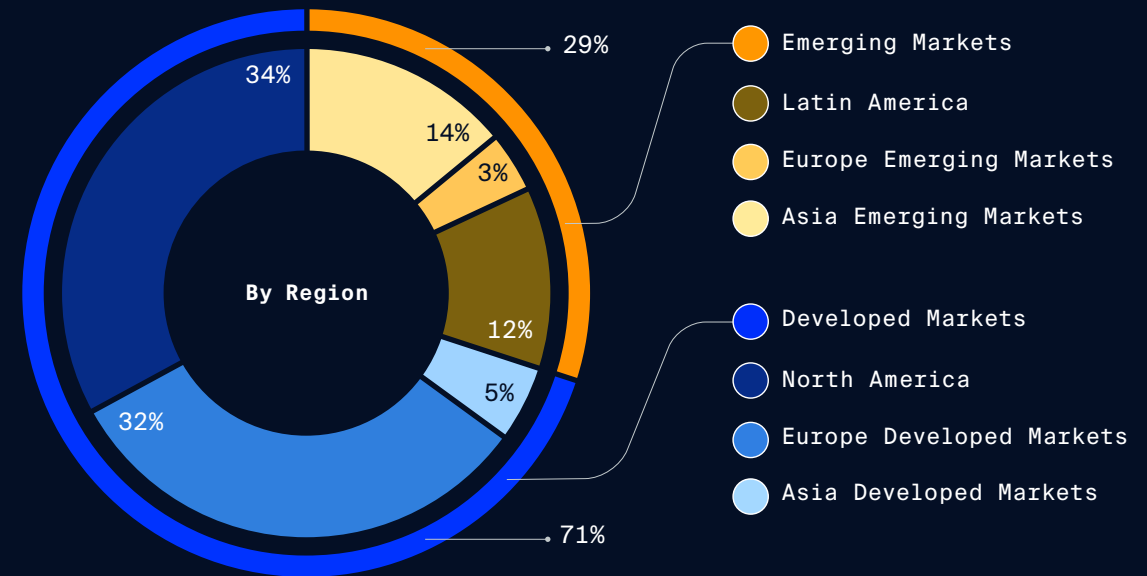
ACEN's growth strategy is driven by a combination of home-grown development expertise as well as strategic partnerships with local and global renewable energy

developers. While the Philippines remains its core market, its reputation as a strong partner has opened opportunities in developing countries with large renewable energy requirements, such as Vietnam. It recently built on this success by acquiring control of its Australian platform to participate fully in the country's energy transition. ACEN's investment programme in the coming years will further contribute to the significant renewable energy rollout required to reduce the Asia-Pacific region's reliance on fossil fuels.

The resilience of GIC's infrastructure portfolio is further enhanced by diversifying across regions and sectors.

Our developed market portfolio mainly comprises assets with mature, low-to-moderate risk, while our emerging markets portfolio includes investments with higher growth potential. GIC's institutional familiarity with emerging markets has enabled us to be an early investor in its infrastructure sector. Relative to our peers, we have a sizeable infrastructure portfolio in emerging markets.

GIC's Infrastructure Portfolio Diversity



Sector breakdown of portfolio excl. investments into multi-sector funds

With a long-term investment orientation, our infrastructure investment team looks forward to working with businesses seeking good, sustainable growth. ➔



Ivete Moura, a resident of the Coliseu neighbourhood in the east zone of Manaus, Brazil, receiving tap water treated by Aegea

Case Study

Aegea

GIC's Investment

2013
with a minority stake

Current Customer Base

31M
consumers



Aegea is Brazil's largest privately owned water company and one of the most highly regarded in the community.

Aegea is a Brazilian water supply and sewage treatment company. GIC acquired a minority stake in Aegea in 2013. Since then, we have supported the company through multiple investment rounds and helped strengthened its governance, enabling Aegea to grow its customer base nearly 15 times, from 2 million to 31 million consumers. Today, it is the largest privately owned and one of the most efficient (measured by operational cost per customer) water companies in Brazil.

Aegea acquires municipal water companies and improves their operations, efficiency, and service levels, while also investing the necessary capital expenditure to

expand service coverage and reduce leakage, most of the time without the need to raise tariffs (except for the allowed annual inflation adjustment). By expanding its service coverage, Aegea has improved the lives of millions who can now access clean water and benefit from proper sewage treatment – some for the first time in their lives, and at preferential rates for the lower-income. As part of its social programme, Aegea has also hired thousands of workers from the vulnerable communities it serves.

In addition, by drastically reducing or eliminating the discharge of raw sewage into

the river systems and seas, Aegea's services have noticeably benefitted the environment and the wellbeing of communities it serves. For example, in a state north of Rio de Janeiro, Aegea made investments to collect and treat the sewage in five cities around the Araruama Lagoon, preventing direct discharge of waste into the lagoon. After a few years the lagoon had become cleaner, with fishing activities resuming and tourism recovering. At the same time, hospital admissions related to water borne diseases decreased by 80%, public health expenditures reduced by 60%, and indicators such as infant mortality improved significantly.

GIC's Multi-Pronged Strategy for Infrastructure Investments

People are at the heart of GIC's infrastructure investment approach and strategy.

Today, our infrastructure team comprises about 70 investment professionals operating out of four of GIC's 11 global offices – Singapore, London, New York, and São Paulo.

The team executes a consistent, disciplined, and value-conscious investment approach. Oversight is provided through a Global Investment Committee to ensure prudence and consistency across investment execution and asset management. ESG values are integrated into the life cycle of GIC's infrastructure investments, given the essential nature of the underlying businesses.

Singapore



London



New York



São Paulo



Underpinning GIC’s infrastructure approach is a Four-Quadrant investment strategy that allows the team to invest across multiple parts of the capital structure via different investment structures.

The strategy comprises primarily direct investments in private or listed infrastructure businesses, either through equity or non-investment grade infrastructure credit. Select investments with well-regarded fund managers complement the direct investment portfolio.

By leveraging the Four-Quadrant strategy, GIC’s infrastructure team operates efficiently and flexibly to capture attractive risk-adjusted opportunities in the sector while maintaining a steady investment pace and portfolio growth through economic cycles.

The Four-Quadrant investment strategy is supported by two specialist units – the Asset Management (AM) team and the Global Investments, Strategy, and Risk (GISR) team.

Our infrastructure investment team takes a hands-on value creation approach towards its investments. The AM team, led by senior executives with backgrounds in industry, ensures that investee companies are operating efficiently with good governance to achieve sustainable returns.

The GISR team complements the investment process through portfolio construction, risk monitoring, and individual deal reviews. It actively stays abreast of drivers such as climate change and technology disruption that pose both risks and opportunities to GIC’s infrastructure portfolio.

GIC’s Four-Quadrant Investment Strategy for Infrastructure

Equity Direct or Co-investments

Investing directly in an unlisted company, oftentimes with a significant minority stake and meaningful governance

Listed Equity

Investing in listed infrastructure companies with a strategic intention, or during periods of market dislocation

Funds

Investing in infrastructure Funds managed by well-regarded fund managers

Credit

Investing in Non-investment Grade Debt with commensurate risk-returns, but not undertaking market/commodity risks

**Global Investments,
Strategy & Risk Team
(GISR)**

**Asset
Management Team
(AM)**



Doing More, Doing Well, and Doing Good

As the world moves towards a greener and more digitalised future, our infrastructure investments team will continue to use its expertise to access new opportunities.

The asset class is an integral part of GIC's diversified portfolio, contributing to sustainable, long-term, and inflation-protected returns for Singapore.

“Infrastructure enables essential services that undergird economies, connect communities, and ensure a good quality of life.”

Ang Eng Seng

Chief Investment Officer for Infrastructure, GIC

6.0

Governance

The Government, represented by the Ministry of Finance (MOF), sets the investment objective, risk parameters, and investment horizon for the portfolio. It also ensures a competent board of directors is in place.

The GIC Board is responsible for the Policy Portfolio that determines GIC's long-term asset allocation and is accountable to the Government for the overall performance of the portfolio.

The GIC Management is responsible for formulating and executing investment strategies and for individual investments. The Management also reports to the Government on the risk and performance of the portfolio.

New Board Committee Appointment



Lawrence Wong

*As Chairman of the Investment
Strategies Committee*

New Senior Appointments



Sam Kim

As Deputy Chief Operating Officer



Goh Chin Kiong

*As Deputy Chief Investment Officer
for Real Estate*

6.1

Overview

Governance

GIC was incorporated in 1981 under the Singapore Companies Act and is wholly owned by the Government of Singapore. It was set up with the sole purpose of managing Singapore's foreign reserves and currently invests well over US\$100 billion globally in a wide range of asset classes and instruments. As a rule, GIC invests outside Singapore.

Source and Purpose of Funds

GIC is a fund manager for the Government and does not own the assets that it manages. The sources of the Government's assets managed by GIC, as stated by MOF, include proceeds from the issuance of Singapore Government Securities (SGS) and Special Singapore Government Securities (SSGS), Government budget surpluses, and proceeds from the Government's land sales.

The Government does not specify to GIC the proportion of assets from each source. The Government mandates GIC to manage all assets in a single pool, on an unencumbered basis and without regard to their source, with the aim of achieving good long-term real

returns. (An explanation of the Government's framework for managing its assets and liabilities is available on MOF's [website](#).)

Each year, part of the GIC Portfolio's return is tapped by the Government for its annual Budget and spent on key public services that improve the lives of Singaporeans. Under the Constitution, the Government is allowed to spend up to 50% of the long-term expected real return on the net assets managed by GIC and those owned by the Monetary Authority of Singapore (MAS) and Temasek Holdings in its annual Budget. The Government's reserves therefore provide a stream of returns that benefit present and future generations of Singaporeans.

The President of Singapore

Since 1991, the Constitution of Singapore has provided for the President of Singapore to be elected directly by Singaporeans every six years. The President is independent of the Government and must not be a member of a political party.

The Constitution gives the President discretionary powers to protect the reserves not accumulated by a government during its current term of office. This is achieved using the two-key system: past reserves can be drawn down only in exceptional circumstances if the President, after consulting the Council of Presidential Advisers, agrees with the Government's

proposal to draw on the past reserves. Past reserves have been drawn to fund special Budget measures rolled out during the Global Financial Crisis and more significantly in response to the Covid-19 pandemic.

As a Fifth Schedule company (a category that comprises key statutory boards and Government companies that are listed in the Fifth Schedule under the Constitution), GIC is directly accountable in a number of key areas to the President of Singapore. The President is empowered to access any information needed to safeguard the country's reserves and has full information about the size of the reserves. No one may be appointed to, or removed from, the GIC Board without the President's concurrence. This additional

layer of control ensures that the company appoints only people of integrity who are competent and can be trusted to safeguard these assets.

The Government

The Government mandates GIC to manage Singapore's foreign reserves with the aim of achieving good long-term real returns. The mandate sets out the terms of appointment, investment objectives, investment horizon, risk parameters, and investment guidelines for managing the reserves. In particular, the overall risk that the Government is prepared for GIC to take in generating long-term investment returns is characterised by the Reference Portfolio.

The Government, represented by MOF, holds the GIC Board accountable for the overall portfolio performance. It does not direct or influence GIC's decisions on individual investments.

GIC provides monthly and quarterly reports to the Government through the Accountant-General of Singapore. These reports contain the financial statements, holdings, and bank account balances of GIC. They also provide detailed performance and risk analytics, as well as the distribution of the portfolio by asset class, country, and currency.

Once a year, the GIC Management formally meets the Minister for Finance and his officials to report on the risk

and performance of the portfolio in the preceding financial year.

