



2016/17

Report On The Management Of The
Government's Portfolio

Who We Are

GIC's mission is to secure Singapore's financial future. We invest for the long-term to preserve and enhance the purchasing power of the reserves placed under our management. Our work contributes to the well-being of present and future generations of Singaporeans.

Long-term orientation and value discipline are at the heart of our investment philosophy. We manage a robust and diversified portfolio to generate sustainable, superior real returns over a 20-year investment horizon, so as to fulfil our mission. We consider and integrate all risks and opportunities to deliver long-term value through our investment and corporate practices.

GIC employs over 1,400 people across our 10 offices worldwide. We are committed to engaging and growing our people. As an institution and as individuals, we are guided by our common values of Prudence, Respect, Integrity, Merit and Excellence to achieve the results we seek without compromising our reputation.

The year in numbers:

Annualised rolling
20-year real rate of return

3.7%

Total number of
staff in GIC

>1,400

2016/17 Highlights

Performance



- GIC achieved a 20-year annualised rate of return of 3.7% above global inflation for the financial year ended 31 March 2017.
- We have taken a relatively cautious portfolio stance due to a combination of stretched valuations, high policy uncertainty and unresolved economic imbalances. GIC's focus is to own assets at reasonable prices, with long-term earning potential.

Outlook



- Valuations remain high across most major asset classes. Given the expectation of modest economic growth and earnings, this portends low returns over the next decade. The current investing environment features considerable uncertainty. GIC's response has been to build a diversified and resilient portfolio to ensure capital and returns can be best protected over the long term.

Appointments



- We welcome Mr Mark Kritzman and Dr Mohamed El-Erian who were appointed to our International Advisory Board on 1 April 2017. We also welcome Mr Lam Kun Kin who joined us on 1 September 2016 on the GIC Risk Committee.
- Five new senior leadership appointments took effect from 2017.

The GIC Primer

Our responsibility is to preserve and enhance Singapore's foreign reserves. People and talent are central to what we can do. We believe that the results we seek are best achieved through a culture founded on our five PRIME values of Prudence, Respect, Integrity, Merit and Excellence.

P

Prudence

We exercise prudence and sound judgement and take a considered approach to managing risks as we seek to deliver sustainable, superior investment returns, always conscious of our overriding fiduciary responsibility.

As an institution and as individuals, we conduct ourselves with good sense and circumspection, even as we take the best advantage of our large asset base, global presence, multi-asset approach and long-term orientation.

R

Respect

All of us are united in a common endeavour, regardless of who we are, where we work or what we do. We respect people as individuals, care for their well-being, and welcome diversity in capability and background. We do not tolerate behaviour that works against the interest of our Client or of GIC.

We stress teamwork within and across departments, and with our Client and business partners. We expect everyone to be free, candid and constructive in their comments and suggestions, and always seek to help our colleagues and GIC do better.

I

Integrity

Everything we do is founded on integrity. We expect the highest standards of honesty from everyone in GIC, both in our work and in our personal lives. This includes abiding by the laws of the countries we invest in, and observing our code of ethics in letter and in spirit.

We must never jeopardise the trust others have in us and in our reputation for professionalism.

M

Merit

We recruit and develop our people solely on merit. We draw our talent from around the world and provide challenging and meaningful work. We grant recognition and reward based on performance and conduct consistent with our PRIME values. We develop our people to achieve their potential so that we may also perform to our potential.

We select business partners based on their capability. We believe in long-term relationships built upon high levels of performance and quality of service.

E

Excellence

We are relentless in our pursuit of excellence. In all that we do, we strive to be the best that we can be. This demands that we plan and anticipate well, so that we will always be in time for the future, fully able to take up the challenges and opportunities that come, pursuing improvements where they may be found, and economies where these may be gained.

We expect everyone to do his best in every situation. We harness the creativity and imagination of our people and our business partners for sustainable, superior results.

The GIC Way

The GIC Way is a set of principles that defines the way we think and act. It sharpens focus on our Client, our commitment to people and our future. The PRIME Values act as our compass – having a good compass enables us to get back to our fundamental purpose and beliefs, especially when we are faced with situations we have not come across before.

Client First



- When our Client does well, we do well
- Never compromise our PRIME values and reputation; not even for better returns
- Always follow GIC's investment principles:

- Pursue intrinsic value and maintain price discipline
- Practise long-term investing
- Pick our spots: be focused and leverage our strengths
- Pay attention to risk control
- Prepare for the future

People – The Key



- Do what's right, not what's easy
- Help GIC make the best decisions - speak up if you have a different view
- Attract exceptional people and develop them to their full potential
- Embolden innovation and encourage learning

- Reward what matters: contribution; not pedigree, age, gender or nationality
- Excel in what you do; make a difference
- Empower decision-making at every level
- Work seamlessly across boundaries and hierarchy – OneGIC

Future Now



- Tomorrow is determined today
- Build leadership and resources for the future
- Insist on nimble and responsive structures and processes

5

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Overview from the Chief Executive Officer



GIC continues to deliver on its mission to preserve and enhance the long-term international purchasing power of the reserves placed under its management. We do so by focusing on owning assets with long-term earning potential at reasonable prices and with due regard to risk. For the year ended 31 March 2017, we achieved a 20-year annualised rate of return of 3.7% above global inflation.

Last year, developments such as Brexit and the US Presidential Elections heightened apprehension that the post-war globalisation of capital and trade flows can no longer be taken for granted. Longstanding security arrangements have not been immune either. Terrorism grows unabated. Unsurprisingly, uncertainty over geopolitics and the outlook for the world economy is sharply higher.

Yet, financial markets have remained calm, and in fact continued to perform well. For one, the hope that the new US Administration will implement pro-business policies has cheered investors long frustrated with reliance on just monetary policy. At the same time, very accommodative monetary policies have helped to suppress financial market volatility, inducing more investors to take risk.

The consequent increase in asset valuations helps performance but makes investing for the future challenging. Current valuations suggest overly sanguine expectations about future earnings, even as policy uncertainty remains high.

At today's market valuations, the universe of high-return opportunities has shrunk significantly. The 10-year US Treasury Inflation Protection Securities (TIPS), a good indicator for risk-free real yield, is currently 0.4% per annum which is markedly lower than its historical average of 1.8%. More risky assets such as equities have seen a similar reduction in yields, portending poorer returns in the future.

Senior Leadership Appointments To Strengthen Organizational Excellence

New appointments over the past year:

- **Mr Lim Chow Kiat** as Chief Executive Officer
- **Dr Jeffrey Jaensubhakij** as Group Chief Investment Officer
- **Mr Lim Kee Chong** remains as Deputy Group Chief Investment Officer and appointed President (Americas) based in New York, while continuing with his current role as Director, Integrated Strategies Group
- **Mr Tay Lim Hock** as Deputy Group Chief Investment Officer and President (Europe) based in London
- **Ms Deanna Ong** as Chief People Officer

The combination of stretched valuations, high policy uncertainty and unresolved economic imbalances explains our relatively cautious portfolio stance. The feature article, *Investing in a Highly Uncertain Environment*, elaborates on this.

Even as we deal with external challenges, we continue to rejuvenate our leadership and advance our capabilities. On 1 June 2016, we installed

new Chief Investment Officer positions for our core asset classes to deepen our domain expertise. On 1 January 2017, I succeeded Mr Lim Siong Guan as Chief Executive Officer, and Dr Jeffrey Jaensubhakij succeeded me as Group Chief Investment Officer.

On 1 April 2017, the position of Chief People Officer (CPO) was created. The CPO will be part of the Group Executive Committee and will shape our strategy to attract, develop and retain the best talent for a high-performing organization.

We are also leveraging technology more effectively to harness data, deepen insights and sharpen our competitive edge. Over time, we expect technology to play a greater role in investing, not just through specialised technology-driven efforts but by blending with traditional and more qualitative approaches.

The readiness to tackle challenges, imperative in an environment of disruptive innovation, is in no small part due to the foundations laid by our previous leaders. In this respect, I would like to express my gratitude to Mr Lim Siong Guan for a decade of distinguished service to GIC. The firm progressed immeasurably under his leadership. He retired as Group President and has assumed the role of advisor to the Group Executive Committee.

Looking forward, we are prepared for a period of protracted uncertainty and low returns, but are also positioned to capitalise on short-term dislocations. On the organizational front, we continue to build our talent base, enhance our technological capabilities and sustain a productive working environment to ensure that GIC is primed for the future. In short, we remain guided by our investing principles to deliver sustainable long-term returns for the benefit of Singapore and Singaporeans.

LIM CHOW KIAT
Chief Executive Officer

Thank You

It has been our privilege to benefit from the insights of the following esteemed individuals:

- Mr Raymond Lim and Mr Lim Siong Guan, who retired from the GIC Board.
- Mr Seck Wai Kwong, who stepped down from the GIC Risk Committee.
- Mr Choo Chiau Beng, who stepped down from the GIC Investment Board.

Welcome



MARK KRITZMAN



DR MOHAMED EL-ERIAN



LAM KUN KIN

We welcome Mr Mark Kritzman and Dr Mohamed El-Erian, who were appointed to our International Advisory Board on 1 April 2017.

Mr Kritzman is a Founding Partner and Chief Executive Officer of Windham Capital Management and Chairman of Windham's investment committee. He advises GIC's Investment Strategies and Risk Committees.

Dr El-Erian is Chief Economic Advisor at Allianz and former chair of President Obama's Global Development Council. He is an advisor to the GIC Investment Strategies Committee.

We also welcome Mr Lam Kun Kin who joined us on 1 September 2016 on the GIC Risk Committee. Mr Lam is Senior Executive Vice President and Head of Global Treasury & Investment Banking at OCBC Bank.

Investment Report

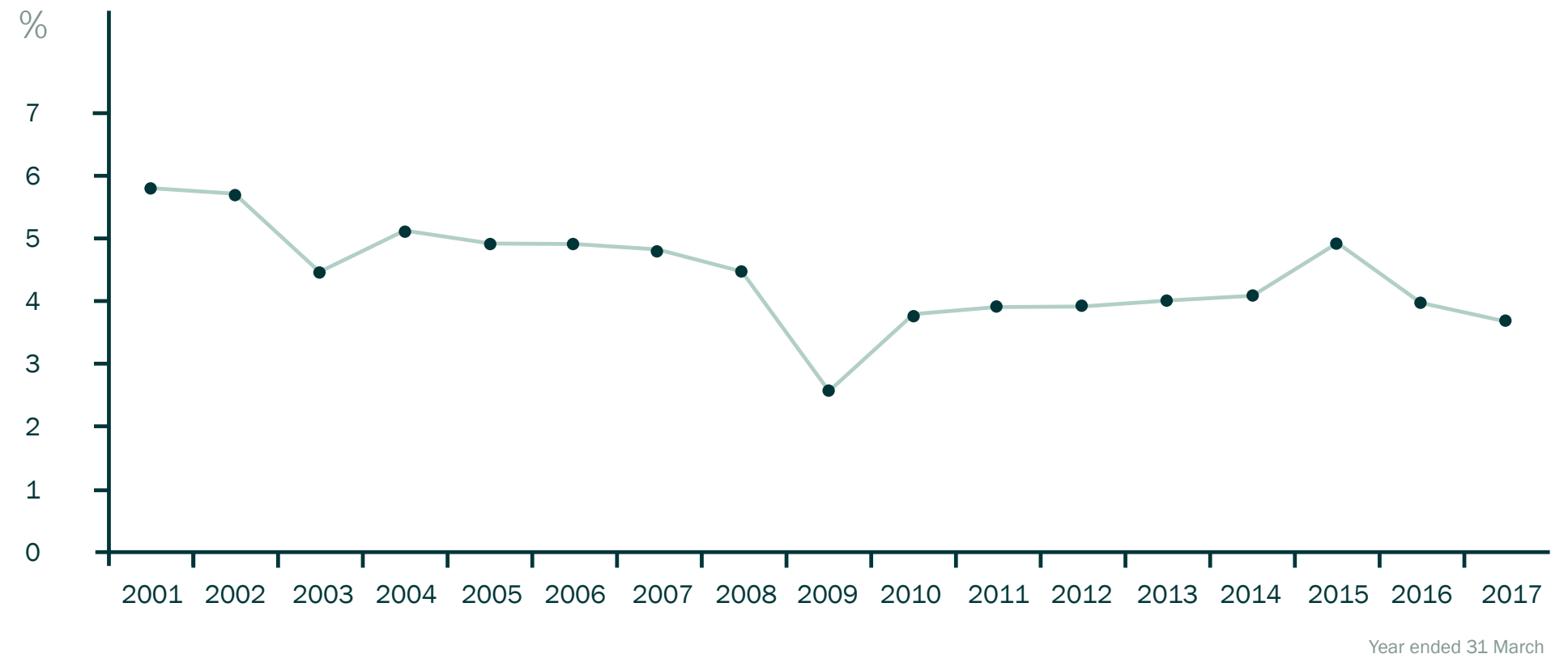
GIC's mandate is to achieve good long-term returns over global inflation, and preserve the international purchasing power of the reserves placed under its management.

Long-Term Investment Performance

GIC's mandate is to achieve good long-term returns over global inflation. The primary metric for evaluating GIC's investment performance is the rolling 20-year real rate of return. The goal is expressed in real terms because GIC must, at a minimum, beat global inflation and preserve the international purchasing power of the reserves placed under its management.

Over the 20-year period that ended 31 March 2017, the GIC Portfolio generated an annualised real¹ return of 3.7% (Figure 1) above global inflation. This means that the purchasing power of funds invested with GIC in 1997 has more than doubled.

