

ESG for the Insurance and Pension Industry in Asia Pacific Markets

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ESG for the Insurance and Pension Industry in Asia Pacific Markets

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ESG for the Insurance and Pension Industry in Asia Pacific Markets

Executive Summary

ESG is the abbreviation of Environmental, Social and Governance, which has become an increasingly popular concept in the capital markets across the globe. Although definitions on ESG vary slightly according to different sources, the general understandings are similar. Environmental refers to issues related to the planet, such as climate change mitigation and biodiversity protection; Social focuses on issues around societal problems, such as gender inequality; Governance puts emphasis on building and maintaining a sound corporate governance system.

Different industries, however, have started to focus on various issues and areas of work related to ESG. For players in the financial sector, mainly including banking and insurers, there are growing demands to incorporate ESG considerations into their product design, risk management and investment. Thus, although still in an early stage, financial institutions have begun to incorporate ESG factors through a combination of qualitative and quantitative methods. Among different types of financial institutions, insurance and pension companies have their unique positions in advancing ESG development. As a result, those companies have recently picked up speed in adopting implementations and advancing practices related to various ESG issues.

Although the level of ESG awareness is increasing in the insurance and pension industries, many institutions still face challenges during the implementation phase. This is especially true in markets where the development of ESG is relative delayed, such as Asia Pacific (APAC) markets. Therefore, to facilitate the process, we conducted this research to address the trends of ESG development for different types of institutions in the insurance and pension industry across APAC regions and markets.

The report contains four sections. Section 1 discusses the most updated ESG disclosure standards of different APAC regions and markets to the report date. Section 2 zooms into the related specific practices at the corporate level, including some case studies. Section 3 has a strong focus on the quantitative side, introducing analytical methods related to measuring ESG impacts on asset and liability. Lastly, Section 4 closes the report by summarizing the role and opportunities for actuarial professionals in the overall ESG movement.



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Section 1: ESG regulation, reporting standards and practices

1.1 OVERVIEW OF APAC REGULATORS' ESG REQUIREMENTS

Regulations on ESG information disclosure have become increasingly strict in recent years across the globe, and there is no exception in the APAC region. However, specific development stages vary across different APAC markets. There are regions and markets that mandate all listed companies to disclose their ESG reports, such as Hong Kong, Singapore, Malaysia, and Vietnam. Some other regions or markets such as China, however, only require some listed companies that meet certain requirements to disclose their ESG reports. Overall, companies believe that investors and government are the two most important stakeholders in the process of deciding the ESG reporting policy, in addition to ESG rating agencies.¹

Regarding the specific ESG metrics requirements, metrics on companies' environmental performance, especially progress on mitigating climate change issues, are often required to be reported by different regulators. Some guidelines are made specifically for environmental risk identification and management. Singapore is such an example and will be discussed further in the next section.

1.2 ESG DISCLOSURE STANDARDS

1.2.1 GLOBAL

Worldwide, some of the widely used ESG and climate disclosure standards and frameworks include Global Reporting Initiative (GRI), Task Force on Climate-Related Financial Disclosure (TCFD), and Sustainability Accounting Standards Board (SASB). Among these, the GRI standard provides guidance on all three ESG pillars, for all groups of stakeholders, including investors. TCFD, however, aligns with the Paris Agreement's 2°C (3.6°F) target and provides recommendations through a narrower but deeper lens on the climate issue. The recommendations urge companies to disclose their climate-related risks and opportunities in four key areas: Governance, Strategy, Risk Management, Metrics, and Targets. Specifically, companies are encouraged to use scenario analysis and other quantitative tools to assess and manage climate-related risks and impacts associated with companies' business activities. Probably less known, the SASB standards focus on the key sustainability issues that are specific for more than 70 industries. For each industry, SASB provides detailed guidance on reporting metrics and accounting methods, which enables companies within the same industry to report their sustainability issues in a consistent and comparable way.