The Auditor-General of Singapore

The Auditor-General, who is appointed by the President of Singapore, submits an annual report to the President and Parliament on the audit of the Government and other bodies managing public funds. This audit includes the Government's portfolio managed by GIC and the main companies in the GIC Group - GIC Asset Management, GIC Real Estate, and GIC Special Investments. Other companies in the Group and the investment holding companies are audited by public accounting firms. These companies are also audited by GIC's internal audit.

The GIC Board

The GIC Board is responsible for GIC's Policy Portfolio, which determines the long-term asset allocation strategy, and for the overall performance of the portfolio. GIC's asset allocation operates within the risk constraints determined by the Government in its mandate to GIC. The Board is supported by five board committees.

Board Committees

1. Investment Strategies Committee

The Investment Strategies Committee reviews and evaluates management recommendations on asset allocation

before they are submitted to the GIC Board for decision. The GIC Management reports to this committee on the performance of the portfolio. The committee recommends the key drivers for GIC's return and risk outcomes, and does not decide on specific deals.

2. Investment Board

The Investment Board provides oversight of GIC's investment processes and its implementation, with particular attention to large individual investments. It is not involved in asset allocation decisions, which are the responsibility of the GIC Board. It also ensures GIC does not take on undue reputational risk in pursuit of good returns.

3. Risk Committee

The Risk Committee advises the GIC Board on risk matters and supervises the effectiveness of risk management policies and practices. It reviews GIC's risk profile and significant risk issues arising from operations and investments.

4. Audit Committee

The Audit Committee reviews and assesses the adequacy and effectiveness of internal controls. These include financial, operational, and compliance controls, as well as risk management policies and systems. It also supervises and evaluates the effectiveness of the internal audit function. The committee reviews the integrity of the financial

reporting process and other related disclosures for GIC companies, significant ethics violations, the impact of changes in the regulatory and legal environment, and issues of fraud and financial loss.

5. Human Resource & Organization Committee

The Human Resource & Organization Committee oversees organisational matters in GIC, including compensation policies, talent development, succession planning, and organisational development.

International Advisory Board

The International Advisory Board provides the GIC Board, board committees, and the GIC Management with global and regional perspectives on geopolitical, economic, and market developments. The advice and perspectives cover a range of investment-related matters; in particular, global investment trends, emerging asset classes, and new growth opportunities.

GIC Management

GIC Management formulates and executes investment strategies. Once the long-term asset allocation strategy (as set out in its Policy Portfolio) is decided by the GIC Board, the management seeks to add value through an overlay of active, skill-based strategies (i.e. Active Portfolio). The management comprises five committees with clear reporting lines and accountability.

1. Group Executive Committee

The Group Executive Committee is the highest management body in GIC, bringing together the Group's functional and investment heads. The committee reviews and approves major business, governance, investment, and risk policy issues, which apply to the entire group, and oversees organisational management initiatives, business planning, and personnel matters (including succession planning, talent development, compensation, and performance management).

2. Investment Management Committee

The Investment Management Committee assists the Group Executive Committee in the review and implementation of investment policies and active strategies. It manages investment performance, within the investment framework agreed by the Group Executive Committee, through active monitoring of markets for investment themes and investible opportunities for the GIC Portfolio and managing the risk-reward of the Active Portfolio.

3. Group Risk Committee

The Group Risk Committee provides oversight for the risk management policies and practices of the GIC Group. The committee approves frameworks and policies relating to risk management in areas such as investment, credit, operations, information technology, tax, regulations, and compliance. It reviews the effectiveness of controls and monitors GIC's risk profile across all risk types. The committee also acts as a forum for the Chief Risk Officer to solicit views on the strategic risk management issues that would enable him to carry out his duties.

4. Corporate Management Committee

The Corporate Management Committee oversees enterprise-wide business frameworks and programmes for corporate management and business planning. These include policies on human resource, corporate

administration, operations, office, and technology that are applicable to the organisation.

5. Sustainability Committee

The Sustainability Committee reviews and implements GIC's Sustainability Policy. The Committee decides on matters relating to GIC's stance on sustainability issues, drives the integration of sustainability into investment and corporate processes, coordinates GIC's partnership with global sustainability organisations and initiatives, and monitors and responds to emerging sustainability issues. The committee reports on GIC's sustainability profile and activities to the Group Executive Committee on a regular basis.

Governance Structure Overview

The following chart summarises the accountability of the GIC Board, International Advisory Board, and board committees.

Terms of Reference

GIC Board

- Responsible for the Policy Portfolio, which determines GIC's long-term asset allocation strategy, and for the overall performance of the GIC Portfolio.
- Does not approve individual investments which are the responsibilities of the GIC Management.

International Advisory Board

- Provides views on market developments generally and, in particular, on the medium- to long-term outlook for investment opportunities around the world.

Board Committees

Investment Strategies Committee

- Assists the GIC Board in evaluating the GIC Management's recommendations on asset allocation and in its oversight of overall portfolio performance.
- Recommends the key drivers for GIC's return and risk outcomes.
- Does not approve individual investments.

Investment Board

- Assists the GIC Board in its oversight of GIC's investment process, with particular attention to large individual investments.

Risk Committee

- Oversees the effectiveness of risk management policies and practices of the GIC Group.

Audit Committee

- Looks into the effectiveness of the internal control systems for safeguarding company assets and the Client's investment portfolio.
- Reviews the integrity of the financial reporting process, significant ethics violations, compliance with regulatory and legal requirements, and issues of fraud and financial loss.

Human Resource & Organization Committee

- Oversees organisational matters in GIC, including compensation policies, talent development, succession planning, and organisational development.

GIC Management

- Formulates and executes investment strategies.
- Constructs the Active Portfolio, with an overlay of active, skill-based strategies.

6.2

GIC Board, Board Committees, and Management Committees

Board of Directors

Chairman
Lee Hsien Loong

Deputy Chairman
Tharman Shanmugaratnam
(resigned 7 July 2023)

Directors
Lawrence Wong
Heng Swee Keat
Teo Chee Hean
Lim Hng Kiang
Ang Kong Hua
Peter Seah Lim Huat
Hsieh Fu Hua
Loh Boon Chye
Gautam Banerjee
Koh Boon Hwee
Dr Tony Tan Keng Yam
Seck Wai Kwong
Lim Chow Kiat
Dr Jeffrey Jaensubhakij

Board Committees

Investment Strategies Committee

Chairman
Tharman Shanmugaratnam
(resigned 7 July 2023)

Lawrence Wong
(appointed 7 July 2023)

Deputy Chairman
Peter Seah Lim Huat

Members
Heng Swee Keat
Chan Chun Sing
Lim Hng Kiang
Ang Kong Hua

Advisors
Dr Martin L Leibowitz
G. Leonard Baker Jr.
Dr Mohamed El-Erian
Carsten Stendevad
Glenn Hutchins
Dr Mark Machin

Investment Board

Chairman
Ang Kong Hua

Members
Hsieh Fu Hua
Koh Boon Hwee
G. Leonard Baker Jr.
Glenn Hutchins
Tracey Woon

Human Resource & Organization Committee

Chairman
Peter Seah Lim Huat

Members
Gautam Banerjee
Hsieh Fu Hua
Koh Boon Hwee

Risk Committee

Chairman
Lim Hng Kiang

Members
Loh Boon Chye
Seck Wai Kwong
Ong Chong Tee
Jeanette Wong

Advisors
Dr Martin L Leibowitz

Audit Committee

Chairman
Gautam Banerjee

Members
Loh Boon Chye
Seck Wai Kwong

International Advisory Board

Chairman
Teo Chee Hean

Members
G. Leonard Baker Jr.
Dr Mohamed El-Erian
Uday Kotak
Carsten Stendevad
Glenn Hutchins
Dr Mark Machin

Management Committees

Group Executive Committee

Chairman

Lim Chow Kiat
Chief Executive Officer

Members

Dr Jeffrey Jaensubhakij
Group Chief Investment Officer

Tay Lim Hock
Deputy Group Chief Investment Officer
and Chief Operating Officer

Lim Kee Chong
Deputy Group Chief Investment Officer
and Director, Integrated Strategies

Jin Yuen Yee
Chief Risk Officer

Deanna Ong
Chief People Officer

Liew Tzu Mi
Chief Investment Officer,
Fixed Income & Multi Asset

Choo Yong Cheen
Chief Investment Officer,
Private Equity

Bryan Yeo
Chief Investment Officer,
Public Equities

Investment Management Committee

Chairman

Dr Jeffrey Jaensubhakij
Group Chief Investment Officer

Members

Jin Yuen Yee
Chief Risk Officer

Liew Tzu Mi
Chief Investment Officer,
Fixed Income & Multi Asset

Choo Yong Cheen
Chief Investment Officer,
Private Equity

Bryan Yeo
Chief Investment Officer,
Public Equities

Ang Eng Seng
Chief Investment Officer,
Infrastructure

Lee Kok Sun
Chief Investment Officer,
Real Estate

Dr Prakash Kannan
Chief Economist and Director,
Economics & Investment Strategy

Betty Tay
Director, External Managers

Jeffrey Tan
Director, Portfolio Execution

Arjun Khullar
Head, Integrated Strategies

Group Risk Committee

Chairman

Jin Yuen Yee
Chief Risk Officer

Members

Goh Chin Kiong
Deputy Chief Investment
Officer, Real Estate

Charles Lim
General Counsel

Dr Prakash Kannan
Chief Economist and Director,
Economics & Investment Strategy

Chan Hoe Yin
Director, Finance

Elaine Chan
Director, Investment Services
(Private Markets)

Leong Wing Kwan
Director, Investment Services
(Public Markets)

Jeffrey Tan
Director, Portfolio Execution

Larry Beck
Director, Technology

Edwin Choi
Head, Portfolio Construction &
Quant Strategies, External Managers

Daniel Loo
Head, Portfolio Solutions Group,
Fixed Income & Multi Asset

Ravi Balasubramanian
Head, India Equity Investments,
Public Equities

John Tang
Co-Head, Global Investments,
Strategy & Risk, Private Equity

Corporate Management Committee

Chairman

Tay Lim Hock
Deputy Group Chief Investment
Officer and Chief Operating Officer

Members

Jin Yuen Yee
Chief Risk Officer

Deanna Ong
Chief People Officer

Sam Kim
Deputy Chief Operating Officer

Charles Lim
General Counsel

Wong Ai Chiat
Director, Corporate Administration
& Infrastructure

David Kiu
Director, Corporate Affairs
& Communications

Taran Khera
Director, Data Strategy

Shang Thong Chie
Director, Enterprise Strategy

Chan Hoe Yin
Director, Finance

Peter Goh
Director, Human Resource
& Organization

Vincent Cheang
Director, Internal Audit

Dr Rajesh Krishnamachari
Director, Investment Insights

Elaine Chan
Director, Investment Services
(Private Markets)

Leong Wing Kwan
Director, Investment Services
(Public Markets)

Larry Beck
Director, Technology

Sustainability Committee

Chairman

Liew Tzu Mi
Chief Investment Officer,
Fixed Income & Multi Asset

Members

Shang Thong Chie
Director, Enterprise Strategy

Elaine Chan
Director, Investment Services
(Private Markets)

Leong Wing Kwan
Director, Investment Services
(Public Markets)

Rachel Teo
Head, Sustainability Office,
Enterprise Strategy

Boon Chin Hau
Head, Infrastructure, Americas

Wolfgang Schwerdtle
Head, Direct Investments Group,
LATAM and Co-Head, Sustainability
Solutions Group, Private Equity