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

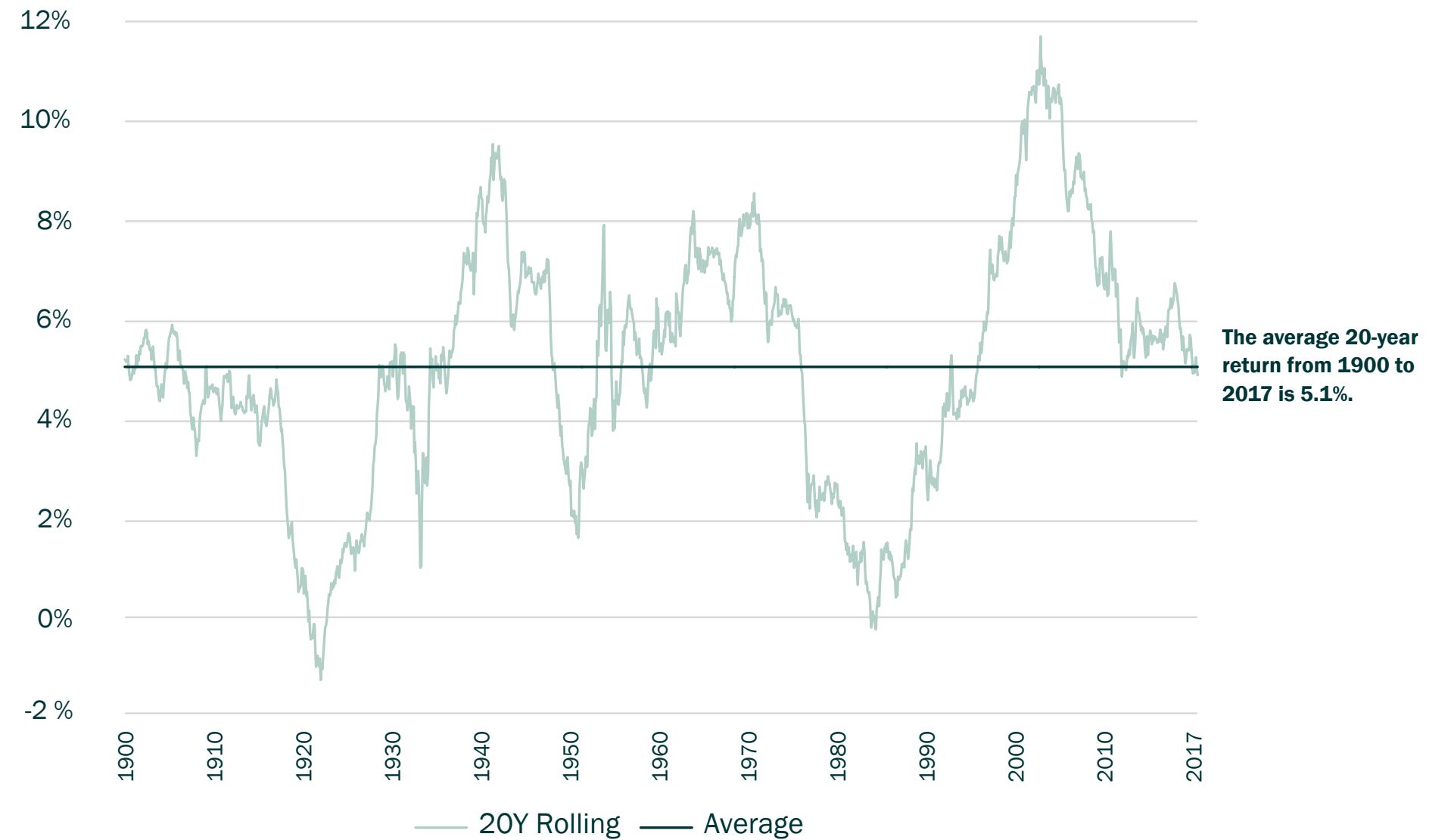


¹ The real return number is independent of the currency used to compute it.

The rolling 20-year real rate of return can reflect a significant cyclical element, even though it measures returns over the long term. For example, the 20-year real return for a US 65% equity and 35% bonds portfolio was below 2% in the 1980s, but as high as 10% in the 2000s (see Figure 2). The average 20-year return was 5.1% over the period from 1900 to 2017.

In particular, the last 20 years have included two periods of very pronounced cycles - the tech bubble in the late 1990s to early 2000s, and the global financial crisis in 2008. This year's decline in the 20-year real return was largely due to the drop-off of the high returns at the beginning of the tech bubble period, while the ensuing collapse in values remains within the 20-year figure. We expect this effect to continue for a few years, dampening the rolling 20-year figure.

Figure 2: 20-Year Rolling Real Return of a US 65% stocks/35% bonds Portfolio from 1900 to 2017



Source: Global Financial Data

GIC's long-term performance reflects three factors: dynamics of the global economy, performance of the various asset classes in our asset allocation strategy, and the performance of skill-based strategies.

GIC's long-term performance is largely driven by the dynamics of the global economy and our asset allocation strategy, as reflected in the Policy Portfolio. This is complemented by the performance of skill-based strategies undertaken by the various active strategy investment teams, which seek to add returns by investing differently from market benchmarks.

In aggregate, we strive to achieve the best possible long-term returns for the GIC Portfolio across a variety of economic scenarios, within the risk parameters set by the Client. Our long-term investment approach is elaborated in 'Investment Approach' and in the chapter on 'Managing the Portfolio'.

Investment Approach

GIC's long-term investment approach has a few key features. First, it allows us to earn potential risk premia from exposure to systematic risk factors, such as the equity risk premium. It also allows for investments in illiquid asset classes such as private equity and real estate which offer the prospect of better returns. GIC is also able to harness the power of compounding over time.

Second, adopting a long-term approach allows GIC to avoid the drawbacks of pro-cyclicality. Unlike many investors, GIC focuses on long-term fundamentals rather than on short-term market price

gyrations. This reduces the chances of overpaying at market tops or underinvesting at market bottoms. Over the long term, such an approach is more likely to meet GIC's investment goals.

Third, long-term investing is not a rigid buy-and-hold approach over long periods. GIC's long-term value investing approach is underpinned by the discipline of distinguishing price from value. If an asset's price persistently exceeds its fundamental value, we would tend to sell, and vice versa, even if it sometimes means going against current market sentiment.

The GIC Portfolio

The GIC Portfolio is a well-diversified portfolio of asset classes. Each asset class carries a different risk and return profile. Growth assets such as equities generate higher returns, but are riskier. Defensive assets such as sovereign bonds offer lower returns, but have lower risk and protect the portfolio in market downturns. As the future is uncertain, the GIC Portfolio is constructed to be resilient across a broad range of plausible market and economic conditions, while generating positive long-term real returns.

Table 1 and Figure 3 show the asset mix and geographical distribution of the GIC Portfolio as of 31 March 2017.

Table 1: Asset Mix of the GIC Portfolio

Asset Mix	31 March 2017 (%)	31 March 2016 (%)
Developed Market Equities	27	26
Emerging Market Equities	17	19
Nominal Bonds and Cash	35	34
Inflation-Linked Bonds	5	5
Real Estate	7	7
Private Equity	9	9
Total	100	100

While asset allocation is our primary focus in portfolio construction, we also monitor closely our exposures across countries. The task of geographical diversification has become increasingly complex as the tight economic and market linkages across the world today have made the returns on financial assets across countries more correlated. Our asset and geographical mix have remained broadly unchanged from a year ago.

Figure 3: Geographical Distribution of the GIC Portfolio as of 31 March 2017



Intermediate and Long-Term Investment Performance

Consistent with GIC's mission to preserve and enhance the international purchasing power of the reserves under its management over the long term, our Portfolio is constructed to deliver good 20-year returns above global inflation.

Tables 2 and 3 show a few intermediate markers of GIC's performance: nominal USD returns over 10 years and 5 years and the corresponding portfolio volatility. We include 20-year nominal numbers for completeness here². We also compare against our Reference Portfolio which comprises 65% global equities and 35% global bonds³. The Reference Portfolio is not a performance benchmark for the GIC Portfolio, but serves as a reference for portfolio risk. The figures for the Reference Portfolio do not include adjustments for costs that would be incurred when investing.

² GIC's primary metric is the rolling 20-year real rate of return, which we described earlier in this chapter.

³ 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 on 'Managing the Portfolio'.

Table 2: Nominal Annualised Return and Volatility of the GIC Portfolio (in USD, for periods ending 31 March 2017)

GIC Portfolio		
Time Period	Nominal Return ⁴	Volatility
20-Year	5.7%	9.2%
10-Year	4.3%	10.2%
5-Year	5.1%	6.6%

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.

The GIC Portfolio's 20-year nominal return was 5.7% per annum in USD terms. The Portfolio benefitted from the positive performance of equities over the period even though GIC had a more conservative risk appetite during the earlier years. GIC's cash allocation had amounted to as much as 30% until the end of 1990s.

Over the 10-year period ending March 2017, the GIC Portfolio returned 4.3% per annum in USD nominal terms. This period includes the poor market performance due to the Global Financial Crisis and the European Debt Crisis, and the subsequent recovery due to the aggressive monetary policy interventions.

Over the last 5-year period, the GIC Portfolio returned 5.1% per annum in USD nominal terms, benefitting from the run-up in global financial assets. Aggressive non-conventional monetary policies helped to push up market valuations.

GIC continues to use our long-term horizon, investment capabilities and network to build a portfolio of assets with favourable risk-reward ratio.

Table 3: Nominal Annualised Return and Volatility of the Reference Portfolio (in USD, for periods ending 31 March 2017)

Time Period	Reference Portfolio	
	Nominal Return ⁵	Volatility
20-Year	6.1%	11.0%
10-Year	4.4%	12.1%
5-Year	6.0%	7.9%

⁵ The Reference Portfolio rates of return are provided on a gross basis, i.e. without adjustment for costs and fees.

In all three periods, the difference in the returns between the GIC Portfolio and Reference Portfolio is largely due to the difference in risk exposures. The GIC Portfolio has a more diversified asset composition, as well as a lower exposure to developed market (DM) equities. In addition, increasingly stretched valuations in DM equities have prompted a reduced allocation to this asset class in the GIC Portfolio in recent years. This has resulted in lower returns compared to the Reference Portfolio over the 5-year period, as DM equities (especially those in the US) have done particularly well. However, we believe the high valuations of DM equities portend lower future returns.

Managing The Volatile Path To Lower Long-Term Expected Returns

Valuations remain high across most major asset classes. Given the expectation of modest economic growth and earnings, this portends low returns over the next decade. We thus expect real returns for the GIC Portfolio to be lower in the coming years. As we noted last year, we expect the Reference Portfolio to see real returns at around 1-2% over the coming decade.

For the short term, however, the growth outlook has improved. There are signs of strengthening industrial production, trade and labour markets, as well as an acceleration in business and consumer sentiment. Nevertheless, structural impediments in the form of demographic headwinds, high debt levels and slow productivity growth remain. In addition, several uncertainties that we highlighted last year – tensions around income inequality, populism, geopolitical conflicts and the potential negative impact of disruptive technologies – have not gone away. Monetary policy is also becoming less accommodative.

GIC's focus is to own assets with long-term earning potential at reasonable prices. High valuations coupled with the prospects of moderate growth have narrowed the universe of investment opportunities. The increased uncertainty also warrants caution. However, there may be selective situations offering attractive returns, and the current high uncertainty may open up investment opportunities. GIC continues to use our long-term horizon, investment capabilities and network to build a portfolio of assets with favourable risk-reward ratio.