With such different disclosure standards and frameworks in the market, companies have had some challenges in choosing what to follow for their ESG reporting. Thus, the world has been calling for a more uniformed standard that shares a common understanding on ESG material issues and related metrics. In March 2022, International Financial Reporting Standards (IFRS) S1 General Requirements for Disclosure of Sustainability-related Financial Information (exposure draft version) was newly established. Published by the International Sustainability Standards Board (ISSB), the standards require "an entity to disclose information about its significant sustainability-related risks and opportunities that is useful to the primary users of general financial reporting when they evaluate enterprise value and decide whether to provide resources to the entity."²

Following the S1 standard, the drafted IFRS S2 Climate-related Disclosures was also published, which lays out the disclosure requirements on one of the sustainability disclosure topics, the climate issue. The structure and the content of the requirements follow the TCFD recommendations, as explained above. By referencing to the SASB standard, the ISSB standard aims to provide industry-specific requirements, as part of the climate requirement, for 11 industries and 68 sub-industries. We find that the requirements listed

for two sub-industries, namely Asset Management and Insurance, are relevant to the industry and pension market. To be specific, the standard requires asset managers to disclose metrics such as the amount of AUM (Asset Under Management) for integrating ESG issues and for themed investing. The requirements on the Insurance industry cover both traditional insurance products, including property, life, casualty and reinsurance, as well as nontraditional products such as annuities. For insurance products, specific reporting metrics are included, for example, net premiums written related to energy efficiency and low carbon technology (FN-IN-410b.1).

In conclusion, with the introduction of the ISSB standard, the disclosure requirements on ESG and climate matters for insurance and pension companies will continue to tighten. Companies are expected to not only report ESG issues resulting from their operations but also penetrate to their products and asset sides.

APAC Markets or Regions	Key Disclosure Guiding Document	Disclosure Requirement characteristics
China	1. Shenzhen and Shanghai Stock Exchanges: Guidelines on ESG information disclosures 2. The CBIRC: Green Finance Guidelines for Banks and Insurance Sector issued	Voluntary, recent development targeting financial institutions
Hong Kong	1. HKEX: Guidance on Climate Disclosure 2. HKEX: How to Prepare an ESG Report	Mandatory, focus both on ESG and climate risks
Singapore	1. SGX: Sustainability Reporting Guide 2. MAS: Final Guidelines on Environmental Risk Management	Mandatory, recent development on quantifying climate risks
Japan	1. Japan Exchange Group and Tokyo Stock Exchange: Practical Handbook for ESG Disclosure	Voluntary, focus both on ESG and climate risks

1.2.2 CHINA

China's two stock exchanges, Shenzhen and Shanghai, both had drafted and published guidelines on ESG information disclosures, which require listed companies to release their ESG reports together with their financial annual fillings. The purpose of lifting the standards from both stock exchanges is to facilitate the sustainable development of society and to standardize ESG information disclosing from listed companies, as well as ensuring the public and investors' rights to know. In general, China's current requirements are more principle-based than the global standards mentioned above.

Taking Shenzhen Stock Exchange's guideline as an example, it firstly outlines rules regarding ESG report time, ESG prompt reporting, data requirement, comparability, third-party assurance, and indefinite provision. Further, requirements on Environment, Social and Governance information disclosure are listed separately, including specific metrics such as the amount of GHG emissions (E), training on employee knowledge and skill enhancement (S) and work on party building (G). However, more specific accounting items on how to measure and report each metrics are not suggested in the guidance.

In addition to the above guidance by stock exchanges, Research Report on China's Listed Companies ESG Assessment System was published in 2019, which is a collaborative result of the Asset Management Association of China (AMAC) and Development Research Center of the State Council of the People's Republic of China. Based on the current situation of global ESG rating system development, the research maps out the ideas for China's market on building localized ESG rating systems, as recommendations for policymakers.