Doe Tien Xuan
Head, Research, Public Equities

Daniel Lau
Head, Enterprise Risk & Performance,
Risk & Performance Management

Hannah Garcia
Co-Head, Equities, External
Managers

Ken Lim
Deputy Head, Asia Pacific Equities,
Public Equities

Ong Sei Wei
Managing Director, Integrated
Strategies

Han Hwee Chin
Managing Director, Real Estate

Rayn Ngong
Senior Vice President, Economics &
Investment Strategy

6.3

Organisational Structure

Board of Directors

International Advisory Board

Board Committees

Investment Strategies Committee
Investment Board

Risk Committee
Audit Committee

Human Resource & Organization Committee

Group Executive Committee

Lim Chow Kiat
Chief Executive Officer

Tay Lim Hock
Deputy Group Chief Investment Officer
and Chief Operating Officer

Jin Yuen Yee
Chief Risk Officer

Liew Tzu Mi
Chief Investment Officer,
Fixed Income & Multi Asset

Bryan Yeo
Chief Investment Officer,
Public Equities

Dr Jeffrey Jaensubhakij
Group Chief Investment Officer

Lim Kee Chong
Deputy Group Chief Investment Officer
and Director, Integrated Strategies

Deanna Ong
Chief People Officer

Choo Yong Cheen
Chief Investment Officer,
Private Equity

Corporate Headquarters

[See Next Page for Composition](#)

Investment Groups

[See Next Page for Composition](#)

Global Offices

[See Next Page for Composition](#)

Board of Directors

International Advisory Board

Board Committees

Investment Strategies Committee
Investment Board

Risk Committee
Audit Committee

Human Resource & Organization Committee

Group Executive Committee

[See Previous Page for Composition](#)

Corporate Headquarters

Sam Kim
Deputy Chief
Operating Officer

Wong Ai Chiat
Corporate Administration
& Infrastructure

David Kiu
Corporate Affairs &
Communications

Taran Khara
Data Strategy

Shang Thong Chie
Enterprise Strategy

Chan Hoe Yin
Finance
Deanna Ong
Governance & Client Relations

Peter Goh
Human Resource &
Organization

Vincent Cheang
Internal Audit

Rajesh Krishnamachari
Investment Insights

Elaine Chan
Investment Services
(Private Markets)

Leong Wing Kwan
Investment Services
(Public Markets)

Charles Lim
Legal & Compliance

Jin Yuen Yee
Risk & Performance
Management

Larry Beck
Technology

Investment Groups

Public Equities
Bryan Yeo
Chief Investment Officer

**Fixed Income &
Multi Asset**
Liew Tzu Mi
Chief Investment Officer

Private Equity
Choo Yong Cheen
Chief Investment Officer

Infrastructure
Ang Eng Seng
Chief Investment Officer

Real Estate
Lee Kok Sun
Chief Investment Officer

Real Estate
Goh Chin Kiong
Deputy Chief
Investment Officer

Integrated Strategies
Lim Kee Chong
Director

External Managers
Betty Tay
Director

**Economics & Investment
Strategy**
Dr Prakash Kannan
Director and Chief Economist

Total Portfolio Solutions
Tamam Mouakhar
Director

Portfolio Execution
Jeffrey Tan
Director

Global Offices

Eric Wilmes
President (Americas)

Arjun Gupta
President (Europe)

Sharon Sun
Beijing

Kishore Gotety
Mumbai

Adam Gallistel
New York

Eric Wilmes
San Francisco

Wolfgang Schwerdtle
São Paulo

Cai Wenzheng
Seoul

Li Yu
Shanghai

Richard Massey
Sydney

Ken Sugimoto
Tokyo

6.4

Board, Board Committee Members, and Advisors



Chairman, GIC Board

Lee Hsien Loong

Prime Minister

Lee Hsien Loong has been Singapore's Prime Minister since 2004. Mr Lee is the Secretary-General of the People's Action Party (PAP). He was first elected Member of Parliament (MP) in 1984, and has been re-elected eight times, most recently as an MP for the Ang Mo Kio Group Representation Constituency. Mr Lee is Chairman of GIC, and also chairs the Research, Innovation and Enterprise Council, an international panel that provides strategic direction for Singapore's Research and Development efforts.

Before becoming Prime Minister, Mr Lee had held various Ministerial appointments, including being Deputy Prime Minister, Minister for Finance, Minister in the Prime Minister's Office, Minister for Trade and Industry and Second Minister for Defence. He was concurrently the Chairman of the Monetary Authority of Singapore from 1998 to 2004. Before joining politics, Mr Lee had served in the Singapore Armed Forces, retiring as a Brigadier-General.

Mr Lee holds a B.A. in Mathematics and a Diploma in Computer Science from the University of Cambridge. He holds a Master in Public Administration and is a Mason Fellow at the Harvard Kennedy School.



**Deputy Chairman, GIC Board
Chairman, GIC Investment Strategies Committee**
(Resigned on 7 July 2023)

Tharman Shanmugaratnam

*Former Senior Minister and
Coordinating Minister for
Social Policies*

Tharman Shanmugaratnam resigned from politics and all his positions in Government on 7 July 2023 to run in the coming Presidential Election in Singapore. He had been Senior Minister since 2019, Deputy Prime Minister from 2011 to 2019, and Minister for Finance from 2007 to 2015. He served concurrently as Chairman of the Monetary Authority of Singapore from 2011 till his resignation on 7 July 2023.

Mr Tharman was on the GIC Board for over 19 years. He served as Deputy Chairman for 4 years (2019 to 2023) and as Chairman of the GIC's Investment Strategies Committee for 12 years (2011 to 2023).

Internationally, Mr Tharman chairs the Board of Trustees of the Group of Thirty, an independent global council of economic and financial leaders. He also co-chairs the Global Commission on the Economics of Water, and the Advisory Board for the UN Human Development Report (HDR). He co-chaired the G20 High Level Independent Panel on financing pandemic security in 2021. He earlier chaired the G20 Eminent Persons Group on Global Financial Governance in 2017-2018. He also chaired the International Monetary and Financial Committee, the key policy forum of the IMF, over 2011-2014.

Mr Tharman studied economics at the LSE and Cambridge University. He later obtained a Master in Public Administration at Harvard Kennedy School, where he received the Lucius N Littauer Fellow award for outstanding performance and leadership potential.



Director, GIC Board
Member, GIC Investment Strategies Committee

Lawrence Wong

Deputy Prime Minister and Minister for Finance

Lawrence Wong is Singapore's Deputy Prime Minister and the Minister for Finance. Apart from chairing the GIC Investment Strategies Committee, he is the Chairman of the Monetary Authority of Singapore and the Singapore Labour Foundation. He is also member of the Future Economy Council, the Research, Innovation and Enterprise Council and the National Research Foundation Board. Mr Wong began his career as a civil servant, and held positions such as Chief Executive of the Energy Market Authority and the Principal Private Secretary to Prime Minister Lee Hsien Loong. He was elected a Member of Parliament in May 2011 and subsequently held ministerial appointments in Defence, Education, Communications and Information, Culture, Community and Youth, and National Development.

Mr Wong obtained his Bachelor's and Master's degrees in Economics from the University of Wisconsin-Madison and the University of Michigan, Ann Arbor, respectively. He also holds a Master in Public Administration from Harvard Kennedy School.



Director, GIC Board
Member, GIC Investment Strategies Committee

Heng Swee Keat

Deputy Prime Minister and Coordinating Minister for Economic Policies

Heng Swee Keat is Singapore's Deputy Prime Minister and Coordinating Minister for Economic Policies. He is a member of the GIC Investment Strategies Committee. Mr Heng chairs the Future Economy Council and the National Research Foundation. He also served as Minister for Education from 2011 to 2015 and Minister for Finance from 2015 to 2021. Before entering politics in 2011, he was Managing Director of the Monetary Authority of Singapore. He also served as Permanent Secretary of the Ministry of Trade and Industry, as well as CEO of the then-Trade Development Board. Between 1997 and 2000, he was Principal Private Secretary to then-Senior Minister Lee Kuan Yew.

Mr Heng holds a Master of Arts in Economics from Cambridge University, and a Master in Public Administration from Harvard Kennedy School.



Director, GIC Board
Chairman, GIC International Advisory Board

Teo Chee Hean

Senior Minister and Coordinating Minister for National Security

Teo Chee Hean is Senior Minister and Coordinating Minister for National Security. He chairs the GIC International Advisory Board. He currently oversees the Smart Nation and Digital Government Group, National Security Coordination Secretariat, National Population and Talent Division, and National Climate Change Secretariat under the Prime Minister's Office. He was Deputy Prime Minister from 2009 to 2019, and has served as Minister for Home Affairs, Minister for Defence, Minister for Education, and Minister for the Environment. He also served as Minister of State in the Ministries of Finance, Communications and Defence. Prior to entering politics in 1992, he was the Chief of Navy holding the rank of Rear Admiral.

Mr Teo graduated with a Bachelor of Science (First Class Honours) in Electrical Engineering and Management Science from the University of Manchester. He holds a Master of Science (Distinction) in Computing Science from Imperial College and a Master in Public Administration from Harvard University.



Director, GIC Board
Chairman, GIC Risk Committee
Member, GIC Investment Strategies Committee

Lim Hng Kiang

Special Advisor to Ministry of Trade and Industry

Lim Hng Kiang is the Special Advisor to the Ministry of Trade and Industry. He chairs the GIC Risk Committee and is a member of the Investment Strategies Committee. He sits on the Monetary Authority of Singapore board. Previously, Mr Lim was Minister for Trade and Industry from 2004 to 2015, when the Ministry was carved into two portfolios. He was then appointed Minister for Trade and Industry (Trade) until he stepped down in May 2018. He has held ministerial appointments in National Development, Health, Foreign Affairs, Finance and the Prime Minister's Office. Before entering politics in 1991, he was Deputy Secretary in the Ministry of National Development.

Mr Lim graduated from Cambridge University with First Class Honours (Distinction) in Engineering. He later earned a Master in Public Administration from Harvard University.



Director, GIC Board
Chairman, GIC Investment Board
Member, GIC Investment Strategies Committee

Ang Kong Hua chairs the GIC Investment Board and is a member of the Investment Strategies Committee. He was the Chairman of Sembcorp Industries Ltd from 2010 until his retirement in April 2023. He has helmed several of Singapore's biggest companies, bringing years of experience spanning the manufacturing, services, and financial sectors. Mr Ang started his career at the Economic Development Board. He then joined DBS Bank at its inception in 1968 and pioneered its investment banking division. From 1974 to 2003, he was CEO of NSL (formerly NatSteel), and stayed as its Executive Director until 2010. He was previously Chairman of Singapore Telecommunications and Singapore Post, Vice Chairman of Neptune Orient Lines, and a Director of DBS Bank, CIMC Raffles Offshore (Singapore), and k1 Ventures.

Mr Ang holds a Bachelor of Science (Honours) in Economics from the University of Hull.

Ang Kong Hua

*Former Chairman
Sembcorp Industries Ltd*



Director, GIC Board
Chairman, GIC Human Resource & Organization Committee
Deputy Chairman, GIC Investment Strategies Committee

Peter Seah Lim Huat is the Chairman of DBS Group Holdings. He chairs GIC's Human Resource & Organization Committee, and is Deputy Chairman of the Investment Strategies Committee. He heads the boards of Singapore Airlines, LaSalle College of the Arts, and chairs the National Wages Council. He was a banker for 33 years before retiring as Vice Chairman and CEO of the former Overseas Union Bank in 2001. He was also President and CEO of the Singapore Technologies Group. Mr Seah also serves on the boards of Fullerton Financial Holdings and STT Communications. In 2021, he was awarded The Order of Nila Utama (With Distinction) by the President of Singapore.

Mr Seah holds an honours degree in Business Administration from NUS Business School.