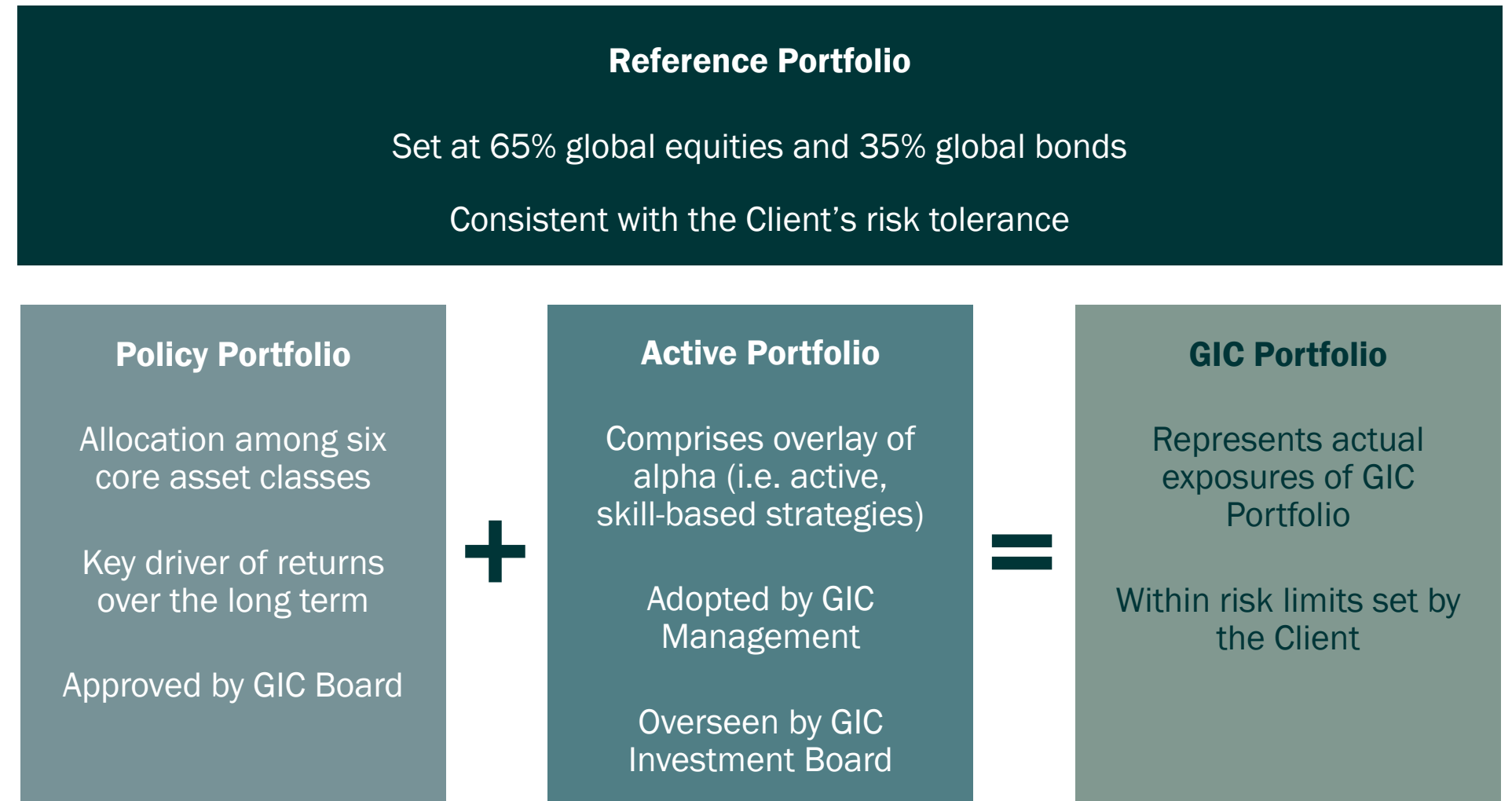
Managing the Portfolio

GIC's investment strategy is to build a portfolio comprising asset classes that generate good real returns over the long term, while adhering to the risk tolerance outlined by our Client.

Our Portfolio and How We Manage It

Our mission is to preserve and enhance the international purchasing power of Singapore's financial reserves under our management by delivering good returns above global inflation over the long term.

To achieve our mission, we instituted an investment framework that enables GIC to face an increasingly challenging and complex investment environment. The framework, adopted in 2013, capitalises on GIC's strengths, including our ability to take a long-term perspective, flexible capital and our governance structure.



How We Build the Portfolio

Our investment framework has three building blocks: Reference Portfolio, Policy Portfolio and Active Portfolio.

Reference Portfolio: Establishing the Client's Risk Limits

Our Client, the Singapore Government, owns the funds that GIC manages, and sets the overall risk tolerance. GIC's role is to generate good long-term real returns while adhering to the risk tolerance of our Client.

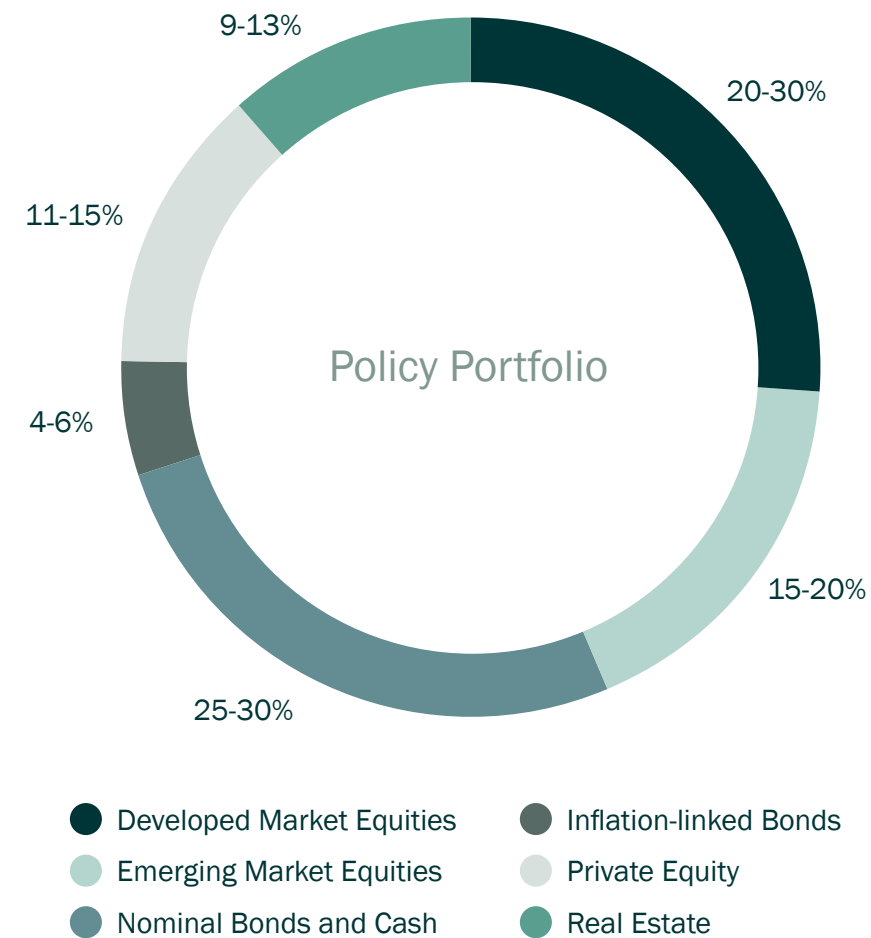
The Reference Portfolio characterises the risk the Client is prepared for GIC to take in its long-term investment strategies. It comprises 65% global equities and 35% global bonds.

The Reference Portfolio is not a short-term performance benchmark for GIC. GIC's investment strategy is not to track the Reference Portfolio, but to build a portfolio comprising asset classes that can generate good real returns over the long term, while adhering to the risk tolerance set by our Client that is characterised by the Reference Portfolio. This approach necessarily gives rise to deviations between the GIC Portfolio and the Reference Portfolio and can result in significant differences in performance from time to time.

Policy Portfolio: Key Investment Driver

The Policy Portfolio represents GIC's asset allocation strategy over the long term. It accounts for the bulk of the risk and return potential of the GIC Portfolio. The Policy Portfolio aims to balance the way different asset classes respond to different possible economic environments.

There are six asset classes in the Policy Portfolio: Developed Market Equities, Emerging Market Equities, Nominal Bonds and Cash, Inflation-linked Bonds, Private Equity and Real Estate.



Through the mix of different asset classes, the Policy Portfolio is expected to achieve better returns than the Reference Portfolio over a 20-year period. There, however, can be short-term underperformance relative to the Reference Portfolio.

The long-term investment horizon of the Policy Portfolio means that it is not intended to be adjusted frequently or in response to market cycles. That said, GIC can and does occasionally adjust its asset allocation over the medium term in response to fundamental changes in the global investment environment. An example of such a change is a structural shift in the risk and return profile of a particular asset class or geographical region.

Disciplined Rebalancing

GIC's approach to rebalancing our portfolio ensures we keep to the allocated ranges of asset classes in the Policy Portfolio. Rebalancing involves systematically buying assets that have fallen in price and selling assets that have risen 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 investors to sell. Conversely, when equities do particularly poorly, such as after a stock market crash, rebalancing calls for buying of the assets that have fallen in price. Studies have shown that in the long run, a portfolio that is rebalanced regularly to its predefined target allocations tends to outperform a portfolio whose allocations are allowed to drift.

Active Portfolio: Skill-based Strategies

The Active Portfolio comprises a collection of investment strategies in which managers add value to the Policy Portfolio, while broadly maintaining the same level of systematic risk. Alpha is the additional return achieved by active strategies as compared to the Policy Portfolio.

Each active strategy must generate a return above its cost of capital and is funded through the sale of an asset class or combination of asset classes in the Policy Portfolio with a similar systematic risk exposure. For example, active strategies designed to outperform public equities are funded from 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 additional systematic risk to the portfolio.

Alpha and Beta

The return of any portfolio can be explained by its Alpha and Beta. Alpha is the excess return above the market, while Beta is the portion of the return that can be attributed to market returns.

At GIC, we separate active, skill-based “alpha” strategies from beta activities to enable a greater understanding and consequently, better management of the drivers of our portfolio return and risk. Our objective for beta activities is to achieve a diversified mix of asset classes through careful portfolio construction that takes into account the way different asset classes respond to possible economic environments. For alpha, our focus is to earn return from our institutional advantages, skills and efforts.

The GIC Board sets an overall risk budget which GIC Management can use for its active strategies. These strategies are stress-tested to understand and quantify their performance under various extreme but plausible market conditions, including macroeconomic and geopolitical events.

Active Risk Budget

The active risk budget establishes the total level of risk for the Active Portfolio. GIC Management employs risk budgeting to allocate risk to different strategies.

Governance of the Investment Framework

The investment framework defines the different risk and return drivers for GIC in the long run. It also clarifies the responsibilities of the GIC Board and Management. The Reference Portfolio is consistent with the Client's risk appetite, while the GIC Board approves the Policy Portfolio which is expected to deliver good returns over the long term. GIC Management is given the discretion to add value within the risk limits set by the GIC Board through the Active Portfolio which comprises active, skill-based strategies.

The Investment Board (IB) provides independent and additional oversight on GIC's active investment management and process. IB members are from the private sector and may not necessarily be GIC Board Directors. They collectively bring a wealth of experience in different types of investments in a range of geographies. The IB ensures that GIC invests in a sound and disciplined manner. Additionally, the IB ensures that GIC considers carefully the potential reputational risks arising from our pursuit of investment opportunities.

Taken as a whole, our investment framework capitalises on GIC's strengths. These include the ability to take a long-term investment perspective; capabilities in both public and private markets and the potential to synergise these to invest in cross-asset opportunities; presence in all major geographies; and a governance structure that clearly distinguishes the responsibilities of the GIC Board and Management.

The following table summarises the responsibilities within GIC under the investment framework.

	Responsibility
GIC Board	<ul style="list-style-type: none"> Approves 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 Management's active strategies and large investments Ensures GIC does not take on undue reputational risk in pursuit of returns
GIC Management	<ul style="list-style-type: none"> Recommends the Policy Portfolio and constructs the Active Portfolio Adds value through the Active Portfolio within the risk tolerance in GIC's mandate set by the Client
Investment Teams	<ul style="list-style-type: none"> Implement Policy Portfolio and conduct active strategies

Investment Process

The key to implementing the investment framework is discipline – embodied in a systematic, patient and diversified approach to long-term value investing. We seek opportunities where there is a clear difference between the current price and intrinsic value of an asset.

Value Investing

GIC's value investing approach is underpinned by our discipline to distinguish price from value. An asset's price is driven mostly by market sentiments, while its value is its fundamental worth. Anchored by this perspective, we strive to appraise value well and keep to price discipline, even if it sometimes means going against prevailing market sentiments.

To establish where true fundamental value lies, we identify and assess drivers of long-term value as an integral part of our investment process. This approach comprises both top-down and bottom-up analyses for all investments. In the top-down analysis, we review a country's macroeconomics, politics, currency and corporate governance culture, as well as sector fundamentals such as industry structure, drivers and trends. This top-down approach is similar for asset classes in public and private markets.

Our bottom-up analysis is more varied and depends on the assets we invest in. For example, in public equities, we focus on the stock's fundamentals, such as the company's business model and its competitive strengths, balance sheet, profitability and management. In real estate, our teams conduct bottom-up analysis based on property-specific factors such as location, building quality, tenant mix, lease expiry profiles and income stream outlook. Our value investing mindset is the common underlying principle.

To deliver good returns over our long investment horizon, we consider all opportunities and risks that could drive long-term investment value. These considerations, which include track record, ability and integrity of management teams and business practices, are integral to our investment process. We expect our investee companies to comply with applicable laws and regulations and apply appropriate corporate governance and stakeholder engagement practices.

We also actively advocate long-term thinking in the wider community, as exemplified in our participation in initiatives such as Focusing Capital on the Long Term (FCLT) Global and the International Forum of Sovereign Wealth Funds (IFSWF).



Case Study: International Forum of Sovereign Wealth Funds (IFSWF)

GIC has been a member of the IFSWF since its inception in 2009, and continues to play an active role in promoting the Santiago Principles and facilitating understanding of the value SWFs bring to the investment community. The Santiago Principles are a set of 24 principles to promote transparency, good governance, accountability and prudent investment practices among SWFs. GIC adheres to these principles and publishes our self-assessment on our website.

GIC's involvement started in March 2008 when we participated in the pioneering effort alongside the Abu Dhabi Investment Authority and US Treasury Department to develop the first set of Generally Accepted Principles and Practices for SWFs and recipient countries. These principles were the foundation of the Santiago Principles published by the International Working Group (IWG) of SWFs and countries that October. To facilitate and follow up on the work undertaken in the context of the Santiago Principles, the IWG established the IFSWF in 2009. Starting with 23 members, the IFSWF has grown to a strength of 30 member funds, representing about two-thirds of global SWF assets.

GIC's Company Secretary and Chief People Officer, Ms Deanna Ong, was appointed to the IFSWF Board on 1 October 2015.

Investment Implementation

Our core investment groups are Public Equities, Fixed Income, Private Equity, Infrastructure and Real Estate. In addition, our Integrated Strategies Group evaluates and invests in cross-asset investment opportunities.