In terms of specific rulings for the insurance industry in China, the most key development is the Green Finance Guidelines for Banks and Insurance Sector issued by the China Banking and Insurance Regulatory

Commission (CBIRC), which was released in June 2022³. The guideline requires insurance institutions to incorporate green finance and ESG practices not only in their management process but also in their investment selection to amplify social and environmental benefits generated by those companies. Additionally, guidelines on specific ESG material issues are developed with times in China's insurance sector. For example, Rules on Supervisory Assessment of Corporate Governance of Banking and Insurance Companies was also issued by the CBIRC,⁴ aiming on enhancing corporate governance practices in China's financial sector.

1.2.3 HONG KONG

Hong Kong Stock Exchange (HKEX) has published a series of reporting guidelines on ESG and climate disclosure. Introduced in November 2021, the Guidance on Climate Disclosure requires listed companies to disclose their climate information, aligned with TCFD recommendations, no later than 2025. Understanding the potential executive challenges, this document further provides practical guidance for companies to follow as compliant with TCFD. The suggested working process includes 8 major steps as follows:

- Determine suitable governance structures
- Select suitable scenarios and parameters under a confirmed scope and boundary
- Confirm the materiality of climate-related risks based on qualitative/quantitative methodology
- Identify the impacts posed by material climate-related risks on the business based on the company's business nature and location
- Develop company-specific metrics and indicators and set targets in response to CRBI hotspots
- Prioritize, implement and monitor a list of actions against targets to form the basis of the climate action plan
- Assess the impacts on each financial item
- Incorporate climate-related issues into long-term planning of business strategies

For each step above, the guidance introduces objectives, workflow, and additional reference documents for companies to implement the recommendations. For example, regarding the company's climate scenario, internationally recognized sources from the Intergovernmental Panel on Climate Change (IPCC), International Energy Agency (IEA), and Network for Greening the Financial System (NGFS) are listed, as well as sources such as Hong Kong's climate data.

Prior to the guidance on climate disclosure, HKEX had already published How to Prepare an ESG Report as a step-by-step guiding document on ESG information disclosure in 2020. The guide provides practical suggestions for companies on preparing and reporting the information required for each KPI in both "Environmental" and "Social" Subject Areas of the ESG Reporting Guide.⁵ Made up of two levels of the disclosure requirement, the original reporting guide listed mandatory and "comply or explain" disclosure KPIs.⁶ Regarding the "comply or explain" part, the document states that "If the issuer does not report on one or more of these provisions, it must provide considered reasons in its ESG report.

With the latest amendment in March 2022, the specifics of the requirements have incorporated elements of the TCFD recommendations, such as requiring board's oversights of ESG matters, and targets for certain environmental KPIs.⁷

In addition, in August 2021, the Hong Kong Securities and Future Commission (SFC) issued specific disclosure requirements for fund managers on climate related risks. Especially for large fund managers, the disclosure requirements have enhanced, aiming to strictly regulate ESG related funds.

1.2.4 SINGAPORE

Similar with Hong Kong, the main issuer of the ESG regulation and requirement in Singapore is also the Singapore Exchange Regulation (SGX). Named as Sustainability Reporting Guide, the guiding document was introduced in 2016, earlier than other APAC markets. According to the guide, listed companies are mandated to report their sustainability matters on a “comply or explain” basis, the same as HKEX’s requirements. With a reporting development timeline, the guide presents a phased approach for company users to create and improve their sustainability reports. Six primary components are required, namely Material ESG factors, Climate-related disclosures consistent with the TCFD recommendations, Policies, practices and performance, Targets, Sustainability reporting framework, and Board statement. The Sustainability reporting framework and Board statement are excluded from the phased approach, as from the first year, companies should follow the TCFD recommendations and be complied with the board statement and ESG-related governance structure.

Take the first component, material ESG factors, as an example to explain the phased approach. For the first year, “the issuer should have at least the assessment of material ESG factors, policies and/or practices to address the factors.”⁸ In the following year, however, the company should review the previous work, add and remove any ESG material issues that apply to the current company situation.