Peter Seah Lim Huat

*Chairman
DBS Group Holdings Ltd*



Director, GIC Board
Member, GIC Investment Board
Member, GIC Human Resource & Organization Committee

Hsieh Fu Hua is Co-Founder and Advisor to the PrimePartners Group, Chairman of Eastspring Investments Group Pte Ltd and of GX Bank Pte Ltd. He is a member of the GIC Investment Board and the Human Resource & Organization Committee. He also serves on the boards of several non-profit organisations. He chairs the National University of Singapore, the National University Health System, and the WWF Singapore. Previously, he was President of the National Council of Social Service, Chairman of Stewardship Asia Centre, and Chairman of the National Gallery Singapore. Mr Hsieh started his career in merchant banking and capital markets in 1974 when he joined Morgan Grenfell Asia Holdings upon graduation, eventually rising to head the organisation. He subsequently served as Group Managing Director of BNP Prime Peregrine Group Hong Kong, CEO of Singapore Exchange, President of Temasek Holdings, Chairman of Tiger Airways, Chairman of United Overseas Bank and Chairman of Asia Capital Reinsurance Group Pte Ltd.

Mr Hsieh graduated from the NUS Business School.

Hsieh Fu Hua

*Co-Founder and Advisor
PrimePartners Group*



Director, GIC Board
Member, GIC Risk Committee
Member, GIC Audit Committee

Loh Boon Chye is the CEO of Singapore Exchange (SGX Group). He is a member of the GIC Risk Committee and GIC Audit Committee. With a finance career that spans three decades, he has played a key role in the development of Southeast Asia's capital markets. Prior to SGX Group, he was Deputy President and Head of Asia Pacific Global Markets, and Country Executive for Singapore and Southeast Asia at Bank of America-Merrill Lynch. He spent 17 years in Deutsche Bank where his last role was the Head of Corporate and Investment Banking for Asia Pacific. He started his career with the Monetary Authority of Singapore and Morgan Guaranty Trust Co. of New York. Besides serving on the World Federation of Exchanges board, Mr Loh is also an Independent Advisory Committee member in the UN Sustainable Stock Exchange Initiative, advisory board member for Glasgow Financial Alliance for Net Zero (GFANZ)'s Asia-Pacific Network and a member of the GFANZ's CEO Principals Group.

Mr Loh holds a Bachelor of Engineering degree from the National University of Singapore.

Loh Boon Chye

*Chief Executive Officer
SGX Group*



Director, GIC Board
Chairman, GIC Audit Committee
Member, GIC Human Resource & Organization Committee

Gautam Banerjee is a Senior Managing Director and Chairman of Blackstone Singapore. He chairs the GIC Audit Committee and is a member of the GIC Human Resource & Organization Committee. Before joining Blackstone, Mr Banerjee spent over 30 years with PricewaterhouseCoopers, serving as Executive Chairman of PwC Singapore for nine years until he retired in 2012. He serves on the boards of Singapore Airlines and Singapore Telecommunications Ltd.

Gautam Banerjee

*Senior Managing Director
and Chairman
Blackstone Singapore*

Mr Banerjee holds a Bachelor of Science (Honours) in Accounting and Financial Analysis and an Honorary Doctor of Laws (LLD) from the University of Warwick. He is a Fellow of the Institute of Chartered Accountants in England and Wales, the Institute of Singapore Chartered Accountants, and the Singapore Institute of Directors.



Director, GIC Board
Member, GIC Investment Board
Member, GIC Human Resource & Organisation Committee

Koh Boon Hwee is the Chairman of Altara Ventures Pte Ltd. He sits on the GIC Investment Board and the GIC Human Resource & Organization Committee. He is also the Chairman of SGX Group, Sunningdale Tech, Rippledote Capital Advisers, the Securities Industry Council and Agilent Technologies. He started his career in 1977 at Hewlett-Packard and rose to become its Managing Director in Singapore from 1985 to 1990. He was Executive Chairman of the Wuthelam Group from 1991 to 2000. Mr Koh was also the Chairman of Singapore Telecommunications Ltd, Singapore Airlines and DBS Bank at various times.

Koh Boon Hwee

*Chairman
Altara Ventures Pte Ltd*

Mr Koh holds a Bachelor's Degree (First Class Honours) in Mechanical Engineering from Imperial College London, and a Master in Business Administration (Distinction) from Harvard Business School. He also received honorary doctorates from Imperial College London and Nanyang Technological University.



Director, GIC Board

Dr Tony Tan Keng Yam has served as the Minister for Finance, Trade and Industry, Education and Deputy Prime Minister and Co-ordinating Minister for Security and Defence. He was the Chairman and CEO of OCBC Bank from 1992 to 1995. In September 2005, after leaving the Cabinet, Dr Tan was appointed Deputy Chairman and Executive Director of GIC, Chairman of the National Research Foundation and Chairman of SPH. In July 2011, Dr Tan contested in the Presidential Election and was sworn in as the seventh President of the Republic of Singapore on 1 September 2011 for a 6-year term. In September 2017, he was appointed the Honorary Patron and Distinguished Senior Fellow at Singapore Management University.

Dr Tony Tan Keng Yam

*Special Advisor
GIC*

Dr Tan graduated from the University of Singapore with a First Class Honours Degree in Physics. He holds a Master of Science degree from MIT and a PhD in Applied Mathematics from the University of Adelaide.



Director, GIC Board
Member, GIC Risk Committee
Member, GIC Audit Committee

Seck Wai Kwong is a member of the GIC Risk Committee and GIC Audit Committee. He was the Chief Executive Officer of Eastspring Investments Group, the Asian investment management arm of Prudential plc from April 2019 till his retirement in August 2023. He joined Eastspring from State Street Bank and Trust Company, where he was Chief Executive Officer, Asia Pacific. Prior to joining State Street, he was Chief Financial Officer of the Singapore Exchange from 2003 to 2011 and has held senior positions in the Monetary Authority of Singapore, GIC, Lehman Brothers and DBS Bank. He is a Trustee and chairs the Investment Committee at the Singapore Police Force's pension fund. He serves on the Advisory Council of the Hong Kong University of Science and Technology – School of Business and Management.

Seck Wai Kwong

*Former Chief Executive Officer
Eastspring Investments Group*

Mr Seck graduated with First Class Honours in Economics from Monash University where he is a Vice Chancellor Professorial Fellow. He also holds a Master in Business Administration from the Wharton School at the University of Pennsylvania.



Chan Chun Sing

*Minister for Education and
Minister-in-charge of
Public Service*

Member, GIC Investment Strategies Committee

Chan Chun Sing is Minister for Education. He is concurrently Minister-in-charge of the Public Service. Mr Chan served with the Singapore Armed Forces (SAF) from 1987 to 2011. He was elected a Member of Parliament in May 2011 and subsequently held positions in various ministries, including as Minister for Social and Family Development, 2nd Minister for Defence and Minister for Trade and Industry. Mr Chan was also Secretary-General of the National Trades Union Congress and Minister in the Prime Minister's Office.

Mr Chan holds a Bachelor's degree (First Class Honours) in Economics from Cambridge University under the SAF (Overseas) and President's Scholarship. He was awarded the Distinguished Master Strategist Award 1998 by the US Army Command and Staff College. In 2005, he completed the Sloan Fellows Programme at the Massachusetts Institute of Technology under the Lee Kuan Yew Scholarship.



Tracey Woon

*Former Vice Chairman of
Global Wealth Management
(Asia Pacific)
UBS AG*

Member, GIC Investment Board

Tracey Woon is a member of the GIC Investment Board. She has more than 35 years of investment banking experience and has worked on corporate finance transactions, debt offerings and advisory work, including takeovers of public companies in Singapore and ASEAN. Previously at UBS AG, she was the Vice Chairman of Global Wealth Management (Asia Pacific) and was responsible for the UBS' Women Initiative in Asia Pacific. Prior to joining UBS, Ms Woon was the Vice Chairman of Citibank's ASEAN Corporate and Investment Banking division. She is currently a Board Director of United Overseas Bank, National University Health System and SPH Foundation Limited, as well as a council member of the Singapore Red Cross. She is a member of the Securities Industry Council, the Listings Advisory Committee of the Singapore Exchange, the Mind Science Centre advisory board and is a Milken Institute Senior Fellow.

She holds a Bachelor of Law (Honours) from the National University of Singapore. She was also conferred 2016 IBF Distinguished Fellow Award.



Ong Chong Tee

*Chairman
ACRA*

Member, GIC Risk Committee

Mr Ong Chong Tee is the Chairman of Accounting and Corporate Regulatory Authority (ACRA) from July 2022, having joined the Board as its Deputy Chairman in April 2021. He is a member of the GIC Risk Committee. Previously, Mr Ong was with the Monetary Authority of Singapore (MAS) for 35 years and held senior positions including in the areas of reserve management, central banking monetary operations, market development and financial supervision. As MAS' Deputy Managing Director of Financial Supervision from 2014 to 2021, Mr Ong oversaw the regulations and supervision of the banking, insurance, capital markets, payment services, technology risks, money laundering risks, as well as MAS' enforcement function. He is also a board member of other public and private entities including United Overseas Bank and National University of Singapore.

Mr Ong holds an Honours Degree in Chemical Engineering from the National University of Singapore. He was awarded the Public Administration Medal (Gold) in August 2007 and Public Administration Medal (Gold) (Bar) in August 2021 by the President of Singapore.



Jeanette Wong

*Former Group Executive
DBS Bank*

Member, GIC Risk Committee

Jeanette Wong is a member of the GIC Risk Committee. She has over 35 years of operational experience in financial services. Before her retirement in March 2019, she was Group Executive at DBS Bank, responsible for the Institutional Banking Group. She was also Director of DBS Bank (China) Limited, Chairperson of DBS Bank (Taiwan) Ltd, and the Chief Financial Officer of DBS Group. Prior to joining DBS, Ms Wong held various roles at Banque Paribas, Citibank, and JP Morgan. She currently sits on the boards of Singapore Airlines, UBS Group AG and UBS AG, Prudential plc, PSA International Pte Ltd, and Jurong Town Corporation. She is a member of the Securities Industry Council and a member of the Board of Trustees at National University of Singapore. She is also the Chair of NUS Business School Management Advisory Board and CareShield Life Council under MOH.

Ms Wong holds an MBA from the University of Chicago and a BA in Business Administration from the National University of Singapore.



Advisor, GIC Investment Strategies Committee
Advisor, GIC Risk Committee

Dr Martin L. Leibowitz is President of Advanced Portfolio Studies LLC. He is an advisor to the GIC Investment Strategies Committee and Risk Committee. He previously was a Senior Advisor of Morgan Stanley. Prior to joining Morgan Stanley as a Managing Director in the Research Department, Dr Leibowitz was the Vice Chairman and Chief Investment Officer of TIAA-CREF, responsible for the management of more than US\$300 billion in equity, fixed income, and real estate assets. He was also Director of Global Research at Salomon Brothers, and has received wide recognition for his writings on various financial topics and investment analysis. He now serves on the investment advisory committees of The Rockefeller Foundation, The Carnegie Foundation, the IMF Pension Fund, the American Academy of Arts and Sciences, and The Institute for Advanced Study. In 2021, he was conferred the Public Service Star Award in Singapore for his contributions in the areas of investment and policy portfolio management.

Dr Leibowitz holds both Bachelor of Arts and Master of Science degrees from the University of Chicago and a PhD in Mathematics from the Courant Institute of New York University.

Dr Martin Leibowitz

*President
Advanced Portfolio Studies
LLC*



Member, GIC International Advisory Board
Member, GIC Investment Board
Advisor, GIC Investment Strategies Committee

Leonard Baker is a Limited Partner at Sutter Hill Ventures. He advises GIC's Investment Strategies Committee and sits on the Investment Board. He was a trustee of Yale University, where he chaired the Finance Committee and served on the Yale Investment Committee from 1990 to 2015. Mr Baker is a board member of Stanford Management Company, advises the David and Lucile Packard Foundation Investment Committee, and is a board member of the US Environmental Defense Fund. He was conferred the Public Service Star Award in 2005 and the Public Service Star Award (Bar) in 2021 in Singapore for his contributions in the areas of education and investment management.