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 to preserve and enhance long-term investment value and protect the financial interests of our Client.

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

Public Equities Group

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

Fixed Income Group

Fixed income investments aim to generate steady returns, provide a liquidity reserve to support portfolio management activities, and enhance capital preservation through diversification. Our portfolio

managers employ a range of investment strategies including yield curve analysis, credit, interest rate duration, currency management and cross-asset quantitative strategies to add value to the portfolio. The fixed income sectors we invest in range from government bonds, emerging market bonds, corporate bonds and loans, convertible bonds, hybrid securities, securitised products to global currencies.

Private Equity Group

GIC's private equity universe includes buyouts, venture capital and special situations such as mezzanine debt, distressed debt and secondary fund investments. We invest in companies directly and through funds. The direct investment programme is focused on taking minority equity positions and providing mezzanine financing in buyouts. Our funds strategy aims to identify, and invest with, leading private equity and venture capital 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 network of business links.

Infrastructure Group

In infrastructure, GIC's primary strategy is to invest directly in operating 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.

Real Estate Group

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 (such as real estate operating companies), real estate investment trusts and real estate-related debt instruments. Our real estate assets span multiple property sectors, including office, retail, residential, industrial and hospitality.

Real estate investing is pursued through a rigorous investment analysis, underwriting and approval process to ensure the portfolio meets both investment and risk objectives. Asset-specific conditions and risks are among the factors that influence investment decisions. GIC actively manages the assets to generate income and enhance market value through tenant management, market positioning, leasing and capital improvements.

Integrated Strategies Group

Integrated Strategies Group focuses on cross-asset and less conventional investment opportunities. It develops thematic investment strategies and actively expands our network of relationships beyond traditional domains.

Portfolio Execution Group

The role of the Portfolio Execution Group (PEG) is to enable more efficient beta replication on passive portfolio management. PEG exercises functions such as trade execution, treasury and currency management, asset rebalancing, passive replication and trade completion.

External Fund Managers

GIC employs external fund managers to access investment capabilities and opportunities. External managers enable GIC to gain exposure across public and private markets. In particular, they offer us specialised and local expertise in various geographies. They also provide us with valuable investment insights.

Managing Risks

Investing involves prudent risk-taking. Identifying and managing risk is therefore a core responsibility of all GIC staff. Each employee has individual accountability and clearly defined responsibilities within a well-defined risk management framework. This ensures risks taken are in line with the risk tolerance set by the Client.

Risk Management Objectives

GIC's risk management objectives are to ensure that:

1. The investment strategies pursued are consistent with the risk tolerance set by our Client.
2. Policies, guidelines and control processes are in place to reduce the likelihood of significant losses.
3. Any reputational impact due to our actions is carefully managed.
4. The risks associated with each investment are well-understood and we are adequately compensated for taking those risks.

Risk Governance

The GIC Board provides ultimate risk oversight. It is responsible for determining GIC's risk appetite in conjunction with investing objectives. 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.

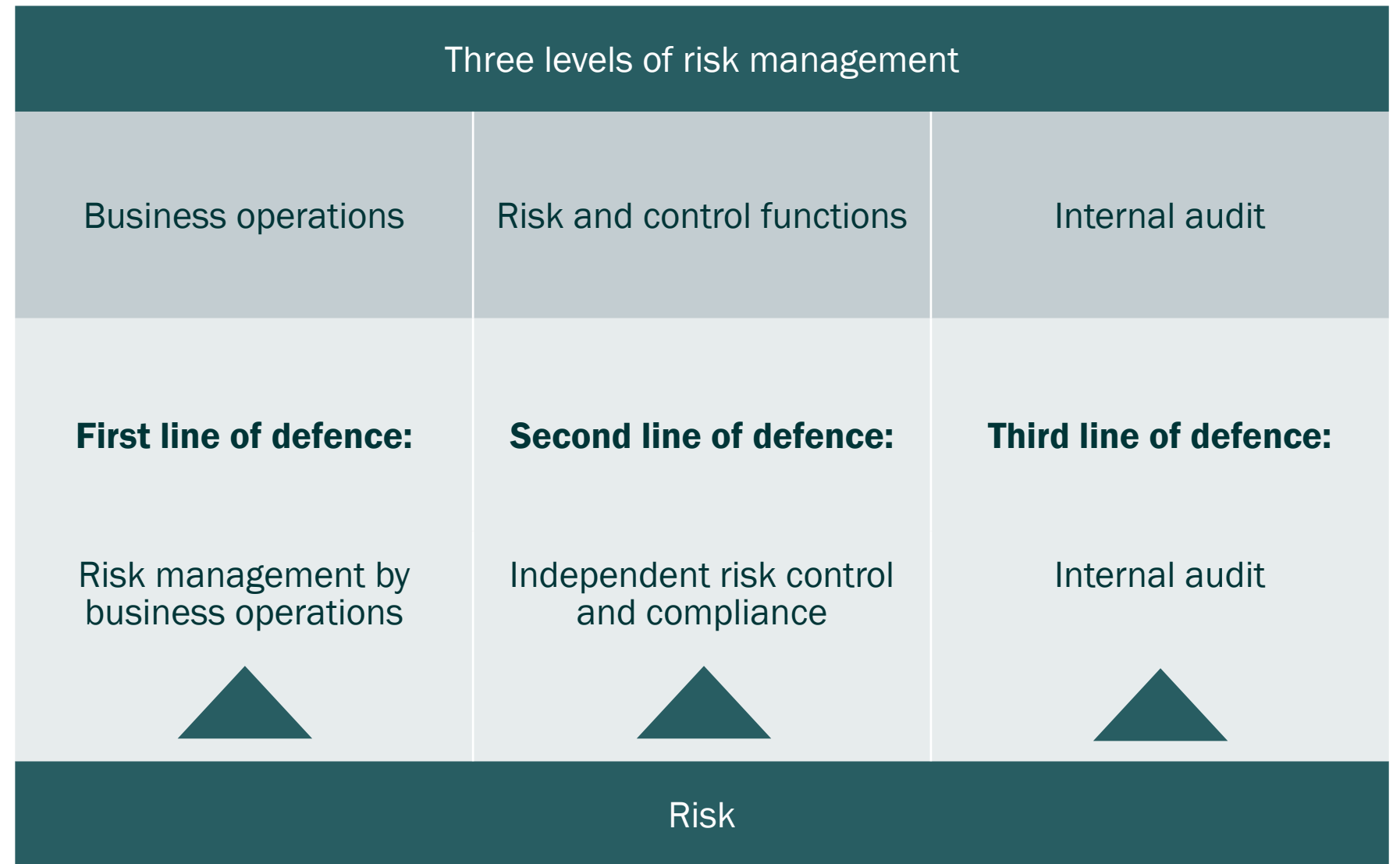
The Group Executive Committee is the highest management body in GIC. It deliberates on investment and risk issues before they are submitted to relevant board committees. It is also the forum that assesses and makes determinations on fiduciary risk and reputational risk issues.

The Chief Risk Officer (CRO) is a member of the Group Executive Committee and reports to the Chief Executive Officer (CEO) and 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 responsibility to oversee implementation of risk policies, review significant risk issues from investments and operations, as well as to ensure the resolution of these issues.

Three Lines of Defence

GIC's risk management model operates along "three lines of defence" which ensure there is clarity and transparency in risk ownership and accountability.



The First Line: Operating Units

People are the cornerstone of any risk management system. All GIC staff are expected to act with integrity and exercise sound judgement; they need to understand, evaluate and carefully manage the risks that 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.

The Second Line: Independent Risk 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 the risk management function, legal and compliance function, and finance function. 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.

The risk management function is responsible for the independent assessment, measurement, monitoring and reporting of GIC’s investment, counterparty credit and operational risk profile.

The legal and compliance function is responsible for the independent

assessment, handling, monitoring, reporting and escalation of significant legal, regulatory and compliance matters to the Group and Board Risk Committees. It also manages litigation, regulatory inquiries and maintains, as well as enhances, our relationships with regulators.

The finance function is responsible for establishing and executing internal controls over the GIC group’s accounting and financial procedures. It is also responsible for monitoring and mitigating tax risks in our investments.

The Third Line: Internal Audit

Our Internal Audit Department provides the third line of defence, conducting periodic reviews of the appropriateness and effectiveness of our internal risk management controls.

Risk Management Approach

Our approach to risk management is multi-pronged:

- I. Managing portfolio investment risk to ensure that 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 GIC and our Client, 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 operations;
- V. Managing counterparty credit risk to minimise the impact to GIC if any counterparties were to default;
- VI. Managing reputational risk; and
- VII. Managing people risk.

The 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. This does not mean that there are no risks within the portfolio; but that risks are well-identified and managed within established risk tolerance.

Managing Portfolio Investment Risk

The Policy Portfolio is constructed with our 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.

GIC manages investment risk with these principles in mind:

- (i) Risks taken are **authorised**, that is, in line with the mandate given by the Client and Board, and within defined bounds authorised by the Client, Board and Management;
- (ii) Risks borne by GIC are well-understood to enable GIC to stay the course of being a long-term investor; that is, the Client, Board and Management are sufficiently **informed** about key risk attributes and potential downside risks for the portfolio and for each strategy, including mitigating actions to manage the risks of large drawdowns, as well as permanent impairment; and
- (iii) Risks assumed are **compensated**, that is, commensurate with expected returns and efficiently allocated to optimise the risk-reward ratio of the portfolio.

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 authorisation 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 broad 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. Each of these measures is designed to highlight a specific aspect of the portfolio that could lead to an undesirable outcome. These statistical measures are supplemented by a comprehensive 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, breaches in contracts, laws or regulations. Compliance risk refers to the risk of legal or regulatory sanctions, financial loss or reputational damage arising from non-compliance with applicable laws and regulations.

GIC's Compliance programme comprises robust and well-understood policies and effective controls, monitoring and surveillance. The implementation of a robust compliance programme is underpinned by a strong culture of ethics and compliance. We require all staff to observe the policies as set out in GIC's Compliance Manual (incorporating the Code of Ethics), comply with all applicable laws and regulations, uphold exemplary conduct and to act with integrity at all times. Regular and targeted training is conducted and an annual compliance quiz is administered, to reinforce awareness and understanding and to strengthen GIC's compliance culture. The compliance programme also requires that all staff adhere to their confidentiality obligations and responsibilities.

The investment and operations teams work closely with the legal and compliance function to manage legal, regulatory and compliance risks arising from the group's investment activities. The legal and compliance function monitors compliance with laws and regulations, including laws on securities trading and investment (for example, insider trading, unlawful market conduct, exchange position/foreign investment limits and other reporting requirements), competition law requirements, financial crimes compliance, and licensing and regulatory approvals. 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

The Tax Risk Management Framework underscores our commitment to be compliant with tax laws, rules, regulations and obligations set by the respective governments of the jurisdictions in which we invest and operate. We ensure that tax-related decisions are handled with professional skill, care and diligence, with relevant documentation that evidences the facts, considerations and decisions taken. We seek written advice, opinion or confirmation, where appropriate, to substantiate our tax position. 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.

New investment products or strategies are subject to a risk identification and assessment process conducted by a cross-functional group. This ensures that 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, procedures and controls, are in place to manage these risks before the investment is permitted.

We assess the control environment to ensure that any control weakness is promptly identified and addressed.

Infrastructure, including technology and data, plays a critical role to enable effective investment and risk management. Policies and procedures are established to safeguard the physical security and integrity of GIC's technology and data assets.

Our business continuity plan is tested and reviewed regularly to ensure that our procedures and infrastructure can support operations in the event of a business disruption. This enhances corporate resilience and safeguards the group's operations.

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 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 and report counterparty profiles to senior management regularly. 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 People Risk

We require our staff to observe the applicable laws and regulations, GIC's internal policies and procedures, to conduct ourselves in an exemplary manner at all times and uphold GIC's fiduciary duty to our Client.

Consistent with our long-term orientation, GIC's remuneration policies and practices support and reinforce a prudent risk-taking culture, as well as recognise and reward our people on the basis of long-term results. We are committed to developing our employees to their full potential for the long term through many learning programmes. We continue to develop a strong leadership bench for GIC, allowing us to build new investment capabilities and extend our investment and operating platforms.

People are at the heart of our business. Our PRIME values are the compass in the management of our people, processes and portfolio. Assessment of these values is included in our staff appraisals.

Feature Article:
*Investing in a Highly
Uncertain Environment*

The current investing environment features considerable uncertainty. GIC's response has been to build a diversified and resilient portfolio to ensure capital and returns can be best protected over the long term.

The Feature Article in this year's Annual Report contrasts the environment of heightened uncertainty with apparent investor complacency as judged by current market pricing. While the current investment environment is one that features considerable uncertainty, valuations in equities and bond markets are high. This implies expected returns may be inadequate to compensate for the uncertainty in the environment. GIC's investment response has been to build a resilient and diversified portfolio to ensure that capital and returns can be best protected over the long term.

Risk and Uncertainty

Risk is fundamental to investing. Poorly managed, risk can lead to adverse investment outcomes that ultimately result in failure to achieve investment objectives. But in dealing with risk today, investors are confronted with profound questions. Statistical measures of volatility, the conventional definition of risk, are extraordinarily low by historical standards. And yet, global political, economic and social developments signify a highly uncertain, unpredictable future.

How should investors measure and manage risk and uncertainty in this environment? How can they achieve their investment objectives in an age of uncertainty?