Regarding the climate-related information disclosure, the Monetary Authority of Singapore (MAS) issued the Final Guidelines on Environmental Risk Management in December 2020 to ensure that Financial Institutions are resilient to environmental risk and help transition the overall economy to be environmentally sustainable. A supplementary Handbook was then introduced in January of the following year, aligned with several existing frameworks and initiatives, including TCFD and UN-supported Principles for Responsible Investment (UN PRI). As the name suggested, the handbook provides practical advice for companies to deploy their environmental risks related practices and reports.

For the insurance industry, “these Guidelines aim to enhance the insurance sector’s resilience to and management of environmental risk through setting out sound risk management practices.”⁹ In addition to the key reporting areas recommended by TCFD, the guideline also introduces two areas that are specific for insurance companies: Underwriting and Investment. That is, insurance companies are required to measure and report material environmental risks results from their underwriting and investment activities. For example, in terms of investment, insurance companies should ongoing monitoring of environmental risk at an individual investment level, and at the portfolio level.

In July 2022, the MAS has made the regulations on ESG fund stricter through releasing Disclosure and Reporting Guidelines for Retail ESG Funds.¹⁰ This new development will help investors make more informed decision on selecting ESG funds.

1.2.5 JAPAN

In March 2020, Japan Exchange Group and Tokyo Stock Exchange published a reference document named “Practical Handbook for ESG Disclosure” to guide companies on ESG reporting. Unlike some of the mandatory requirements mentioned above, guidelines on ESG reporting in Japan are currently voluntary, giving companies more flexibility on choosing what to report based on their specific situation. As its name suggested, the handbook is a rather hands-on document that provides companies with implementation suggestions on the working steps of each ESG disclosure metric.

Looking forward, the Japanese Financial Services Agency’s (FSA) is also working on enhancing requirements on climate risk disclosures. It is suggested that the FSA intended to require listed companies to disclose their climate information, aligned with TCFD requirements.¹¹ Targeting the companies in the Prime market

first, the requirement is planned to expand to all the listed companies in the coming years. This indicates that Japan will further tighten the ESG disclosure requirements for companies, including insurers.

1.2.6 NON-APAC MARKETS

Other than the APAC regions, markets like the United States (U.S.) are also quickly developing their regulations on ESG reporting. In April 2022, the U.S. Securities and Exchange Commission (SEC) published rules to guide companies on climate-related disclosure. The purpose is mainly to standardize information disclosing for investors' use. In the European Union (EU), the Corporate Sustainability Reporting Directive (CSRD) was passed in November 2022. The CSRD will require all large companies to publish regular reports on sustainability issues, explaining how they affect their business, starting from 2024. Like the U.S., the CSRD also aims to provide standardized information for investor decisions.

Section 2: ESG Corporate Practices in the APAC Insurance and Pension Markets

2.1 ESG MATERIALITY ISSUES RELATED TO INSURANCE AND PENSION INDUSTRIES

While definitions on materiality vary slightly under different scenarios, according to the US Securities and Exchange Commission, it can be generally understood as “A matter is ‘material’ if there is a substantial likelihood that a reasonable person would consider it important.”¹² The same concept applies in the ESG world. In fact, a research study found that companies with good ratings on their ESG material issues outperformed companies with poor ratings,¹³ which implies the importance of managing material ESG issues.

Moreover, the concept of “double materiality” has been introduced. It is not just climate-related impacts on the company that can be material but also impacts of a company on the climate – or any other dimension of sustainability, for that matter (often subsumed under the environmental, social and governance, or ESG, label).¹⁴

Based on the above definition, we have collected ESG reports from different insurance and pension fund companies, concluding that the following issues are generally considered as material for both industries. We also demonstrate the matches between those issues and the universally known Sustainable Development Goals (SDGs).