Mr Baker holds a Bachelor of Arts in Mathematics from Yale University and a Master in Business Administration from Stanford University.

G. Leonard Baker Jr.

*Limited Partner
Sutter Hill Ventures*



Member, GIC International Advisory Board
Advisor, GIC Investment Strategies Committee

Dr Mohamed El-Erian is President of Queens' College Cambridge, Chief Economic Advisor at Allianz, and Chair of the Gramercy Funds. He is an advisor to the GIC Investment Strategies Committee. He serves on the boards of Barclays and Under Armour. Previously, he was CEO and co-CIO of PIMCO from 2007 to 2014, and former chair of President Obama's Global Development Council from 2012 to 2017. He was President and CEO of Harvard Management Company, Managing Director at Salomon Smith Barney/Citigroup, and Deputy Director at the International Monetary Fund in Washington, DC. Dr El-Erian writes regularly, and is a Financial Times Contributing Editor and Bloomberg Opinion columnist. He has two New York Times' best sellers – the 2008 "When Markets Collide" and the 2016 "The Only Game in Town" – and was named four years in a row to the Foreign Policy list of Top Global Thinkers.

Dr El-Erian holds a BA/MA in Economics from Cambridge University, as well as a Masters and PhD in Economics from Oxford University.

Dr Mohamed El-Erian

*Chief Economic Advisor
Allianz*



Member, GIC International Advisory Board

Uday Kotak is Founder, Managing Director and Chief Executive Officer of Kotak Mahindra Bank Limited (KMBL). He has led the group in a broad range of financial services for over 37 years. Mr Kotak believes that the true measure of performance is sustainable value creation. Today, KMBL is among India's most efficient, high-performing and trusted banks. The Group's vision for equitable prosperity extends beyond financial services. The Kotak Education Foundation works with some of India's most economically underprivileged communities, attempting to alleviate poverty through education and livelihood programmes. Mr Kotak is a member of the International Advisory Panel of Monetary Authority of Singapore. He has been awarded the Ernst & Young World Entrepreneur of the Year Award in 2014.

Mr Kotak holds a Bachelor's degree in Commerce and a Master's in Management Studies degree from Jamnalal Bajaj Institute of Management Studies, Mumbai.

Uday Kotak

*Managing Director and CEO
Kotak Mahindra Bank*



Carsten Stendevad

*Co-Chief Investment Officer
for Sustainability
Bridgewater Associates*

**Member, GIC International Advisory Board
Advisor, GIC Investment Strategies Committee**

Carsten Stendevad joined Bridgewater in 2017, and serves as Co-CIO for Sustainability and a partner of the firm. He is also a member of the Commercial and Business Strategy Committee, and co-chairs the Sustainable Investing Committee. Mr Stendevad is an advisor to the GIC Investment Strategies Committee. Prior to Bridgewater, Mr Stendevad was the CEO of ATP and a Managing Director in Citi's Investment Banking Division. Earlier in his career, Mr Stendevad worked at McKinsey & Company and the Central Bank of Denmark. He served on the Global Steering Committee for the Blended Finance Taskforce, and on the Danish Committee for Corporate Governance.

He is a recipient of the Order of Dannebrog awarded by HMQ Margrethe II of Denmark. Mr Stendevad holds a Bachelor of Science and Master of Science degree in Economics from the University of Copenhagen and a Master of Public Policy from the Harvard Kennedy School of Government.



Glenn Hutchins

*Chairman
North Island*

**Member, GIC International Advisory Board
Member, GIC Investment Board
Advisor, GIC Investment Strategies Committee**

Glenn Hutchins is Chairman of North Island and North Island Ventures, and co-founder of Silver Lake. He is an advisor to the GIC Investment Strategies Committee and sits on the Investment Board. He is a director of AT&T and Banco Santander; Co-Chairman of the Brookings Institution, Chair of the Executive Committee of CARE and Vice Chair of the Obama Foundation; and on the Executive Committee of the Boston Celtics Basketball Team. Mr Hutchins was Director and Chair of the Audit and Risk Committee of the Federal Reserve Bank of New York from 2011 to 2020. He previously served President Clinton in both the transition and the White House as a special advisor on economic and healthcare policy. He also founded the Hutchins Family Foundation to manage his philanthropic initiatives in academic research and public policy.

Mr Hutchins holds a Bachelor of Arts from Harvard College, a Master in Business Administration from Harvard Business School, and a Juris Doctor degree from Harvard Law School. He is also a Fellow of the American Academy of Arts and Sciences.



Dr Mark Machin

*Vice Chairman
Opto Investments*

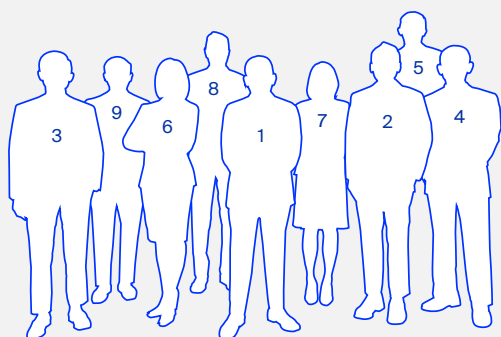
**Member, GIC International Advisory Board
Advisor, GIC Investment Strategies Committee**

Dr Mark Machin is Vice Chairman of Opto Investments. He is also an advisor to the GIC Investment Strategies Committee. From 2016 to 2021, he served as the President and Chief Executive Officer of Canada Pension Plan Investments (CPP Investments, previously known as CPPIB). He joined CPP Investments in 2012 and was Senior Managing Director and Head of International based in Hong Kong. Prior, Dr Machin had a 20-year career at Goldman Sachs in London and Hong Kong where for 11 years he headed Capital Markets and Investment Banking in Asia ex-Japan. He is also on the board of the Atlantic Council and Serendipity Capital.

Dr Machin holds a Bachelor of Arts in Physiological Sciences from Oxford University and a Bachelor of Medicine and Bachelor of Surgery from Cambridge University.

6.5

Executive Management



1 Lim Chow Kiat
Chief Executive Officer

2 Dr Jeffrey Jaensubhakij
Group Chief Investment Officer

3 Tay Lim Hock
Deputy Group Chief Investment Officer
and Chief Operating Officer

4 Lim Kee Chong
Deputy Group Chief Investment Officer
and Director, Integrated Strategies

5 Jin Yuen Yee
Chief Risk Officer

6 Deanna Ong
Chief People Officer

7 Liew Tzu Mi
Chief Investment Officer,
Fixed Income & Multi Asset

8 Choo Yong Cheen
Chief Investment Officer,
Private Equity

9 Bryan Yeo
Chief Investment Officer,
Public Equities



Lim Chow Kiat

Chief Executive Officer

Director, GIC Board

Lim Chow Kiat was appointed Chief Executive Officer in January 2017. He chairs the Group Executive Committee which governs and reviews all key investment, risk, and business decisions. He is overall responsible for the performance of GIC, and oversees the development and execution of long-term strategies. Mr Lim was previously Group Chief Investment Officer of GIC and Deputy Group President. He joined GIC as a portfolio manager upon graduation in 1993 and rose to head the Fixed Income, Currency, and Commodities Department. He was President, Europe in 2009, overseeing investments and relationships in Europe, Africa, and the Middle East before his appointment as President of GIC Asset Management in 2011. Mr Lim is the Chairman of the Wealth Management Institute and serves on the boards of National Research Foundation and Enterprise Singapore. He is a member of Agence France Trésor's Strategic Committee and the WEF International Business Council, a FCLTGlobal Strategic Advisor, as well as a former trustee of Nanyang Technological University.

Mr Lim holds a Bachelor's degree (First Class Honours) in Accountancy from Nanyang Technological University.



Dr Jeffrey Jaensubhakij

Group Chief Investment Officer

Director, GIC Board

Dr Jeffrey Jaensubhakij was appointed Group Chief Investment Officer in January 2017. He oversees GIC's total investment portfolio, and works with investment group heads to manage and monitor investment activities across all asset classes. He also leads the development of short- and long-term investment policies to optimise the risk-reward of the total portfolio across changing investment environments. He joined GIC in 1998 as a Senior Economist covering the US economy and was subsequently appointed Co-Head of Asset Allocation Strategy in the Economics and Strategy Department. He was Head of Total Return Equities and the US Equities teams based in GIC's New York Office from 2003 to 2011. He was subsequently appointed President, Europe in 2011 coordinating GIC's investment activities in Europe across public and private asset classes, President, Public Markets and Director of Public Equities in 2013, and Deputy Group Chief Investment Officer in 2016.

Dr Jaensubhakij holds a Bachelor of Arts degree in Economics from Cambridge University, as well as a Master's and a PhD in Economics from Stanford University.



Tay Lim Hock

*Deputy Group Chief Investment Officer
and Chief Operating Officer*

Tay Lim Hock was appointed Chief Operating Officer in July 2019, concurrent to his role as Deputy Group Chief Investment Officer. As COO, he oversees enterprise-wide investment services and operations, data and technology, and corporate administration. As Deputy GCIO, he supports the Group CIO in overseeing GIC's investment portfolio. He joined GIC's Asian Private Equity (PE) team in 1995, and was posted to London in 2000 as Head PE Europe and to San Francisco in 2003 as Head PE US. He became PE's Global Head of the Funds & Co-Investment Group in 2008, and President of PE & Infrastructure in 2011. Mr Tay returned to London as President (Europe) and Deputy GCIO in 2017. Prior to GIC, he worked as an Aeronautical Engineer with the Republic of Singapore Air Force.

Mr Tay holds a Masters in Aeronautical Engineering from l'Ecole Nationale de l'Aviation Civile, and completed the Stanford Executive Program.



Lim Kee Chong

*Deputy Group Chief Investment Officer,
and Director, Integrated Strategies*

Lim Kee Chong was appointed Deputy Group Chief Investment Officer and Director of Integrated Strategies Group in April 2013. In these roles, he supports the Group CIO in overseeing GIC's entire investment portfolio and heads a unit that looks at opportunities in both public and private companies. He joined GIC in 1987, built his career in the Equities Department and was appointed Head of Global Equities in 2010. During his tenure at GIC, he has managed portfolios running the gamut of developed market equities, as well as global sector and global equities portfolios. He was President (Americas) and based in GIC's New York office from January 2017 to March 2022, providing leadership oversight for GIC's operations and driving regional strategic collaboration, business development and culture across the GIC teams in Americas.

Mr Lim holds a Bachelor's degree in Economics from the University of Tokyo, where he studied under a government scholarship.



Jin Yuen Yee

Chief Risk Officer

Jin Yuen Yee was appointed Chief Risk Officer in April 2020. He heads the overall risk function for GIC, and oversees the implementation of risk policies, manages significant risk issues from investments and operations. Prior to this, he was Deputy Chief Risk Officer and Director of Risk and Performance Management Department. Since joining GIC in 2002 as a portfolio manager in Foreign Exchange, Mr Jin has held several roles such as Head of Treasury and Currency Management, Head of Real Return Programme, Head of Fixed Income Global Macro, and Head of Fixed Income Macro Research and Strategy. Mr Jin served as the Senior Special Assistant to the Chief Executive Officer and Group Chief Investment Officer from 2015 to 2017. Mr Jin serves on the Temasek Polytechnic Board of Governors.

Mr Jin holds a Diploma in Marketing from the Chartered Institute of Marketing, a Master of Science in Wealth Management from Singapore Management University and a Master of Engineering from the Technical University of Berlin.