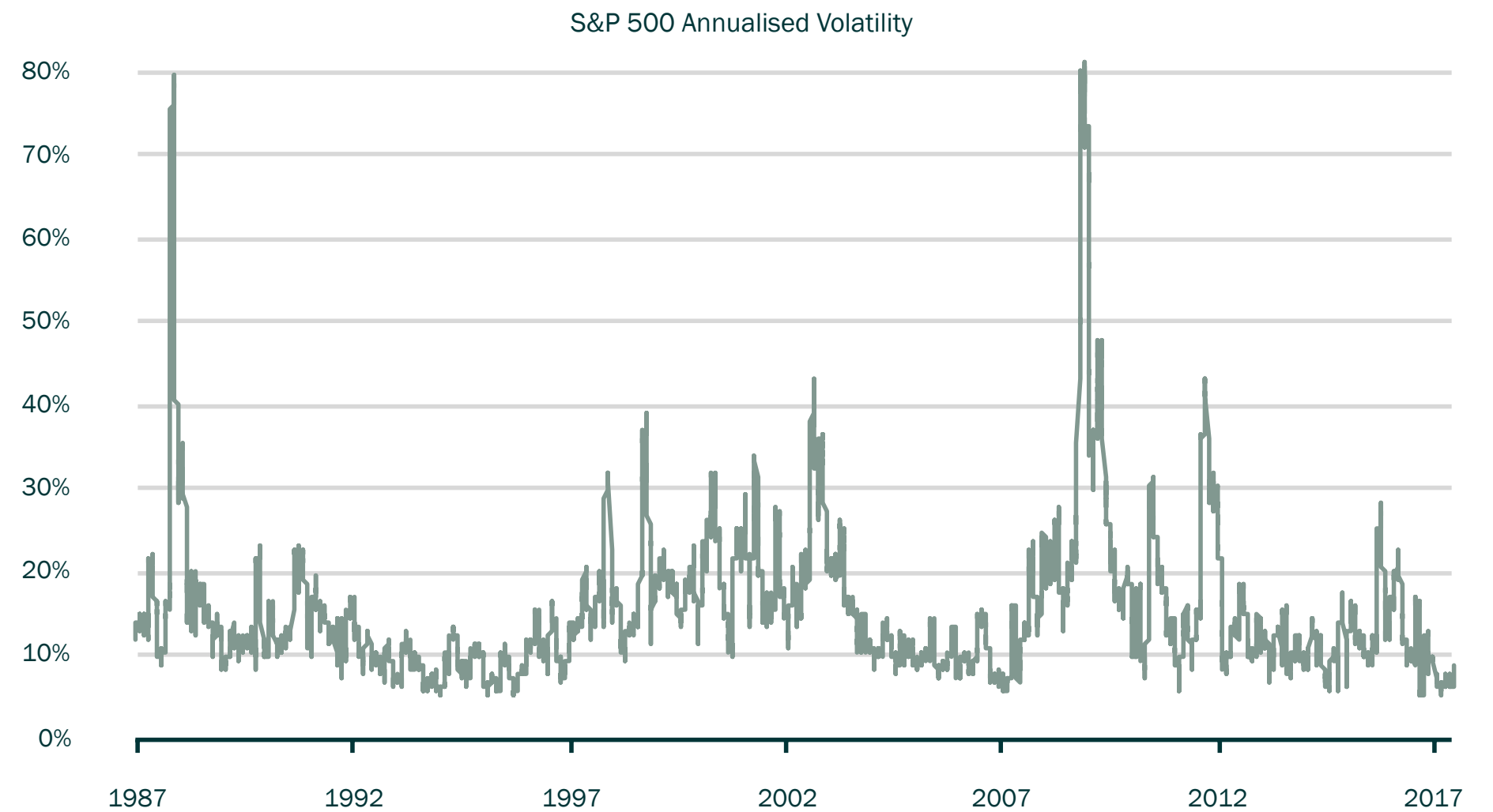
It was Frank Knight, an American economist, who made the distinction between risk and uncertainty. Knight defined risk as applying to situations where, while the outcome is unknown, the likelihood (or probability) of possible outcomes can be quantified through standard statistical computations such as averages, standard deviation (or volatility) and correlations. Uncertainty, on the other hand, as conceptualised by Knight, was drastically different from risk. For him, uncertainty applied to cases where the outcomes were unknowable. Correspondingly, their probabilities cannot be computed.

Knight's distinction between risk and uncertainty is particularly germane for investors today. Recent history covers some notable market situations where the reliance on standard measures of risk has fallen short.

An example of the limitations of standard risk analysis was the Global Financial Crisis (GFC). During the run-up to the GFC, quantitative risk models were typically used to price complicated financial securities. While seemingly sophisticated, these mathematical models failed to capture important correlations, and possible changes in such correlations. The outcome was that risk was seriously mispriced, resulting in defaults and losses. For example, the Chief Financial Officer at a major investment bank said in August 2007 that the losses suffered on one of their hedge funds were “25-standard deviation moves, several days in a row”¹. Based on standard distributions of risk, such moves in prices should only have occurred about once every 13 billion years. The fact that such price moves were observed was a sign that the models of risk had grossly underestimated the true degree of risk and its price impact.

The current market environment features abundant liquidity and low yields, which have contributed to the suppression of volatility across equity markets (Figure 1). This does not mean that uncertainty has been removed from the environment.

Figure 1: Expected Volatility of the S&P 500 Is Low



Source: Datastream

¹ *Financial Times*, August 14 2007

An Uncertain Environment

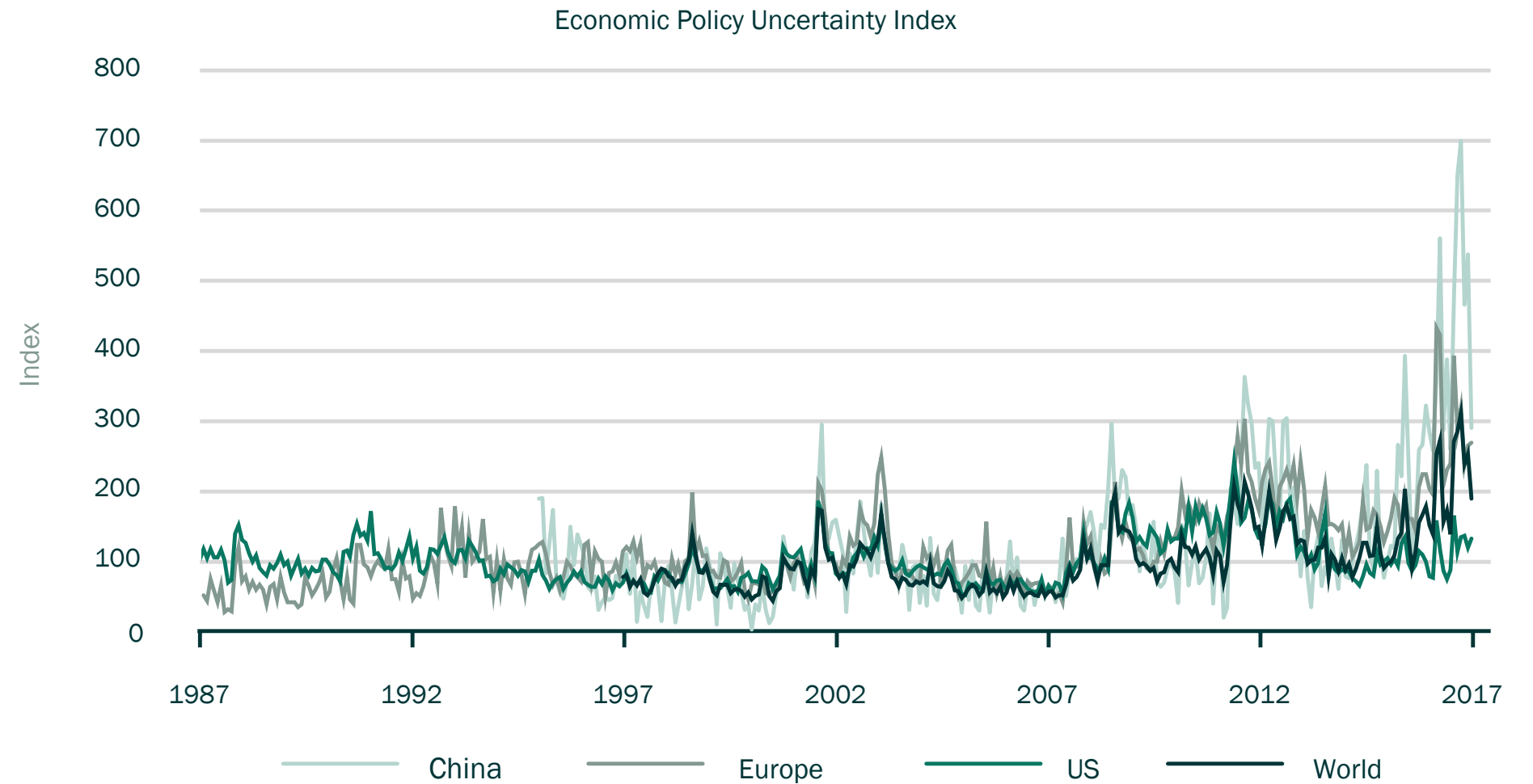
Developments such as Brexit, the US Presidential elections and heightened geopolitical tensions belie the sanguine view of market risk as conveyed by standard risk measures. In addition, there is great uncertainty in how technology is altering labour markets, driving income inequality and fueling the rise of populism, for instance. These potentially disruptive forces in the market place further suggest that conventional risk measures may not adequately guide investors. The concept of uncertainty needs to be taken into account. For example, a policy uncertainty index developed by Baker, Bloom and Davis indicates that such uncertainty is the highest over the last 30 years (Figure 2).

Past patterns will likely not be a useful guide. Trends related to populism, geopolitics, disruptive technology, even monetary policy, have raised fundamental questions about the future macroeconomic and investment environment. The normalisation of monetary policy from extraordinary levels of policy accommodation similarly has no historical precedent. Standard risk models given these uncertainties are thus insufficient.

In theory, higher risk goes hand in hand with higher expected returns as investors expect to be compensated more for investing in an asset for which the payoffs are less definite. For example, investors expect to earn a “risk premium” or excess return by owning equities over bonds.

The outlook for risk assets at the current juncture, however, does not only feature low returns, but also heightened uncertainty, amidst low measured volatility. (See the Investment Chapter’s section on “Managing the Volatile Path to Lower Long-Term Expected Returns” for a discussion on low prospective returns.) The combination of low returns with high uncertainty is particularly challenging for investing.

Figure 2: Increased Economic Policy Uncertainty



Source: Datastream

The GIC Portfolio is diversified across multiple dimensions, kept within the overall risk tolerance thresholds, and has an asset mix that enables it to harvest risk premiums over the long run.

How Should We Respond to Such an Environment?

A key part of GIC's strategy to deal with an environment that features not only low returns, but also high uncertainty is to ensure that our portfolio remains robust across a range of plausible scenarios. Scenario analysis embraces the inherent uncertainty by considering alternative environments to "stress test" the performance of the portfolio. Examples of how we deal with uncertainty through the use of scenarios were highlighted in last year's "Preparing For A Low-Yield Environment" Feature Article where we assessed how global markets would perform in "back to normal" and "stagnation" scenarios. These scenario analyses are factored into our ongoing efforts to construct a robust portfolio.

The GIC Portfolio is diversified across multiple dimensions, kept within the overall risk tolerance thresholds, and has an asset mix that enables it to harvest risk premiums over the long run. It is important that we keep to our discipline of long-term value investing and reduce exposure when the risk-reward trade-off is less favourable over the long term. At its heart, this approach embodies one of our five investment principles – "Prepare, don't Predict".

Behavioural issues are also important when dealing with an environment of heightened uncertainty amidst low volatility. Experience has taught us that a low-volatility environment is not to be confused with a low-risk environment. Indeed, it is precisely this environment that tends to lead to excessive risk-taking behavior that can in turn result in mispricing of assets, according to the Financial Instability Hypothesis of late US economist Hyman Minsky.

Managing investment risk goes beyond relying on standard measures of volatility. It requires an emphasis on assessing uncertainty, particularly in the current environment. Strategies of scenario analysis, diversification and guarding against complacency due to the phenomenon of low-volatility are important.

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 which 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 MOF on the risk and performance of the portfolio.

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 the 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 the MOF's website.)

Each year, part of the GIC Portfolio returns are 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 returns on the net assets managed by GIC and those owned by the Monetary Authority of Singapore and Temasek Holdings¹ 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. The system aims to prevent the Government of the day from drawing on past reserves or spending reserves not accumulated during its current term in office.

As a Fifth Schedule company, GIC is directly accountable in a number of key areas to the Singapore President, who is empowered to access any information he needs to safeguard the country's reserves. No one may be appointed to or removed from the GIC Board without his 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 expectation on the amount of risk GIC can bear is characterised by the Reference Portfolio.

The Government, represented by the MOF, holds the GIC Board accountable for 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 list the financial transactions, holdings and bank account balances. 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 his 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. These companies are also audited by GIC's internal audit.

Other companies in the Group and the investment holding companies are audited by public accounting firms.

¹ Temasek Holdings was included in the NIRC framework with effect from FY16/17.

The GIC Board

The GIC Board is responsible for the 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 and represented by the Reference Portfolio.

The Board is supported by five board committees.

Board Committees

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 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.

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 the 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.

Risk Committee

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

Audit Committee

The Audit Committee reviews and assesses the adequacy and effectiveness of internal controls. These include financial, operational and compliance, as well as risk management policies and procedures. 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, as well as issues of fraud and financial loss.