- Mitigate climate change through products and services, covering impacts from climate change in the insurance product, especially P&C products (SDG 13: Climate Action)
- Increase overall health and wellness of the society, through offering health insurance to increase population coverage, especially for the vulnerable groups (SDG3: Good health and well-being)
- Diversity and Inclusion, boost gender and cultural diversity within the companies by including employees with diverse backgrounds (SGD 5 & 10: Gender Equality & Reduced Inequalities)
- Responsible Investment, guide investment towards responsible and green businesses through enhanced investment process (SDG 13: Climate Action)
- Community Engagement, connect and engage different individuals and groups in the community to increase ESG awareness and to create a sustainable community (SDG 11: Sustainable Cities and Communities)

Regarding the pension fund industry, both the pension funds themselves and their asset managers are aware of certain ESG-related material issues. These issues have been identified to help address the mission and vision statements for pension funds.

1. Government Pension Investment Fund (GPIF):¹⁵

GPIF is one of the largest pension funds across the world. GPIF has identified several material issues based on different asset categories.

- **Domestic equity:** Climate Change, Misconduct, Diversity, Corporate Governance, Board Structure & Self-evaluation, Minority Shareholder Rights, Capital Efficiency, Human Rights & Community. Among those, “Corporate Governance” is a new issue this year, such as the effectiveness of the board of directors. In addition, Biodiversity, has become another critical issue.
- **Foreign equity:** Climate Change, Diversity, Corporate Governance, Health and Safety. The material issues remain unchanged from the previous year.

In conclusion, the similar trend of both domestic and foreign equity is that Biodiversity has become a new material ESG issue. Additionally, issues related to human rights, such as Human Rights and Supply Chain, have become more important to pension fund managers than before.

2. AustralianSuper:¹⁶

AustralianSuper also has identified some material ESG issues. The company believes that by addressing these ESG issues, it can not only bring superior investment returns for its members over the long run but also create more positive values for the whole society via responsible investing.

- **Net Zero 2050:** Consistent with the goal of achieving net zero carbon emission by 2050, AustralianSuper believes that greater investment in environmentally friend assets can lead to better long-term investment performance and help provide members with the best financial conditions for their retirement. AustralianSuper has been using carbon footprint to measure the environmental impacts since 2013, and it has invested \$1.2 billion on renewable energy investments by now.
- **Modern slavery:** AustralianSuper also expressed concerns about the issue of modern slavery, suggesting its role as a significant global investor responsible for workers' welfare and well-being. It has published its first Modern Slavery Statement to address the modern slavery risks from investments and supply chain perspective.
- **Sustainable Development Investments:** AustralianSuper, along with other investment corporations, has established an investment platform called the Sustainable Development Investments Asset Owner Platform (SDI-AOP). The platform owners have managed over 1 trillion dollars of assets, and these owners have committed to invest more in sustainable companies and projects. The platform is designed to provide opportunities to support UN Sustainable Development Goals (SDGs) and to create more long-term values for the members. The platform contains data over 8,000 listed companies and provides contribution results to SDGs based on its quantification process.
- **Leadership through stewardship:** AustralianSuper engages with companies on ESG material issues and uses its shareholder rights to vote for topics that can improve member retirement outcomes.

2.2 ESG CORPORATE PRACTICES IN INSURANCE AND PENSION INDUSTRIES

2.2.1 ESG APPROACH

Insurance companies in the APAC region are driven by their sustainability strategies, which integrate core ESG concepts into corporate management. As a result, a scientific, professional, and business-driven sustainability development strategy framework has been built. Consequently, with particular reference to the framework of the Task Force on Climate-Related Financial Disclosures (TCFD), we conclude four key pillars that support APAC insurance companies' sustainability strategy: ESG Governance, ESG Strategy, ESG Risk Management, and ESG Metrics and Targets. Each pillar contains related actions for corresponding business priorities. Together, they outline how APAC insurers can create sustainable value in the best interests of the company and stakeholders.