Deanna Ong

Chief People Officer

Deanna Ong was appointed Chief People Officer in April 2017. She oversees human resource strategy to attract, develop and retain talent for enterprise performance, with the right values and culture for GIC. Her areas of focus include leadership development, reward and engagement for business effectiveness, and organisational culture. She has been responsible for Human Resource & Organization and Corporate Governance since 2012. Ms Ong was Director, Finance from 2009 to 2014, during which she headed the Finance Group responsible for financial management across GIC's portfolio, covering financing for assets, tax planning, investment holding structures, and management of group revenue and expenditure. Prior to joining GIC in 1994, she was a tax accountant with Arthur Andersen. Ms Ong is currently a board member of Swiss Re Ltd, National University Health System, and Wealth Management Institute International Pte Ltd.

Ms Ong holds a Bachelor of Accountancy from Nanyang Technological University. She has completed the Stanford Executive Program from the Stanford University Graduate School of Business.



Liew Tzu Mi

*Chief Investment Officer,
Fixed Income & Multi Asset*

Liew Tzu Mi was appointed Chief Investment Officer for Fixed Income in July 2016 and the department was renamed to Fixed Income & Multi Asset in April 2023. She oversees the Fixed Income & Multi Asset portfolio which includes investments in macro, corporate credit, structured products, convertibles, alternative credit, and cross-asset systematic investing. She joined GIC in 1998 and built her career in the Fixed Income department. She was responsible for the Emerging Markets and Foreign Exchange business from 2008 to 2010, headed up the Macro Research and Strategy team at its inception in 2011 and the Global Macro business from 2011 to 2016. She chairs GIC's Currency Risk Management Committee which is responsible for managing the currency exposure of the total portfolio and the Sustainability Committee which drives the integration of sustainability into GIC's investment and corporate processes. Ms Liew is a member of the Ministry of Defence SAVER-Premium Board of Trustees and the Central Provident Fund Board.

Ms Liew holds a Bachelor of Arts (First Class Honours) in Engineering and Master of Arts from the University of Cambridge, and a Master of Science in Engineering from Princeton University. She has completed the Advanced Management Program from INSEAD.



Choo Yong Cheen

*Chief Investment Officer,
Private Equity*

Choo Yong Cheen was appointed Chief Investment Officer for Private Equity in July 2016. He oversees the Private Equity portfolio, which includes investments in buyouts, minority growth, pre-IPOs, venture capital, private credit, and special situations. He joined GIC in 1996 and held various roles in the Economics and Strategy Department. Mr Choo transferred to the Equities Department in 2002, where he managed an Asia regional equities portfolio, specialising in China. He transferred to GIC Special Investments to run GIC's Private Equity business across Asia in 2011, before being posted to London in 2014 to run the European Private Equity business. Mr Choo is also currently the Head of GIC's China Business Group.

Mr Choo holds a Bachelor of Science (First Class Honours) and a Master of Science (with Distinction) in Econometrics and Mathematical Economics from the London School of Economics and Political Science. He has also completed the Senior Executive Programme from the London Business School.



Bryan Yeo

*Chief Investment Officer,
Public Equities*

Bryan Yeo was appointed Chief Investment Officer for Public Equities in June 2016. He focuses on capital allocation, drives the aggregate equities portfolio construction, and oversees the equities portfolio which invests across global developed markets and emerging markets. He joined the GIC Fixed Income Department as a portfolio manager in 2003 and rose to take on senior roles including Head of Credit Markets, Head of Fixed Income (Americas) based in New York, and Head of Credit Research and Strategy. He was based in GIC's London Office in the early part of his career.

Mr Yeo holds a Bachelor of Arts (First Class Honours) in Engineering from the University of Cambridge and a Master of Science in Financial Mathematics from the University of Chicago. He has completed the Stanford Executive Program from the Stanford University Graduate School of Business.

7.0

Our People, Culture, & Community

GIC employees are guided by our PRIME values – Prudence, Respect, Integrity, Merit and Excellence. These serve as our organisational compass and GICians are expected to live up to them.

7.1 Our Organisational Culture

PRIME

Our PRIME values serve as our compass: **Prudence, Respect, Integrity, Merit, Excellence**

AAD

Our cultural attributes, AAD: **Ambition, Agility, and Harnessing Diversity**



Employee Volunteering

With love, GIC

At GIC, we encourage GICians to put our values into action through volunteering to create positive impact in the communities where we work and live. One project in 2022/23 saw GICians work with former Singapore footballer Isa Halim on a futsal training session for 33 children under MENDAKI's educational assistance programmes.



7.2 Our Leadership and Talent

DE&I

We are in a position to influence positive change, and have taken responsibility by facilitating the entry of underrepresented talent into the financial services industry. Our Women-in-GIC (WING) Immersion Bootcamp Programme introduces female undergraduates in Singapore to careers in finance through masterclasses and a capstone project.

7.0

Our People, Culture, and Community

At GIC, people are our biggest investment. Preparing and equipping them to fulfil GIC's purpose – to secure Singapore's financial future – while enabling them to thrive in their careers is vital to our success.

One Global Team

We have over 2,100 employees across 52 nationalities, operating from our Singapore headquarters and ten offices in key financial centres: Beijing, London, Mumbai, New York, San Francisco, São Paulo, Seoul, Shanghai, Sydney, and Tokyo

GICians – our employees – come from diverse backgrounds, enabling us to leverage global market insights, networks, and functional expertise to invest well for Singapore and fulfil our mandate: to preserve and enhance the international purchasing power of the reserves under our management over the long term.



7.1

Our Organisational Culture

As we pursue our mission, we remain committed to our vision to be the leading global long-term investor. To achieve this, we must stay true to our founding values, while evolving our organisational culture to thrive in a changing landscape.

Anchored in PRIME

Our PRIME values serve as our compass:

We remain guided by these values. They continue to inform everything we do, and GICians are expected to live up to them.

P

Prudence

Use sound judgment to take appropriate and informed risks.

R

Respect

Treat everyone with dignity. Value the perspectives and work of others.

I

Integrity

Be honest, ethical, and trustworthy. Do what's right.

M

Merit

Reward both achievements and behaviours equitably.

E

Excellence

Deliver best-in-class outcomes with professional pride. Strive to be the best you can be.

Advancing with AAD

At the same time, we acknowledge that we need to keep up with the changing world. To continue delivering strong investment performance in an increasingly uncertain and complex environment, we need to push the boundaries, work more nimbly, embrace new opportunities, and harness different perspectives.

To this end, we introduced a set of transformative cultural attributes – ambition, agility, and harnessing diversity – collectively known as AAD.

Our learning and development programmes, and people management practices are all designed to promote AAD in our daily work. Our organisation engagement surveys track AAD progress to get feedback on our culture journey and how this can be reinforced for business performance and in the way we operate. Creative artwork across all our offices brings AAD to our workplace and reminds GICians of their importance. The AAD attributes are also included in assessment and development of leadership and 360° reviews so that the right tone is set from the top.

A

Ambition

Strive with every effort to make GIC the leading global long-term investor.

A

Agility

Decide and act in a timely manner to stay ahead of accelerating change.

D

Harnessing Diversity

Enrich GIC with the power of different points of views.



This colourful wall mural in our Sydney office uses various indigenous birds to symbolise the AAD attributes. For example, the galah or rose-breasted cockatoo is known for its intelligence, acrobatics, and ability to mimic human speech. It represents not just physical, but also mental and social agility.

7.2

Our Leadership and Talent

Beyond setting the right cultural tone, our leaders are also instrumental in maximising the impact of our work. Recognising this, we take steps to strengthen our leadership bench and facilitate the entry of fresh ideas and diversity of thought at the highest levels of the company.

All GICians, not just our leaders, need to perform at a high level in a sustainable manner over the long term, operating not only as responsible individuals but also in effective teams. To support this, we build capabilities in the roles they play, reward them fairly, and develop their careers for the future. We care for them as people and look out for their well-being.

Global Leadership Group

Strong leadership is key to our continued success. The GIC Global Leadership Group comprises 77 of our most senior leaders with broad and deep experiences across asset classes, specialised functions, and geographies.

Our Global Leadership Group is expected to drive transformational change at the enterprise level, beyond their functional roles. These leaders represent GIC at the global level to advance GIC's mission and vision, and deliver in four areas of impact: business, people, enterprise, and future impact. They are also expected to be role models in upholding our values and culture. A select number of our Managing Directors are elected into the Global Leadership Group each year through a robust nomination process.



Our Global Leadership Group and Managing Directors have regular forums, like this one in November 2022 – to chart such as this one in November 2022, to chart the strategic direction of the company, exchange ideas and best practices across diverse domains of expertise, and engage with our Client stakeholders on key priorities and expectations.

Our Compensation Principles

Our compensation framework is anchored in the principles of market-competitiveness and paying for performance. This aligns the interests of GIC employees with our long-term portfolio performance, promotes an informed risk-taking culture for accountability, and reinforces behaviours that contribute to GIC's purpose and commitment to be the leading global long-term investor.

Key tenets of our compensation principles include:

- Recognition of both business results and responsible behaviours that contribute to GIC's goals;
- Market-competitive pay to attract and retain high-performing talent in the sectors we operate in;
- Reinforcing our PRIME values and culture, where diverse capabilities and perspectives contribute to the best outcomes for our Client; and
- Linkage between pay and sustainable performance, evaluated at the GIC group, division, and individual level.

GIC's compensation policies and practices are governed by the Human Resource & Organization Committee, a committee of the GIC Board of Directors.

We take a total compensation approach, comprising a fixed base pay, and a discretionary variable bonus based on portfolio performance measured using absolute and relative returns over relevant time periods. Qualitative measures for risk control, compliance review, people management, and financial sustainability are also considered. Bonuses are administered through upfront cash incentives that are delivered immediately, and short-term and long-term deferred cash incentives for senior staff that have time-based vesting requirements and are delivered in future years. These are also subject to clawback and cancellation provisions.

The Office as a Hub

Like many organisations, GIC has been studying the optimal mode of work to deliver sustainable high performance. With an open mind, we embarked on a one-year trial of a three-day-per-week in-office model. During this time, we put in place programmes to promote meaningful engagements among colleagues following several years of pandemic constraints. We also engaged the organisation for feedback and shared best practices. At the conclusion of that one-year trial, we arrived at a "Four + Flex" policy, underpinned by two fundamental principles.

The office is our hub

It is in meeting rooms, along corridors, and around lunch tables where the magic of our work happens. When we come

"By focusing on talents and strengths, and giving our teams the safe space to grow, we have been able to build a more diverse, engaged, and high-performing workforce. When teams thrive, this contributes to GIC's collective success."

Teng Lee Fong

*Head of GIC School,
Human Resource & Organization, GIC*

together face-to-face, we grow, ideate, and connect most deeply and effectively. Interaction in-person is particularly critical in an investment organisation like ours that must be ready to respond to an always-on global market cycle, that depends on robust debate to make the best decisions, and that requires deep apprenticeship to groom seasoned investors for the future. The office is therefore where we are intentional about spending the majority of our time – four days on average – each week.

Flexibility helps us thrive

At the same time, we are a complex organisation with a wide diversity of role types, working styles, personal circumstances, and geographic coverage across our 11 offices. Rigid rules around where and when people work would hamper productivity, creativity, and

personal well-being. Therefore, we believe that the flexibility and empowerment to manage our own schedules, paired with responsibility and responsiveness to do our best work, is the recipe for long-term success. Our teams are empowered to make their own decisions with these principles in mind. We also have flexible work policies that support part-time work, job sharing, and remote work.

Developing our People

For strong and sustainable performance in a dynamic and highly competitive industry, we need to build capable and resilient teams. We do this by focusing on three levels: the organisation, the team, and the individual.