Human Resource and Organization Committee

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

International Advisory Board

The International Advisory Board provides the GIC Board, board committees and GIC Management global and regional perspectives on geopolitical, economic and market developments. It provides advice and perspectives on 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 the 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 structure is relatively flat and comprises four committees with clear reporting lines and accountability.

Group Executive Committee

The Group Executive Committee is the highest management body in GIC, bringing together the Group's functional and investment heads. It deliberates on management proposals on organizational, investment and risk issues before these are submitted to the relevant board committees and the GIC Board. The committee reviews and approves major business, governance and policy issues which apply to the entire group, and oversees organizational management initiatives, business planning and personnel matters (including succession planning, talent development, compensation and performance management).

Investment Management Committee

The Investment Management Committee assists the Group Executive Committee in the implementation of investment policies and active strategies. It regularly reviews matters related to portfolio management, including rebalancing, portfolio liquidity, capital budget usage, active strategy implementation, risk methodologies, scenarios, and stress loss. This committee monitors the performance and risk of the portfolio, including active strategies, on a monthly basis.

Direct Investment Steering Committee

The Direct Investment Steering Committee oversees the strategic plan, progress and pace of direct investments across GIC. It also reviews relationships with investee companies to help identify and develop deal opportunities. This committee does not approve investments.

Group Risk Committee

The Group Risk Committee provides oversight for the risk management policies and practices for the GIC Group. 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.

Boards of Asset Management Companies

All three asset management companies – GIC Asset Management, GIC Real Estate and GIC Special Investments – are wholly-owned subsidiaries responsible for investing the portfolio within the guidelines set out in the Investment Mandate to GIC. Their boards oversee investment strategies of the asset classes under management, and review operations of the companies according to Group policies.

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 GIC's Policy Portfolio which determines its 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 Management.
International Advisory Board	Provides views on market developments generally and, in particular, the medium- to long-term outlook for investment opportunities around the world.
Board Committees	Investment Strategies Committee Assists the GIC Board in evaluating 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 in the GIC Group.
	Audit Committee Looks into the effectiveness of the internal control systems for safeguarding company assets and Client's investment portfolios. Reviews integrity of the financial reporting process, significant ethics violations, compliance with regulatory and legal requirements, and issues of fraud and financial losses.
	Human Resource and Organization Committee Oversees organizational matters in GIC, including compensation policies, talent development, succession planning, and organizational development.
GIC Management	Formulates and executes investment strategies. Constructs Active Portfolio, with an overlay of active, skill-based strategies.

GIC Board, Board Committees and Management Committees

Board of Directors	Board Committees	International Advisory Board	Group Committees
<i>Board of Directors</i>	<i>Investment Strategies Committee</i>	<i>Risk Committee</i>	<i>International Advisory Board</i>
Chairman Lee Hsien Loong	Chairman Tharman Shanmugaratnam	Chairman Lim Hng Kiang	Chairman Teo Chee Hean
Directors Lim Hng Kiang Teo Chee Hean Tharman Shanmugaratnam Heng Swee Keat Ang Kong Hua Peter Seah Lim Huat Chew Choon Seng Hsieh Fu Hua Loh Boon Chye Gautam Banerjee Suppiah Dhanabalan Lim Chow Kiat Dr Jeffrey Jaensubhakij	Deputy Chairman Peter Seah Lim Huat Members Lim Hng Kiang Ang Kong Hua Heng Swee Keat S Iswaran Advisors Dr Martin L Leibowitz G Leonard Baker Jr Knut Kjær David Denison Mark Kritzman (appointed 1 April 2017) Dr Mohamed El-Erian (appointed 1 April 2017)	Members Loh Boon Chye Lam Kun Kin (appointed 1 September 2016) Advisors Dr Martin L Leibowitz Mark Kritzman (appointed 1 April 2017)	Members G Leonard Baker Jr Léon Bressler Deepak Parekh Knut Kjær David Denison Mark Kritzman (appointed 1 April 2017) Dr Mohamed El-Erian (appointed 1 April 2017)
	<i>Investment Board</i>	<i>Audit Committee</i>	<i>Group Executive Committee</i>
	Chairman Ang Kong Hua Members G Leonard Baker Jr Léon Bressler David Denison Hsieh Fu Hua Koh Boon Hwee	Chairman Chew Choon Seng Members Loh Boon Chye Gautam Banerjee	Chairman Lim Chow Kiat Chief Executive Officer Members Dr Jeffrey Jaensubhakij Group Chief Investment Officer Lim Kee Chong Deputy Group Chief Investment Officer, President (Americas) and Director, Integrated Strategies Tay Lim Hock Deputy Group Chief Investment Officer and President (Europe) Goh Kok Huat Chief Operating Officer Dr Chia Tai Tee Chief Risk Officer Dr Leslie Teo Chief Economist and Director, Economics & Investment Strategy Deanna Ong Chief People Officer Advisor Lim Siong Guan
	<i>Human Resource and Organization Committee</i>	<i>Human Resource and Organization Committee</i>	<i>Investment Management Committee</i>
	Chairman Peter Seah Lim Huat Members Chew Choon Seng Hsieh Fu Hua Gautam Banerjee	Chairman Peter Seah Lim Huat Members Chew Choon Seng Hsieh Fu Hua Gautam Banerjee	Chairman Dr Jeffrey Jaensubhakij Group Chief Investment Officer Members Dr Chia Tai Tee Chief Risk Officer Dr Leslie Teo Chief Economist and Director, Economics & Investment Strategy Bryan Yeo Chief Investment Officer, Public Equities Liew Tzu Mi Chief Investment Officer, Fixed Income Ang Eng Seng Chief Investment Officer, Infrastructure Choo Yong Cheen Chief Investment Officer, Private Equity Lee Kok Sun Chief Investment Officer, Real Estate Betty Tay Director, External Managers Department Arjun Khullar Head, Integrated Strategies Group
			<i>Direct Investment Steering Committee</i>
			Chairman Lim Chow Kiat Chief Executive Officer Members Dr Jeffrey Jaensubhakij Group Chief Investment Officer Lim Kee Chong Deputy Group Chief Investment Officer, President (Americas) and Director, Integrated Strategies Tay Lim Hock Deputy Group Chief Investment Officer and President (Europe) Bryan Yeo Chief Investment Officer, Public Equities Choo Yong Cheen Chief Investment Officer, Private Equity Lee Kok Sun Chief Investment Officer, Real Estate
			<i>Group Risk Committee</i>
			Chairman Dr Chia Tai Tee Chief Risk Officer Members Dominic Lim Director, Risk & Performance Management Charles Lim General Counsel Chan Hoe Yin Director, Investment Services (Private Markets and Finance) Leong Wing Kwan Director, Investment Services (Public Markets) Joyce Tan Director, Technology Dr Leslie Teo Chief Economist and Director, Economics & Investment Strategy Choy Siew Kai Director, Data & Analytics John Tang Global Head, Global Investments, Strategy & Risk, Private Equity

Organizational Structure

Board of Directors			International Advisory Board			
Board Committees						
Investment Strategies Committee	Audit Committee					
Investment Board	Human Resource & Organization Committee					
Risk Committee						
Group Executive Committee						
LIM CHOW KIAT Chief Executive Officer	DR JEFFREY JAENSUBHAKIJ Group Chief Investment Officer	LIM KEE CHONG Deputy Group Chief Investment Officer	TAY LIM HOCK Deputy Group Chief Investment Officer	GOH KOK HUAT Chief Operating Officer	DR CHIA TAI TEE Chief Risk Officer	DR LESLIE TEO Chief Economist
DEANNA ONG Chief People Officer	LIM SIONG GUAN Advisor					
Corporate Headquarters			Investment Groups			
WONG AI CHIAT Corporate Administration & Infrastructure	PETER GOH Human Resource & Organization	CHARLES LIM Legal & Compliance	<i>Public Equities</i>	<i>Private Equity</i>	<i>Real Estate</i>	<i>External Managers</i>
CHOY SIEW KAI Data & Analytics	VINCENT CHEANG Internal Audit	DOMINIC LIM Risk & Performance Management	BRYAN YEO Chief Investment Officer	CHOO YONG CHEEN Chief Investment Officer	LEE KOK SUN Chief Investment Officer	BETTY TAY Director
DR LESLIE TEO Economics & Investment Strategy	CHAN HOE YIN Investment Services (Private Markets and Finance)	JOYCE TAN Technology	<i>Fixed Income</i>	<i>Infrastructure</i>	<i>Integrated Strategies Group</i>	<i>Portfolio Execution Group</i>
LOH WAI KEONG Enterprise Strategy	LEONG WING KWAN Investment Services (Public Markets)		LIEW TZU MI Chief Investment Officer	ANG ENG SENG Chief Investment Officer	LIM KEE CHONG Director	TUNG SIEW HOONG Director
Overseas Offices						
LIM KEE CHONG President (Americas)	KISHORE GOTETY Mumbai Office	RAY PARK Seoul Office				
TAY LIM HOCK President (Europe)	KEVIN LOOI San Francisco Office	SUN JIANJUN Shanghai Office				
SHARON SUN Beijing Office	WOLFGANG SCHWERTLE São Paulo Office	KEN CHAN Tokyo Office				

**LEE HSIEN LOONG**

Prime Minister

Lee Hsien Loong has been Prime Minister of Singapore since 2004. He was previously Deputy Prime Minister and has also held ministerial appointments in Trade and Industry, Defence and Finance. Mr Lee chaired the Monetary Authority of Singapore from 1998 to 2004, where he shifted MAS towards a lighter supervisory touch. As Prime Minister, he launched SkillsFuture to support Singaporeans in embracing lifelong learning and skills, and the Smart Nation initiative to use technology to create a future of better living, more opportunities and stronger communities. Before entering politics, Mr Lee was a Brigadier-General in the Singapore Armed Forces.

Mr Lee has a BA (First Class Honours) in Mathematics and a Diploma in Computer Science from Cambridge University, as well as a Masters in Public Administration from Harvard University.

**LIM HNG KIANG**

Minister for Trade & Industry (Trade)

Lim Hng Kiang, the Minister for Trade and Industry (Trade), chairs the GIC Risk Committee and sits on the Investment Strategies Committee. He is also Deputy Chairman of the Monetary Authority of Singapore. Mr Lim was Minister for Trade and Industry from 2004 until 2015, when the Ministry was carved into two portfolios. In his current appointment, Mr Lim oversees trade negotiations, the Economic Development Board and Jurong Town Corporation. He has held Cabinet posts 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 Masters in Public Administration from Harvard University.

**THARMAN SHANMUGARATNAM**

Deputy Prime Minister & Coordinating Minister for Economic and Social Policies

Tharman Shanmugaratnam is Deputy Prime Minister and Coordinating Minister for Economic and Social Policies. He chairs the GIC Investment Strategies Committee, and is also Chairman of the Monetary Authority of Singapore. He was appointed Chairman of the Group of Thirty, an independent global council of leading economic and financial policy thinkers, from January 2017. He also led the International Monetary and Financial Committee (IMFC), the key policy forum of the IMF, from 2011-2014; he was its first Asian chair. He served as Minister for Finance from 2007-2015, and earlier as Minister for Education for five years.

Mr Shanmugaratnam read Economics at the LSE and Cambridge University. He also holds a Masters in Public Administration from Harvard University where he was named a Lucius N Littauer Fellow.

**TEO CHEE HEAN**

Deputy Prime Minister & Coordinating Minister for National Security

Teo Chee Hean has been Deputy Prime Minister of Singapore since 2009. He chairs the GIC International Advisory Board. He is currently Coordinating Minister for National Security and Minister in charge of the Civil Service. He also oversees the Prime Minister's Office Strategy Group, including the National Population and Talent Division and the National Climate Change Secretariat, and is Chairman of the National Research Foundation. Mr Teo has held Cabinet positions in Home Affairs, Defence, Education, Finance, Environment, and Communications. Prior to entering politics in 1992, he was the Chief of Navy holding the rank of Rear Admiral.

Mr Teo graduated with a BSc (First Class Honours) in Electrical Engineering and Management Science from the University of Manchester. He holds an MSc (Distinction) in Computing Science from Imperial College and a Masters in Public Administration from Harvard University, where he was named a Littauer Fellow.

**HENG SWEE KEAT**

Minister for Finance

Heng Swee Keat is the Minister for Finance, and is a member of the GIC Investment Strategies Committee. He co-chaired the Committee on the Future Economy, which charts the strategies for Singapore's next phase of growth. From 2011 to 2015, Mr Heng served as Minister for Education. Before entering politics in 2011, he was Managing Director of the Monetary Authority of Singapore. He served as Permanent Secretary of the Ministry of Trade and Industry, overseeing economic policy, trade negotiations, and the regulation and development of industry, as well as CEO of the Trade Development Board. Between 1997 and 2000, he was Principal Private Secretary to then-Senior Minister Lee Kuan Yew.

Mr Heng has an MA in Economics from Cambridge University, and also holds a Masters in Public Administration from the Kennedy School of Government, Harvard University.

**ANG KONG HUA**

Chairman
Sembcorp Industries Ltd

Ang Kong Hua is the Chairman of Sembcorp Industries. He chairs the GIC Investment Board and sits on the Investment Strategies Committee. 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, he was CEO of NSL (formerly NatSteel) until he retired in 2003, and stayed as its Executive Director until 2010. He was previously Chairman of Global Logistic Properties, 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 BSc (Honours) in Economics from the University of Hull.