1. ESG Governance

We will introduce three levels of ESG governance structure. First, a dedicated ESG Board of Directors has been established, which takes full responsibility for ESG-related matters. The second level is the establishment of an ESG or sustainability development committee at the board level or an ESG committee under the Executive Committee of the Board. Such an ESG committee is responsible for the supervision and guidance of ESG-related matters of the company. In addition, an ESG working group is designed to be responsible for implementation and enforcement. The third level is not designed to adjust the existing governance structure but to integrate ESG into corporate decisions and activities through special procedures or mechanisms. In China, for example, most insurance companies have not set up dedicated ESG committees yet but have already adopted the third level of ESG governance structure, as stated above.

2. ESG Strategy

The ESG strategy section contains six types of strategies, including making insurance and financial security accessible, enhancing customer experience, achieving sustainable investment, promoting sustainable operations, cultivating employees and corporate culture effectively, and maintaining information and data security. Implementations under each strategy will be presented and demonstrated with examples.

3. ESG Risk Management

By analyzing the existing ESG risk management frameworks of insurance companies in the APAC region, it is found that most companies choose to integrate ESG risk management into their existing risk management framework.

4. ESG Metrics and Targets

We group the ESG metrics and targets of insurers in the APAC region into three categories: Environmental, Social and Governance. By comparing metrics and goals in E, S, and G, our main finding is that the level of attention to Social and Governance issues is lower than Environmental issues.

APAC life insurers generally help people live healthier, longer and better lives by making health care affordable and accessible and by promoting financial inclusion.

The Pension fund has integrated ESG goals and approaches into its mission and vision statements. By achieving ESG goals, pension funds aim to become more sustainable and provide stronger support to their beneficiaries.

GPIF has established its mission statement as “contribute to the stability of the national pension system by managing and investing the pension reserves entrusted to us (GPIF) by all beneficiaries.” GPIF has implemented its mission to “prevent the burden on future generations from becoming too excessive by enhancing the sustainability of financial markets as a whole through ESG activities to stabilize the pension system to the ultimate advantage of all beneficiaries.”¹⁷

AustralianSuper aims to become Australia’s leading pension fund and help all members live well into retirement with good financial positions by implementing ESG from Sustainable Growth, Market Leading Performance, Distinct Member Proposition, Scale Benefits, and Trust & Leadership perspectives.¹⁸

2.2.2 ESG GOVERNANCE

Effective ESG governance is the foundation for good ESG performance. A discussion on ESG would be incomplete without addressing governance challenges. With the full scope and range of ESG impacts coming into focus, more insurers are looking at their ESG-related governance practices. We find that most insurers oversee ESG at the board level, reflecting the importance of ESG and the growing reputational and compliance risks associated with ESG. By examining the ESG governance practices of global insurance institutions, ESG governance frameworks can be broadly divided into the following three forms:

1. Create a Dedicated ESG Board

Most insurance companies choose the board of directors as the highest decision-making body for ESG governance, but a few companies (such as Allianz) have established a dedicated ESG board with full responsibility for sustainability or ESG-related matters.

The ESG Board is primarily composed of the ESG Chairman, Chief Sustainability Officer, Head of Group Communications and Accountability, Head of Group Risk and Head of Group Compliance, and/or other board committees involved in specific ESG issues. These groups are responsible for integrating insurance, investment and asset management activities into business units and operations, as well as strengthening other aspects of ESG. Furthermore, the ESG Board of Directors is responsible for overseeing and directing all sustainability matters.

The Centre for Sustainability guides the integration of ESG into core investment activities and insurance products. At the implementation level, the ESG Working Group integrates sustainability issues into the core processes of organizing ESG integration as well as developing and coordinating projects and recommendations. Moreover, ESG governance groups at the local office level are responsible for assigning tasks related to different ESG issues to specific teams.

Different forms of ESG governance demonstrate the degree of importance that enterprises attach to ESG. Sound governance can strengthen the centralized management of the company's ESG work.