Organisation level

We ensure that all GICians are aligned to our purpose, values, and culture, so that we collaborate as one GIC. GIC School, our dedicated learning and development academy, provides a unique learning platform which brings all our new hires, managers, and leaders together in a common networking and personal leadership development experience, supporting them to be their best selves. Our comprehensive onboarding program culminates in the GIC Global Foundation Programme where our new hires and newly promoted employees come together for a curated series of skills development classes, teach-ins with our GIC leaders, and team-building experiences that connect them with peers across our different business groups and offices.

Team level

We recognise that high-performing teams are formed when individual team members courageously pursue ambitious goals, adapt to change, embrace diversity, and work well with

one another to achieve team excellence. In doing so, our teams can harness the power of different perspectives, creating an inclusive and psychologically safe environment that promotes innovation and critical thinking. To build thriving teams at GIC, we conduct team health surveys that celebrate team strengths and identify opportunities for growth across five dimensions: Meaningful Relationships, Honest Conversations, Clarity and Alignment, Team Energy, and Team Learning and Agility. This is supported by dedicated team coaching toolkits and workshops through the Thriving Teams Learning Series, which helps teams strengthen their capabilities in each dimension. Through this, teams build their own rituals and ways of working for a positive team culture that enables them to support one another, navigate change and transformation, and sustain performance.

Individual level

At this level, our people managers and team members are supported through a Strengths-based Learning Journey, which provides a practical approach to understand their own strengths and form complementary partnerships with others to play to the best of collective strengths and overcome blind spots. People managers are trained to create team environments where diverse individuals can thrive and deliver performance by developing their capabilities. Team

members learn how to apply strengths-based tools for better performance, collaboration, and personal growth.

We equip our people over the long term by expanding their capacity to thrive in an increasingly complex, fast-changing world, and deal with stress and challenges. Our Energy for Performance programmes focus on holistic energy management and build individual capacity in four domains: Physical, Mental, Emotional, and Purpose. Almost 80% of our global workforce have attended these programmes. Well-being in the workplace is not just about harnessing our own energy, but also caring for others. Our Psychological First Aid programmes train our employees to identify and support mental and emotional well-being in people around them, using appropriate frameworks.

In recognition of GIC's commitment to strengths-based development, we were awarded the 2023 Gallup Don Clifton Strengths-Based Culture Award. This global award recognises organisations with workplace cultures that put the strengths of leaders, managers, and employees at the core of how they work.

“One characteristic of the most successful teams is that they debate a lot and make their investment decisions through active discussion. The support around creating psychological safety in teams has been so important to our work, because it’s important that people can speak up when they don’t think something is a good idea.”

Doe Tien Xuan

*Head of Research,
Public Equities, GIC*

7.3

Diversity, Equity, and Inclusion

Our organisational culture and talent management principles are embodied in our approach to diversity, equity, and inclusion (DE&I).

We focus on personifying our values in the way we behave towards one another, and through this, we reap the rewards of having multiple perspectives, leading to better outcomes.

DE&I is Good for Business

DE&I is a business imperative for good long-term performance. The way we work is founded deeply on respect for one another and with a clear sense of purpose.

We believe an inclusive environment, which promotes respect and active contribution, yields exceptional performance. When diverse teams feel included, we build shared belonging to GIC and to one another.

Through DE&I efforts, we put our PRIME values into practice. We believe every individual brings diversity of thought to meaningfully enrich the perspectives of GIC teams and drive competitive performance. Our values of Respect and Merit ensure our people management policies are equitable and fair for all. With inclusive and enabling practices, we seek to instil a sense of belonging in our employees and support all GICians to contribute as their best selves.

Our DE&I practices also enable us to compete for top talent by strengthening our employer branding and value proposition in making GIC a great workplace.

Our Brand of DE&I

We translate commitment and awareness on DE&I into concrete actions, by developing initiatives that target each of the three individual pillars, so that they advance holistically within our ecosystem.

Our efforts to grow the diversity of our talent pool have advanced. Women make up 42% of our workforce, and this number has remained stable over the last three years as our overall headcount has increased. We are also approaching our progressive target of having 30% of our senior leadership be female – currently, 26% of our Managing Directors and Global Leadership Group are women.

In recognition of our progressive efforts in DE&I, we were conferred the HR Asia Best Companies To Work for in Asia 2022 Award and the HR Asia Diversity, Equity & Inclusion Award by trade magazine HR Asia. We were also a finalist in the Diversity Champion category of the 2022 LinkedIn Talent Awards. We acknowledge that DE&I is a continuous journey and commit to continuously improving in this space.

Find out more about our DE&I practices on our [website](#).



Diverse Talent Pool

We hire from a diverse pool and embrace diversity across multiple dimensions, for more dynamism in our teams. To measure this, we built a set of Diversity Dashboards, reviewing them annually to systematically guide the right talent conversations and actions. Our Gender + 1 approach encourages our managers to consciously consider at least two dimensions of diversity when hiring: Gender, and one other dimension of diversity they perceive to be most necessary for enriching the perspectives of their team.



Gender

- Partnerships with Girls Who Invest (New York) and Girls Are Investors (London)



Ethnicity

- GIC-Mendaki Scholarship (Singapore)
- Partnership with Ten Thousand Black Interns (London)



Physical Ability

- GIC Enable Programme with SG Enable



Equitable Workplace

We act on our commitment to create a fair, equitable, and meritorious environment, through proactive self-checks on our processes and outcomes across multiple dimensions such as compensation, performance, conduct, and progression. Our Dignity at Work Policy states that all GICians should feel safe, respected, and free from harassment or discrimination at work. We also ensure that all GICians have equitable access to career development and mobility opportunities.



Fair compensation decisions

- We conduct an annual review to proactively mitigate against unconscious biases.



Unconscious bias e-learning

- This training equips managers and employees to raise awareness of and eliminate unconscious bias at the workplace.



Inclusive Practices

We believe an inclusive environment will yield exceptional contributions and instill a sense of belonging, by actively inviting participation and contribution from all and ensuring the diverse needs of all our employees are met.



Enhanced Employee Benefits

- Maternity, paternity, adoption, and caregiver leave
- Support for fertility treatment and telemedicine
- Wellness allowance



Regular Workshops and Learning

- On unconscious bias and conscious inclusion



Global Enabling Support Programme

- Offers confidential and voluntary counselling, coaching, and well-being services to employees and their immediate family members



Celebrations and Commitment

- Culture / history celebrations, International Women's Day, Annual Global DE&I Week, Mental Health Awareness Month

How GIC Empowers Underrepresented Groups in their Careers

We recognise that some groups – including women, ethnic minorities, and persons with disabilities – are historically underrepresented in investment management firms. We are in a position to influence positive change, and have taken responsibility by facilitating the entry of such talent into the financial services industry.

WING (Women-in-GIC) Immersion Programme

In December 2022, we held our first five-day Women-in-GIC (WING) Immersion Bootcamp Programme for female undergraduates in Singapore. It was an experiential journey for participants to learn more about themselves, nurture their strengths, and discover the



Participants at the WING immersion programme.

impact they can make in pursuing careers in finance. Through a series of masterclasses conducted by GICians and inspiring female role models, the students were inspired to build their profiles and make an impact in the industry. The capstone project had participants evaluating real-world companies on environmental, social, and governance (ESG) factors, selecting one to “invest” in, and pitching their choice to a panel of GIC experts.

GIC-MENDAKI Scholarship

Our first GIC-MENDAKI scholar, Abdullah Bin Armain, has started his undergraduate education in data science and economics at the National University of Singapore. Even in his younger days, he demonstrated passion for economics by participating in his school's Model United Nations Conference as a Secondary Three student, taking on a leadership role as Vice Chairperson for the Economic and Social Council to support the conference in 2018. Under our GIC-MENDAKI Scholarship, Abdullah's tuition fees and living expenses are covered, and he will also have access to a range of learning opportunities including overseas exchange programmes and finance-related seminars. Upon completion of his studies, Abdullah will join the

“I am relieved to receive this scholarship because I don't have to depend on my parents to pay for my university education. At the same time, what GIC does is in line with my passion and intended career trajectory, so I'm excited to see how I can contribute meaningfully to the company.”

Abdullah Bin Armain

GIC-MENDAKI scholar

GIC Professionals Programme, our structured rotational programme for fresh graduates.

For more information about the GIC-MENDAKI Scholarship, which we launched last year, click [here](#). We are partnering MENDAKI to raise interest in this scholarship and hosted a group of Malay-Muslim youths and their parents at our Singapore office in February 2023 to share more about what we do at GIC.



Our Chief People Officer Deanna Ong, Chief Executive Officer Lim Chow Kiat, and Head of Talent Strategies & Graduate Recruitment Felicia Hung hosting MENDAKI Deputy Chief Executive Officer Zulaiha Yusuf, who visited our Singapore office in February 2023 with a group of Malay-Muslim youths and their parents to learn more about GIC.

GIC Enable Programme (GEP)

Under the GEP, we hire students with disabilities as interns, with the possibility of conversion to a permanent role. Jonathan Tiong interned with us when the GEP was first launched in 2019, and joined us as a full-time staff in 2021 as our first conversion. He was born with Spinal Muscular Atrophy Type 2, a debilitating neuromuscular condition that worsens rapidly with age. We supported his medical situation by giving him flexibility to work from home. As a member of the Employee Communications team in our Corporate Affairs & Communications (CAC) department, he develops content for GICians and also looks after our intranet operations. Find out more about Jonathan's career at GIC [here](#). We are excited about Jonathan's success, and are keen to grow the GEP pipeline further across our global offices.

Our London office was recently certified as a Disability Confident employer by the government of the United Kingdom. We have also been re-certified by SG Enable, Singapore's government-backed agency in charge of disability inclusion, with the Enabling Mark (Silver), which we first received in 2021.

“When GIC offered me a permanent role, I jumped at the chance, not because I was desperate for a job, but because my internship had shown me that the culture in the company – respectful and mindful of individual differences – suited me. I was also impressed that GIC offered me employment terms that were fair and comparable to what non-disabled employees would get, instead of trying to lowball me and get me to settle for less than what my work was worth.”

Jonathan Tiong

Associate, Corporate Affairs & Communications, GIC



Corporate Affairs & Communications department colleagues Sylvia Phua and Jonathan Tiong sharing a lighthearted moment.

7.4

Social Impact

Our social impact efforts at GIC seek to build sustainable, confident and inclusive societies. Globally, we actively seek out meaningful partnerships to support community initiatives that help deliver a multiplier effect in the markets that we operate in, and promote a culture of ground-up volunteerism amongst our employees.

Building Confident and Inclusive Communities

GIC's investment approach to support enterprises and stakeholders that we invest in for the long term also extends to our community programmes.

Since 2015, GIC has supported community programmes that inculcate lifelong mindsets among students, individuals with special needs, and small-to-medium enterprise (SME) executives. In the last year, we deepened our engagement efforts with our community partners and programme participants through various in-person events and activities.

2022/23 in a Snapshot

GIC Sparks & Smiles Award

In 2022, 190 students from local universities, polytechnics, and Institutes of Technical Education (ITEs) completed the community leadership programme and achieved the GIC Sparks and Smiles Award. These students contributed more than 4,800 hours of community service with our long-term partners ART:DIS, Beyond Social Services, and Engineering Good.

The awardees from ITE were hosted at GIC's headquarters for their graduation ceremony, where they received certificates from Deanna Ong, Chief People Officer, GIC. The event was also attended by our community partners, and the principals and coordinators from all three ITE colleges.



2022 Sparks awardees from universities and polytechnics attending their onboarding and volunteer training at the GIC office.

The Purple Symphony Training Award Programme

In partnership with Central Singapore Community Development Council



Musicians under The Purple Symphony Training Award Programme practicing for the annual concert.

In September 2022, we hosted the musicians under The Purple Symphony Training Award Programme, along with their caregivers and the team from Central Singapore Community Development Council, for lunch to commemorate their efforts and achievements since they joined the programme.