**PETER SEAH LIM HUAT**

Chairman
DBS Group Holdings Ltd

Peter Seah Lim Huat is the Chairman of DBS Group Holdings. He chairs GIC's Human Resource and Organization Committee, and is Deputy Chairman of the Investment Strategies Committee. He heads the boards of Singapore Airlines, Singapore Health Services, 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 Level 3 Communications Inc, Fullerton Financial Holdings and STT Communications.

Mr Seah graduated from the University of Singapore with a degree in Business Administration.

**CHEW CHOON SENG**

Former Chairman
Singapore Exchange Ltd

Chew Choon Seng chairs the GIC Audit Committee and is a member of the Human Resource and Organization Committee. He was the CEO of Singapore Airlines from 2003 till his retirement in 2010, and a Governor of the International Air Transport Association from 2003 to 2010 and its Chairman in 2006 to 2007. He was a board director of the Singapore Exchange from 2004 and its Chairman from 2011 to 2016, and Chairman of the Singapore Tourism Board from 2011 to 2016. In 2017, he was appointed Chairman of the Council assigned to review Singapore's Code of Corporate Governance.

Mr Chew graduated with a Bachelor of Mechanical Engineering (First Class Honours) from the University of Singapore. He also has an MSc in Operations Research and Management Studies from the Imperial College of Science and Technology, University of London.

**HSIEH FU HUA**

Chairman
UOB Group

Hsieh Fu Hua is the Chairman of United Overseas Bank. He is a member of the GIC Investment Board and the Human Resource and Organization Committee. He is Co-Founder and Advisor to PrimePartners Group and serves on the boards of several non-profit organizations. He is President of National Council of Social Service, Chairman of National Gallery Singapore, and Stewardship Asia Centre. He chairs the Board of Trustees of National University of Singapore, and has recently been appointed Chairman-designate to National University Health System. 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 organization. Subsequently he served as Group Managing Director of BNP Prime Peregrine Group Hong Kong, CEO of Singapore Exchange and President of Temasek Holdings.

Mr Hsieh holds a Bachelor of Business Administration (Honours) from the University of Singapore.

**LOH BOON CHYE**

Chief Executive Officer
Singapore Exchange Ltd

Loh Boon Chye is the CEO of Singapore Exchange. He sits on the GIC Risk and Audit Committees. He has more than 30 years of experience in the financial industry and has played a key role in the development of Southeast Asia's capital markets. Prior to SGX, he was Deputy President for Asia Pacific, 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.

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

**GAUTAM BANERJEE**

Senior Managing Director and Chairman
Blackstone Singapore

Gautam Banerjee is a Senior Managing Director and Chairman of Blackstone Singapore. He sits on the GIC Audit as well as the Human Resource and Organization Committees. 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, EDBI Pte Ltd, Piramal Enterprises, and The Indian Hotels Company Limited, and is also the Vice-Chairman of the Singapore Business Federation.

Mr Banerjee has a BSc (Honours) in Accounting and Financial Analysis 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.

**S DHANABALAN**

Member
Council of Presidential Advisers

S Dhanabalan is a member of the Council of Presidential Advisers. He chairs the board of trustees of Temasek Trust and Mandai Park Holdings. He was Chairman of Temasek Holdings, Singapore Airlines and DBS Group Holdings, and sat on the board of GIC from 1981 to 2005. Mr Dhanabalan joined the Civil Service in 1960, before moving to the newly-formed Economic Development Board in 1961. As the need for industrial capital grew, he was part of a small group that established the Development Bank of Singapore, where he served from 1968 to 1978. After entering politics in 1976, Mr Dhanabalan served as Minister for Foreign Affairs, National Development, Trade and Industry, Culture and Community Development.

Mr Dhanabalan holds a degree in Economics from the University of Malaya in Singapore.

**S ISWARAN**

Minister for Trade & Industry
(Industry)

S Iswaran is the Minister for Trade and Industry (Industry), addressing economic restructuring, productivity growth, and creating a vibrant domestic economy and enterprise ecosystem. He sits on the GIC Investment Strategies Committee. He oversees the Agency for Science, Technology and Research, Energy Market Authority, International Enterprise Singapore, Singapore Tourism Board, Sentosa Development Corporation and SPRING Singapore. Since joining the Civil Service in 1987, Mr Iswaran has served in the Ministries of Home Affairs and Education. He was Director for Special Projects in the National Trades Union Congress and CEO of the Singapore Indian Development Association. He was also Director for Strategic Development at Singapore Technologies and Managing Director of Temasek Holdings.

Mr Iswaran graduated from the University of Adelaide with First Class Honours in Economics. He holds a Master of Public Administration from Harvard University.

**KOH BOON HWEE**

Chairman
Credence Partners Pte Ltd

Koh Boon Hwee is the Chairman of Credence Partners Pte Ltd. He sits on the GIC Investment Board. He is also the Chairman of Sunningdale Tech, Yeo Hiap Seng, Far East Orchard, Rippledot Capital Advisers, FEO Hospitality Asset Management, Agilent Technologies, AAC Technologies, and Deputy Chairman of the Securities Industry Council. He started his career in 1977 at Hewlett-Packard and rose to become its Managing Director in Singapore from 1985 to 1990. From 1991 to 2000, he was Executive Chairman of the Wuthelam Group. Mr Koh was also the Chairman of the Singapore Telecom, Singapore Airlines and DBS Bank.

Mr Koh received his Bachelor's Degree (First Class Honours) in Mechanical Engineering from the Imperial College of Science and Technology, University of London, and his MBA (Distinction) from Harvard Business School. He also received an honorary doctorate from Imperial College London.

**LAM KUN KIN**

Senior Executive Vice President, Head of Global
Treasury & Investment Banking, OCBC Bank

Lam Kun Kin is Senior Executive Vice President and Head of Global Treasury & Investment Banking at OCBC Bank. He is a member of the GIC Risk Committee. At OCBC, he has global responsibility for the financial market businesses and asset liability management, and also oversees the Global Investment Banking division. Prior to joining OCBC, Mr Lam held senior management positions at GIC, Citibank Singapore and Temasek Holdings. In September 2014, he was appointed by the MAS as Co-Chairman of the Singapore Foreign Exchange Market Committee. Currently, he serves on the boards of Bank of Singapore, OCBC Securities, AVIC Trust and the Great Eastern Group's Asset and Liability Committee.

Mr Lam holds a B.Acc (Honours) from the National University of Singapore. He is a Chartered Financial Analyst, Fellow Chartered Accountant of Singapore, and Institute of Banking and Finance (IBF) Distinguished Fellow.

**DR MARTIN LEIBOWITZ**

Managing Director
Morgan Stanley

Dr Martin Leibowitz is a Managing Director with Morgan Stanley Research's global strategy team. He advises GIC's Investment Strategies and Risk Committees. Prior to joining Morgan Stanley, 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, Carnegie Foundation, IMF Pension Fund, American Academy of Arts and Sciences, and The Institute for Advanced Study.

Dr Leibowitz holds both an AB and MS degree from the University of Chicago and a PhD in Mathematics from the Courant Institute of New York University.

**LEONARD BAKER**

Partner
Sutter Hill Ventures

G Leonard Baker Jr is a Partner in 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, and also a member of the Advisory Council of the Stanford Graduate School of Business. 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 is also a member of the Board of Trustees of Berklee College of Music in Boston. In 2005, he was conferred the Public Service Star Award in Singapore for his contributions in the areas of education and investment management.

Mr Baker holds a BA in Mathematics from Yale and an MBA from Stanford.

**LÉON BRESSLER**

Managing Partner
Aermont Capital

Léon Bressler is the Managing Partner of Aermont Capital LLP, formerly Perella Weinberg Real Estate UK LLP, since its inception in 2007. He is a member of the GIC Investment Board. Prior to joining Perella Weinberg Partners, Mr Bressler was the Chairman and CEO of Unibail (now Unibail-Rodamco). Under his leadership, Unibail grew to become Europe's largest real estate investment trust. Mr Bressler began his career with Chase Manhattan Bank in Paris, before joining the Midland Bank Group where he became the Chairman of the Executive Board of Midland Bank SA. He has also held positions as CEO of the Lanvin Group and Managing Partner of Worms & Cie.

Mr Bressler is a graduate of the Institut d'Etudes Politiques de Paris and has a degree in Law.

**DEEPAK PAREKH**

Chairman
Housing Development Finance Corporation

Deepak Parekh has been Chairman of India's Housing Development Finance Corporation (HDFC) since 1993. He started his career at Ernst and Ernst (now Ernst and Young) Management Consultancy Services in New York, moving to Grindlays Bank and Chase Manhattan Bank before joining HDFC. He is currently Non-Executive Chairman of BAE Systems India (Services) Pvt Ltd, GlaxoSmithKline Pharmaceuticals and Siemens India. He is also on several boards, including Fairfax Financial Holdings Corporation, Indian Hotels Company Ltd and Mahindra & Mahindra Ltd. Mr Parekh was awarded India's Padma Bhushan in 2006, the Federal Republic of Germany's Cross of the Order of Merit in 2014, the French Republic's "Knight in the Order of the Legion of Honour" – 2010, and was the first international recipient of the ICAEW Outstanding Achievement Award – 2010.

Mr Parekh is a Chartered accountant from ICEAW, UK, and a Commerce Graduate from Mumbai University.

**KNUT KJÆR**

Chairman and Partner
FSN Capital

Knut Kjær is Chairman and Partner of FSN Capital, as well as Executive Chairman of Sector Asset Management. He is an advisor to the GIC Investment Strategies Committee. Mr Kjær was the Founding CEO of the Norwegian Sovereign Wealth Fund, Norges Bank Investment Management (NBIM), in 1998. When he left in 2008, he had built an asset management team that grew NBIM's reserves from US\$25 billion to US\$400 billion. He was President of RiskMetrics Group in New York from 2009-2010. He is currently a member of the MAS Investment and Risk Advisory Panel and also sits on the International Advisory Council of the China Investment Corporation.

Mr Kjær holds a Masters in Economics and a degree in Political Science from the University of Oslo.

**DAVID DENISON**

Former President and CEO
Canada Pension Plan Investment Board

David Denison is a corporate director with extensive experience in the financial services industry. He advises the GIC Investment Strategies Committee and sits on the Investment Board. He served as President and CEO of the Canada Pension Plan Investment Board from 2005 to 2012. Prior to that, he was President of Fidelity Investments Canada Limited. Mr Denison currently serves as Chairman of Hydro One Limited, Vice-Chairman of Sinai Health Systems, and is a director of Royal Bank of Canada, BCE Inc and Allison Transmission Inc. He also sits on the International Advisory Council of the China Investment Corporation and is Co-Chair of the University of Toronto Foundation Investment Committee. He was named an Officer of the Order of Canada in 2014.

Mr Denison earned Bachelor of Arts and Education degrees from the University of Toronto and is a Fellow of the Institute of Chartered Accountants of Ontario.

**MARK KRITZMAN**

Founding Partner and CEO
Windham Capital Management

Mark Kritzman is a Founding Partner and Chief Executive Officer of Windham Capital Management and Chairman of Windham's investment committee. He advises GIC's Investment Strategies and Risk Committees. He was a Founding Director of the International Securities Exchange and has served on several boards, including the Institute for Quantitative Research in Finance, The Investment Fund for Foundations, and State Street Associates. He is also on several editorial boards, and is the author of six books including *Puzzles of Finance* and *The Portable Financial Analyst*. Mr Kritzman has won multiple awards including the Graham and Dodd Scroll, the Bernstein-Fabozzi/Jacobs-Levy Award, and the Roger F. Murray Q-Group Prize.

Mr Kritzman has a BSc degree in economics from St. John's University, a MBA (Distinction) from New York University, and a CFA designation. In 2004, he was elected a Batten Fellow at the Darden Graduate School of Business Administration, University of Virginia.

**DR MOHAMED EL-ERIAN**

Chief Economic Advisor
Allianz

Dr Mohamed A. El-Erian is Chief Economic Advisor at Allianz and former chair of President Obama's Global Development Council. He is an advisor to the GIC Investment Strategies Committee. Before joining Allianz, he held positions as CEO and co-CIO of PIMCO (2007-14), and president and CEO of Harvard Management Company. He was also a managing director at Salomon Smith Barney/Citigroup in London and spent 15 years with the International Monetary Fund in Washington, DC. Dr El-Erian writes regularly, and is a Financial Times Contributing Editor and Bloomberg View columnist. He has two New York Times' best sellers – the 2008 "When Markets Collide" and the 2016 "The Only Game in Town".

Dr El-Erian holds a Bachelor of Economics from Cambridge University, as well as a Masters and PhD in Economics from Oxford University. He is an Honorary Fellow of Queens' College, Cambridge University.

Executive Management



LIM CHOW KIAT
Chief Executive Officer

Lim Chow Kiat was appointed as Chief Executive Officer on 1 January 2017. He was previously Group Chief Investment Officer of GIC and Deputy Group President. He joined GIC as a portfolio manager upon graduation in 1993, developed GIC's investment capability in corporate bonds 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 serves on the boards of Nanyang Technological University, Wealth Management Institute, National Research Foundation and FCLT Global. He is also a member of Agence France Trésor's Strategic Committee.

Mr Lim holds a First Class Honours degree in Accountancy from Nanyang Technological University, Singapore.