2. Establish an ESG/Sustainability Committee at the Board Level

Since the Board of Directors is responsible for deliberating and making decisions on ESG matters, an ESG/sustainability development committee is established under the Board of Directors. Alternatively, an ESG committee may be established under the Executive Committee of the Board of Directors to oversee and direct ESG-related matters of the company. An ESG leadership group is established to be responsible for strategic planning, implementation and goal setting. This leading group also regularly reports the latest information on the group’s ESG performance to the ESG Committee. In some cases, companies do not have an ESG leadership group, and so the ESG Committee is responsible for the work that is supposed to be

taken by ESG leadership group. In addition, the Remuneration Committee, Audit Committee, Risk Committee, and other organizations under the Board of Directors will also support ESG-related strategies. Prudential, AIA and other institutions can be seen as examples here.

3. Incorporate ESG-related Work Functions into the Existing Organizational Structure

(1) Assignment of ESG Functions to Existing Committees

Instead of setting up a dedicated management committee for ESG, ESG-related work responsibilities are put onto the existing committee. Currently, the most common practice is to incorporate ESG matters in the Strategy Committee (sometimes renamed as Strategy and Sustainability Committee) or the Nominating and Governance Committee (sometimes renamed as Nominating, Governance and Sustainability Committee). These dedicated staff members are mainly responsible for overseeing ESG matters, planning ESG strategies, designing risk management systems, and updating policies. This approach could help integrate ESG considerations into business functions, particularly when those issues are not directly linked to short-term reputational and financial risks.¹⁹

(2) Integration of ESG Functions

There are also insurance institutions that separate ESG responsibilities and assign them to different bodies under the Board of Directors, such as the Strategy Committee, Governance and Nomination Committee, the Risk Committee, etc. Some insurance companies have appointed chief ESG experts. For example, AIG's Executive Vice President and Global Head of Strategy & ESG.

To sum up, there are various ways around the world to design ESG-related governance structures. Insurance institutions generally consider and deploy ESG governance structures based on their own circumstances, and there is no one-size-fits-all approach.

Through the analysis of ESG governance of insurance institutions in the APAC region, we find that APAC insurance institutions tend to choose the second and third forms of ESG governance as described above. Most insurance institutions in China, however, choose the third ESG governance structure. Secondly, different insurance institutions have different levels of disclosure on their ESG governance structure. Compared to the EU and the US, insurance institutions in the APAC region disclose a relatively lower degree of commitment to advancing ESG governance. Finally, it is shown that the ESG concept has been disseminated and developed in the APAC region for a shorter period of time compared to developed markets and regions.

Taken GPIF as an example, pension fund companies have dedicated key departments to assume responsibility and address ESG-related issues. In general, ESG governance responsibilities are primarily assumed by three departments: Public Market Investment, Private Market Investment, and Investment Strategy.

The Public Market Investment Department is responsible for selecting and evaluating external asset managers in the equity and fixed income segments. The responsibilities of the department can be divided into managing public market investments and examining ESG integration and stewardship. Specifically, the department is responsible for evaluating ESG and other stewardship activities by external asset managers and for ESG reporting.

The Private Market Investment Department is mainly responsible for selecting and evaluating the asset managers for alternative assets while the Investment Strategy Department is responsible for developing investment strategies such as the selection of ESG indexes.²⁰

To facilitate the implementation of ESG, effective ESG governance practices, such as ensuring the frequency of the board meeting that address ESG matters, are necessary. Challenges such as the lack of relevant ESG data and concerns on ESG slowing down business profitability remain as top in terms of implementing a robust ESG governance system.²¹ Furthermore, coordination between different departments, such as between Investment and Strategy teams, to develop ESG policies and implementation strategies is also recommended.

In addition to sorting out ESG governance requirements and improving ESG organizational structure, many insurance institutions such as Manulife, MetLife, Allianz, etc. have also implemented specific ESG requirements in the responsibilities and performance indicators of dedicated roles. Based on the current rights and responsibilities of the Board, supervisory committees, senior management and other key positions, ESG requirements are clearly embedded in the management process. This includes clarifying key personnel's performance review requirements, linking executive compensation to ESG indicators, and motivating board members to make decisions with ESG priorities in mind.