The musicians were also invited to GIC's 2023 Lunar New Year celebrations for employees, where they were treated to a lion dance performance and festive lunch at GIC's headquarters. They also performed a few festive pieces for GICians.



Musicians from The Purple Symphony performing at the GIC office during Lunar New Year celebrations for employees.

GIC Computing for the Community Fellowship Award

In partnership with the Centre for Computing for Social Good and Philanthropy, under the National University of Singapore



Students from the 2022 Computing for Voluntary Welfare Organizations programme and senior management from GIC's Technology Group, Data Strategy Group, and Investment Insights Group at the final project presentations in July 2022.

The 2022 batch of students under the Computing for Voluntary Welfare Organizations (CVWO) programme spent

their summer break developing an activity-booking mobile app for seniors under the care of Lions Befrienders, and upgraded a full-suite case management system that is used by volunteers at the Active Ageing Centres in Singapore.

These students were hosted at GIC's headquarters at the end of their attachment where they presented their projects and engaged our senior management from our Technology Group, Data Strategy Group, and Investment Insights Group.

GIC's Investing Principles Curriculum x MAP Initiative 2022

In partnership with the Singapore Business Federation



A presentation during the 2022 edition of the MAP initiative, which GIC co-organised

GIC partnered with the Singapore Business Federation to run the 2022 edition of the [MAP initiative](#), which focused on

sustainability. GIC collaborated with [Common Ground](#) and [Sustiniere](#) to run a full-day workshop to encourage SMEs to adopt a long-term view and embark on their sustainability journey.

A total of 274 participants from SMEs attended the hybrid session that was held in September 2022.

GIC's Learning Journey

In partnership with the Monetary Authority of Singapore (MAS)



Cadets from the Singapore Armed Forces Logistics Battalion attending the new GIC Learning Journey at the MAS Gallery.

As part of our financial literacy outreach, we collaborated with the Monetary Authority of Singapore (MAS) to redesign the GIC learning journey. Set in the newly revamped MAS Gallery, participants are brought on an immersive tour to learn about the history and growth of Singapore's financial landscape, and GIC's contribution as the first sovereign wealth fund to be set up by a non-commodity-based country.

More than 190 participants have attended the learning journey since September 2022.

GIC-MOE Economics Experience

In partnership with the Ministry of Education in Singapore

Launched in 2018 with the Ministry of Education, Singapore (MOE), the GIC-MOE Economics Experience is an annual initiative that offers nominated Economics students across Singapore's pre-university institutions unique exposure to the application of economics in the real world, and insights on careers in economics and fund management.



Participants of the GIC-MOE Economics Experience in 2022.

The topics covered, through interactive dialogues and networking with GIC representatives, include the global economic outlook, sustainability and carbon pricing, infrastructure investing, the Association of Southeast Asian Nations (ASEAN), and opportunities in GIC.

In 2022, over 200 students from 20 pre-university institutions in Singapore attended the session, both in-person at GIC's office and virtually.

Find out more about GIC's social impact programmes on our [website](#).

Promoting a Culture of Ground-up Volunteerism

At GIC, we encourage GICians to put our values into action through volunteering to create positive impact in the communities where we work and live.

We actively support employees in their efforts to give back to the community through a two-day volunteer leave policy, donation matching schemes and a volunteering allowance under the With Love, GIC initiative.

In 2022, the initiative was updated and streamlined to make it easier for GICians to volunteer. GICians now have access to an individual volunteering allowance to cover donation-in-kind expenses, and a group grant that they can tap on to organise larger ground-up activities that deliver larger impact.

2022/23 Project Highlights

In Singapore: Futsal clinic with MENDAKI

In December 2022, GICians from our Technology Group department collaborated with former national footballer Isa Halim to organise a futsal clinic. The clinic was attended by 33 children aged 6 to 13, who were either attending a tuition programme or receiving educational assistance from MENDAKI.



The children were hosted by a professional coaching team, including Isa Halim, and were each gifted a full set of futsal gear for them to continue pursuing their soccer ambitions.

In Asia: Delivery of meal kits with Good Neighbors International



In February 2023, GICians in our Korea office volunteered with Good Neighbors International (GNI) to deliver meal kits to less privileged families.

The initiative is part of GNI's Dream Start programme, which seeks to defray the rising cost of living expenses for less privileged, latchkey families with children below the age of 12.

GICians attended a short sharing about the programme and spent the day packing meal kits for 25 families. These kits feature food items with a longer shelf life and are easy for children to prepare and consume at home.

In America: Building an outdoor classroom with New York Restoration Project

In May 2022, GICians from our New York office teamed up with New York Restoration Project (NYRP) to build an outdoor classroom for students with disabilities at Public School (PS) 811X in the Bronx.

PS811X serves students with a wide spectrum of physical and cognitive disabilities and hopes to offer creative and immersive learning experiences through the outdoor classroom.

GICians replaced dilapidated soil beds and planted ornamental grass to attract and support pollinators in the outdoor classroom.



Piloting a donation matching platform for GICians in Singapore

To encourage more GICians to learn about social issues in their communities, we partnered with Ray of Hope, a registered crowdfunding charity in Singapore, to launch a donation matching platform for GICians to support ground-up community groups. The platform shortlists fundraising campaigns organised by groups based on their ability


to reach communities that have fallen through the cracks of Singapore’s social security nets. GICians are required to make an out-of-pocket donation to have it matched using their With Love, GIC individual volunteering allowance.

We can only fulfil our purpose of securing Singapore’s financial future if we have the best people working for us. We continually nurture talent, ensuring the

company remains in capable hands. We also always aim to do right by the communities we operate in through our social impact initiatives. With all these elements, we are confident in our ability to deliver superior investment returns and to be the leading global long-term investor.

We can only fulfil our purpose of securing Singapore’s financial future if we have the best people working for us.


We continually nurture talent, ensuring the company remains in capable hands. We also always aim to do right by the communities we operate in through our social impact initiatives.



RAY OF HOPE


GIC Approved Campaigns

FAQs



FOR SPO ONLY

Donate to a Ground-up Fundraiser



Engineering Good: connect vulnerable groups to technology


\$S2,753 Raised

✓ VERIFIED

27% of \$S10,000

6days to go


Donate



Help ADHD children and adults to thrive

✓ VERIFIED

Donate



Be Kind SG: Play.Able


\$S1,930.80 Raised

✓ VERIFIED

7% of \$S25,000

80days to go

Donate



KampungKakis: supporting socially isolated seniors

\$S8,047.80 Raised

✓ VERIFIED

16% of \$S50,000

184days to go

Donate

7.0 Our People, Culture, & Community

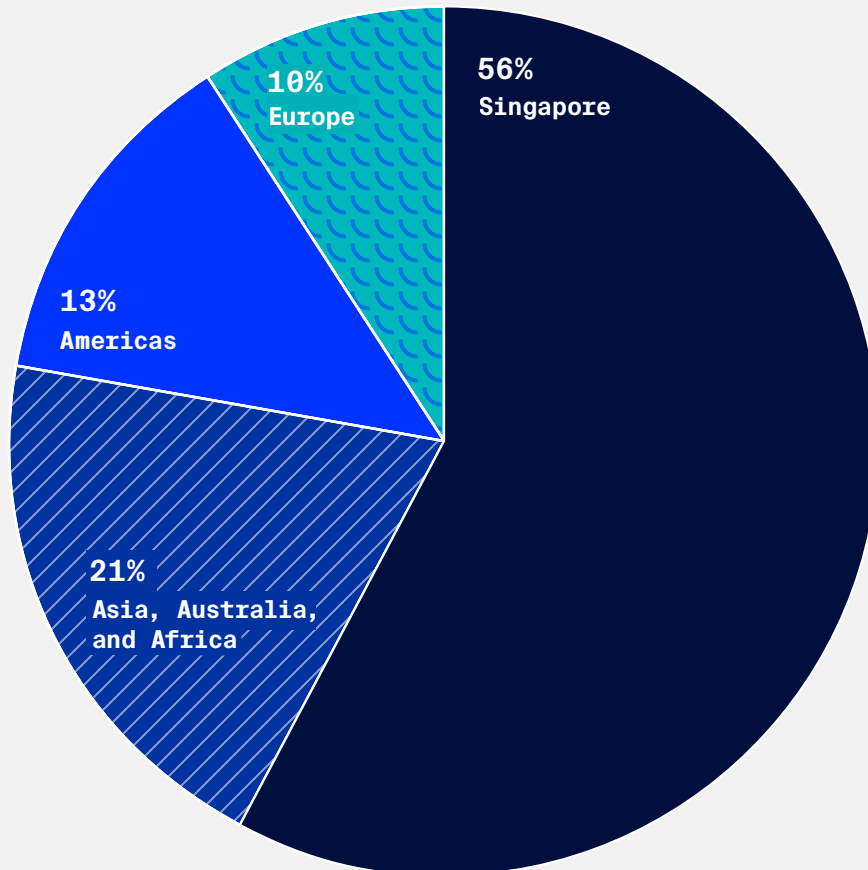
7.4 Social Impact

Report on the Management of the Government’s Portfolio for the Year 2022/23

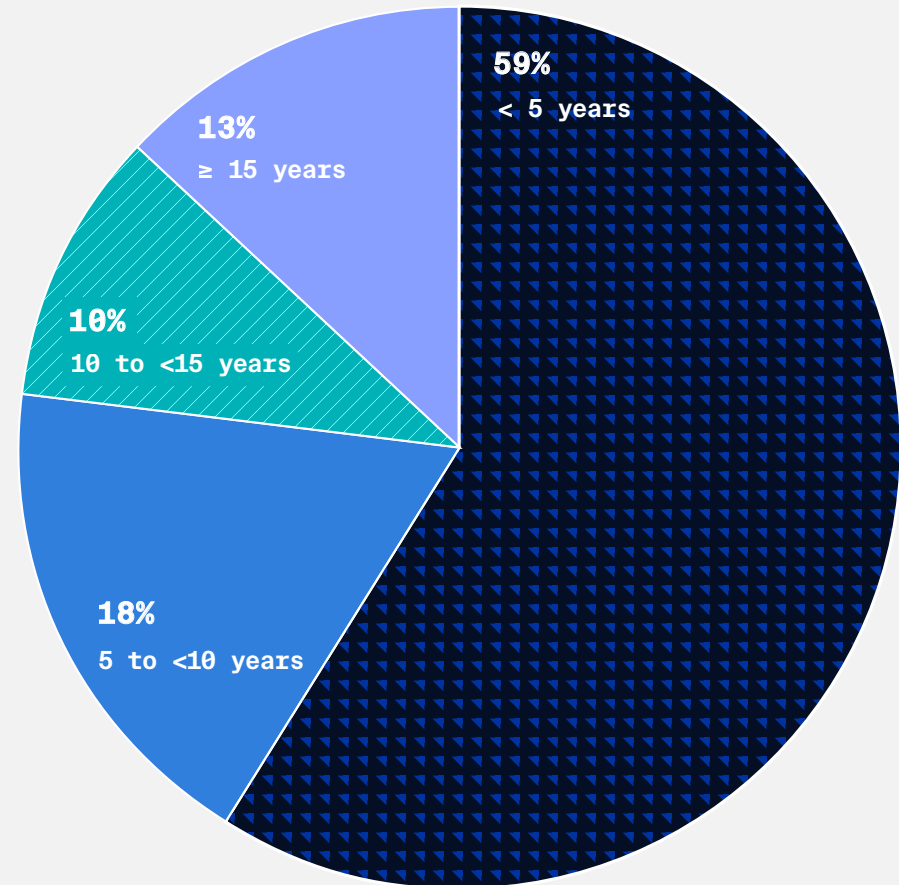
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Figure 1. Our Employee Demographics

Where Our Staff Come From



Breakdown of Staff by Tenure



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