DR JEFFREY JAENSUBHAKIJ
Group Chief Investment Officer

Dr Jeffrey Jaensubhakij was appointed as Group Chief Investment Officer on 1 January 2017. He joined GIC in 1998 as a Senior Economist covering the US economy. He has held asset allocation portfolio responsibilities as Co-Head of Asset Allocation Strategy in the Economics and Strategy Department, and from 2003 to 2011 was Head of Total Return Equities and the US Equities teams based in GIC's New York Office. In 2011, he was appointed President, Europe, responsible for coordinating GIC's investment activities in Europe across public and private asset classes. He was appointed President, Public Markets and Director of Public Equities in 2013, and Deputy Group Chief Investment Officer in 2016.

Dr Jaensubhakij holds a BA in Economics from Cambridge University, as well as a Masters and a PhD in Economics from Stanford University.



LIM KEE CHONG
Deputy Group Chief Investment Officer

Lim Kee Chong has been GIC's Deputy Group Chief Investment Officer and Director of Integrated Strategies Group since April 2013, and is currently based in GIC's New York Office. He is concurrently President (Americas). He joined GIC in 1987, and built his career in the Equities Department. He was appointed Head of global equities in July 2010. In his tenure at GIC, he has managed portfolios running the gamut of developed market equities, as well as global sector and global equities portfolios. As Director of Integrated Strategies, he heads a unit that looks at opportunities in both public and private companies.

Mr Lim graduated with an Economics degree from the University of Tokyo, where he studied under a government scholarship.



TAY LIM HOCK
Deputy Group Chief Investment Officer

Tay Lim Hock first joined GIC's Asian Private Equity (PE) team in 1995. He relocated to London (2000) to head the European PE team, and to San Francisco (2003) to head the US PE team. Mr Tay became Global Head of the Funds and Co-investment Group (2008) and was appointed Deputy President of PE (2010), and President in 2011. In January 2017, Mr Tay was appointed Deputy Group Chief Investment Officer, as well as President (Europe), based out of London. He will serve as Advisor to Private Equity & Infrastructure till 2018. Prior to GIC, he worked as an aeronautical engineer with the Republic of Singapore Air Force.

Mr Tay graduated from l'Ecole Nationale de l'Aviation Civile (ENAC) in Toulouse, France, with a Masters in aeronautical engineering in 1987, and completed the Stanford Executive Program in 2004.



GOH KOK HUAT
Chief Operating Officer

Goh Kok Huat has been GIC's Chief Operating Officer since April 2014. He was appointed as Advisor of GIC Real Estate on 1 January 2017, after stepping down from President, GIC Real Estate, a role he took on in July 2011. He joined GIC Real Estate in 2009 as Managing Director, Asia - Investment Management. Mr Goh joined GIC from Tishman Speyer in New York, where he headed the firm's emerging markets portfolio management, before being appointed Managing Director of equity capital markets. Prior to that, he was with the Ascendas Group, where he held various senior appointments including COO of the Group, CEO of Ascendas-MGM, CEO of Singapore Operations, CEO of India Operations and CEO of Bangalore IT Park. He spent 10 years in the military upon graduation.

Mr Goh has a BA in Economics from Cambridge University.

Executive Management

**DR CHIA TAI TEE**

Chief Risk Officer

Dr Chia Tai Tee is Chief Risk Officer at GIC. Before his appointment in July 2011, he served as Deputy Chief Risk Officer and Director of Risk and Performance Management Department. He has held various positions in economics and strategy, foreign exchange, and quantitative investments, and was Deputy Director of Investment Policy and Strategy Department. Dr Chia sits on the EDHEC-Risk Institute International Advisory Board, and is a member of Singapore People's Association Investment Advisory Committee, Tote Board Investment Committee, Singapore Institute of Technology endowment fund Investment Committee as well as the Ministry of Home Affairs Pension Plan Board of Trustees, and its Risk and Audit Committee. Prior to joining GIC in 1994, he was a lecturer at the National University of Singapore.

Dr Chia graduated with a degree in Economics from the University of Adelaide and holds a PhD from Australian National University.

**DR LESLIE TEO**

Chief Economist

Dr Leslie Teo is GIC's Chief Economist and Director of Economics & Investment Strategy. He joined GIC from the International Monetary Fund, where he was Deputy Division Chief and Assistant to the Director of the Asian Department. Dr Teo started his career as an economist at the IMF in 1996, and has also served at the Monetary Authority of Singapore. He joined GIC as a senior investment manager in the Economics & Strategy Department in 2008. He headed GIC's Asian/Emerging Market Research and Strategy team before being appointed Deputy Director of the Economics & Investment Strategy Department.

Dr Teo has a BA in Economics from the University of Chicago, an MA in Economics, and a PhD in Economics and Finance from the University of Rochester.

**DEANNA ONG**

Chief People Officer

Deanna Ong was appointed Chief People Officer in April 2017 to oversee human capital strategy, talent management, leadership and organization development in GIC. 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 arrangements for assets, tax planning, investment holding structures, accounting 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 the International Forum of Sovereign Wealth Funds.

Ms Ong holds a Bachelor of Accountancy from the Nanyang Technological University of Singapore, and has completed the Stanford Executive Programme.

**LIM SIONG GUAN**

Advisor

Lim Siong Guan is a Professor in the Lee Kuan Yew School of Public Policy and Advisor to the Group Executive Committee of GIC. He was the Group President of GIC from 2007 to 2016, and a former Head of the Civil Service, Chairman of the Economic Development Board, and Permanent Secretary variously in the Ministries of Defence, Education, Finance, and the Prime Minister's Office. He founded a charity, Honour (Singapore), to promote a culture of honour and honouring for the well-being of the nation, and co-authored two books with Joanne H. Lim, "The Leader, The Teacher & You" and "Winning with Honour".

Mr Lim had First Class Honours in Mechanical Engineering from the University of Adelaide, and has a Postgraduate Diploma in Business Administration from the National University of Singapore.

Our People

GIC is a global long-term investment organization. We are headquartered in Singapore with offices in 10 cities, staffed by more than 1,400 people of over 30 different nationalities.

One Global Team

People are the heart of our business.

Our global team manages our investments from our offices in Singapore, Beijing, London, Mumbai, New York, São Paulo, San Francisco, Seoul, Shanghai and Tokyo. Regardless of role, function or location, we are one GIC team, united in the common pursuit of investing well for the future of Singapore.

Our PRIME values and the GIC Way lie at the heart of our work. Our values define how we think and act; and serve as our compass, as we navigate an increasingly complex global investment environment.

Talent is critical to GIC's success. We demand excellence, professionalism and commitment from our people, and support them with learning resources and development opportunities.

Recruiting Talent

We are selective in our recruitment, searching for talented and disciplined team players with the drive to excel, the courage to innovate and the agility for change.

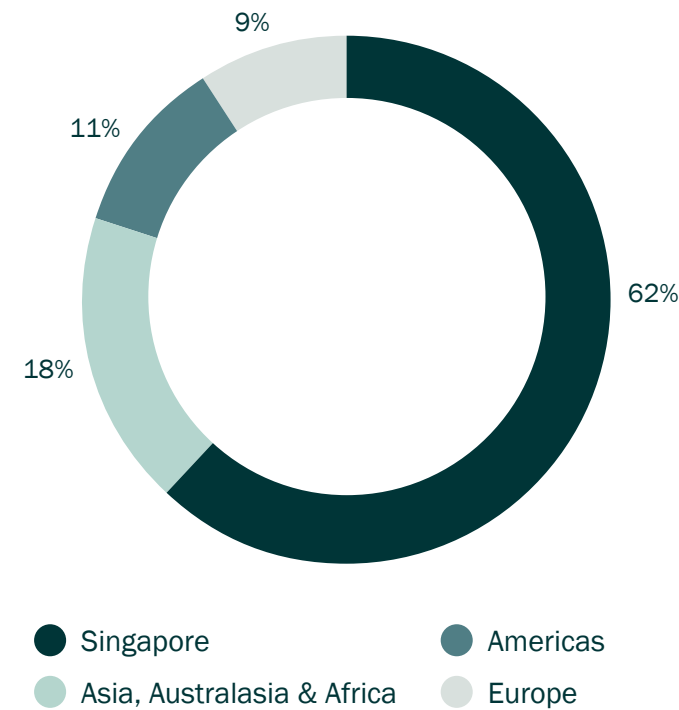
The GIC Professionals Programme (GPP) annually recruits new graduates and gives them the foundation for a career in GIC through

classroom training and apprenticeship under experienced professionals. GPP graduates are deployed to business or investment areas suited to their skills and interests as they continue their journey in GIC.

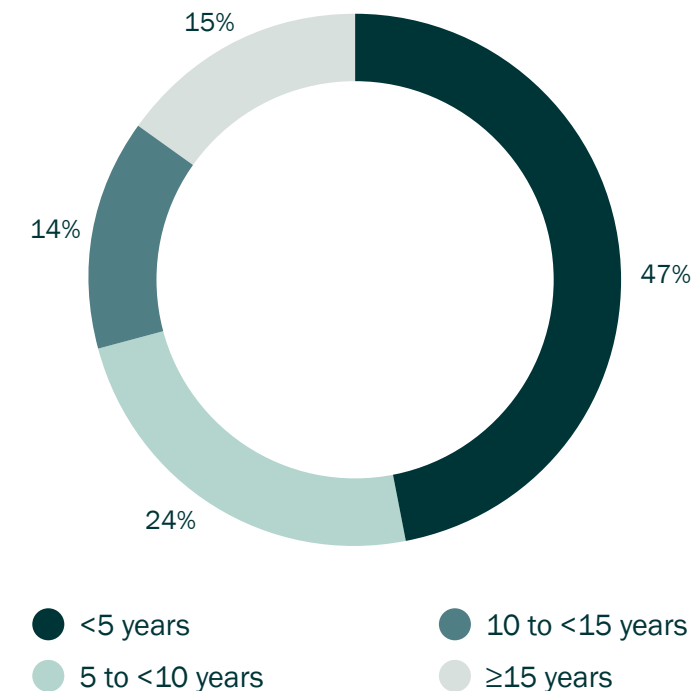
Our GIC Internship Programme takes in promising undergraduates who, by working with us, gain practical insights into the fund management industry and a chance to pursue a career with GIC.

GIC also recruits mid-career professionals who are experts in their respective fields. The bar for such mid-career talent is high. We expect them to add immediately to our existing investing and business capabilities, as well as be teachers and mentors to our younger employees.

Where Our Employees Come From



Years in GIC



Developing Our People

Developing our capabilities as an organization begins with our key asset – People. We emphasise a long-term approach and growth mindset in employee development, investing significantly to equip our people for the unfolding future.

As a large global fund manager invested across diverse asset types, we tap on our vast geographical and sectoral network to create exceptional development opportunities for our people. These include postings to our global offices, rotations to different business groups, and attachments with external fund managers. Our leaders and supervisors also play an active role in people development through learning communities, dialogues, and mentorship programmes.

The GIC School, our dedicated Learning & Development academy, provides a well-rounded, self-directed learning experience for all in GIC. It runs foundation programmes to ensure our people are clear about and prepared for the expectations, responsibilities and challenges at each level of appointment. The School also offers multi-disciplinary courses that equip staff to renew and reinvent themselves to be future-ready. Our GIC Digital Curriculum, for example, is a collection of modules, workshops and dialogues focused on enhancing the digital proficiency of our people.

Enabling Every Employee

Our organizational practices focus on making GIC one of the best places in the world for long-term investing. This involves creating and sustaining a work environment that engages and enables our people at all levels.

We value the involvement of every employee in setting the future direction of GIC. Through townhalls, online communities, leadership dialogues, business interest groups and learning networks, our people are informed and engaged on organizational developments and plans for the future.

In 2016, we introduced activity-based workspaces in many of our offices worldwide. This reflects our belief in innovative, team-based work. In short, our people are supported by diverse workspaces, robust digital infrastructure and flexible working arrangements to facilitate collaboration and innovation.

We value every opportunity to reconnect with our alumni community. Through GIC Connect, our global alumni network, we update our former employees on key developments in GIC and host regular alumni gatherings in Singapore, New York and London.

Leadership Changes

Mr Peter Goh, Mr Arjun Gupta, Mr Ho Hin Wah, Mr Jin Yuen Yee, Mr Arjun Khullar, Mr Mark Ong, Ms Tracy Stroh and Ms Sharon Sun were appointed Managing Directors on 1 June 2017.

Managing Directors Mr Lim Siong Guan, Mr Kwok Wai Keong, Mr Anthony Lim, Mr Ong Hian Leong, Mr Bernard Phang and Mr Maverick Wong stepped down from GIC between September 2016 and June 2017. We are grateful for their many years of loyal service and valuable contributions to GIC.

Building Confident Communities

Our community engagement efforts seek to help build confident and inclusive communities. They are aligned with our mission to invest for the future of Singapore.

In 2015, we launched GIC Sparks, an initiative aimed at empowering committed Singaporean students from low-income households to make a difference in the lives of others. Our Sparks ambassadors are first trained by experienced social service professionals. They also receive a grant which supports them in their studies, and have dialogue sessions with GIC Management. In its pilot year, our Sparks ambassadors were involved in two main activities – mentoring disadvantaged children and volunteering at a job fair. These efforts not only contributed to the community, but also helped our ambassadors improve their leadership skills and confidence in the good they can do.

We also partnered The Purple Symphony, Singapore's largest inclusive orchestra, in launching a training award which provides disadvantaged individuals and persons with special needs with access to music lessons and performing opportunities. By learning and performing with others, our award recipients develop their musical talents, grow in confidence, and help spread the message of inclusion and celebrating abilities. This programme also helps the orchestra pursue more performance opportunities at the national level.

Our Offices





www.gic.com.sg