2.2.3 ESG STRATEGY

Through research, we find that ESG strategies of insurance companies focus on creating value for stakeholders, customers, employees, communities and the environment, and business partners. ESG strategies enable companies to constantly seek enterprise and social value, and help people achieve better lives. We thus conclude six ESG strategies, which have been implemented to improve the availability of insurance products and services, enhance the customer experience, enable sustainable investment, promote responsible operations, cultivate employees and corporate culture, and maintain information and data security.

1. Availability of Insurance Products and Services

(1) Product Level

- 1) Provide inclusive products to vulnerable groups or solutions designed to inspire healthy lifestyles. Develop affordable insurance products and services that are aligned with the customer's income level. Provide increasing safety level to prevent customers from living in poverty.
- 2) Parametric insurance for communities and customers facing climate change risks. Protect vulnerable groups from losses of climate change by taking up the latest advances in technology and data science. Provide parametric insurance solutions based on satellite and weather data that will trigger quick and automatic payouts within a few days after a natural catastrophe or extreme weather event takes place.²²
- 3) Ensure health means to protect people's health by formulating comprehensive health and wellness solutions. Products such as AIA Vitality reward customers when they have healthier behaviors.
- 4) In the context of COVID-19, APAC insurers are adapting their products and services to better serve their customers by preventing disease. For example, AXA has combined technology to develop COVID-19 symptoms checkers in China, Thailand and the Philippines.²³
- 5) Propose solutions for technologies or activities that reduce Greenhouse Gas (GHG) emissions. Boost biodiversity and encourage responsible use of natural resources responsibly. Meanwhile, stimulate the supply and demand of green insurance products, vigorously develop green

insurance products, such as environmental pollution liability insurance, clean energy field insurance, catastrophe insurance, and green building related insurance.

(2) Service Level

1) Improve access to quality healthcare

Ensure greater access to high-quality health care, timely and relevant information, diagnosis and treatment. During the pandemic, telemedicine has become a major healthcare support tool. Insurance companies, such as QBE, have provided more convenient and faster data platforms, allowing patients to obtain doctor's advice, prescriptions, and medicines online. Medical coverage has expanded to include pediatric doctors, psychologists, and other specialists.

2) Make financial tools more accessible through digital innovation

Allowing customers to manage their health and wealth anytime, anywhere by offering Artificial Intelligence (AI) tools and personalized services, such as integrated health and wealth management applications. To help people deepen their understanding on protection benefits, some insurance companies also provide free education to help groups such as schoolchildren, parents, and teachers acquire the necessary financial literacy knowledge and skills.

2. Customer Experience

To improve the customer experience, insurance companies in the APAC region have made improvements in various aspects, including business philosophy, product design, digital transformation, and claims settlement. To be specific:

- Practice a "customer-centric" business philosophy and expand the capacities of excellent insurance services offering
- Leverage digital transformation to further develop digital channels and new distribution opportunities, reaching more customers
- Establish an efficient complaint management mechanism to ensure timely feedback on customers' opinions and suggestions
- Improve sales and service processes, speed up claims settlement

3. Sustainable Investing

To create long-term shareholder value, APAC insurers are committed to integrating ESG into the entire insurance group and investment process. Sustainable investing will be further explained in the next chapter.

4. Sustainable Operations

APAC insurance companies mostly achieve responsible operations by measuring and disclosing greenhouse gas emissions generated from operations and collaborating with suppliers. The main strategies are as follows:

- Promote low-carbon operation: implementations include advocating "paperless office"; improving energy efficiency and reducing energy consumption;

- Build green buildings: use a number of advanced technologies to design and build green office buildings;
- Promote carbon neutrality: organize and lead green campaigns and create ESG green brands;
- Make net zero commitments: commit to achieving net zero GHG emissions;
- Encourage good ESG practices: advise suppliers to improve their ESG performance, include solving ESG-related issues in Requests For Proposal (RFPs) as part of the overall supplier management and engagement process.

5. Staff and Culture

Employees are a company's greatest asset, and the success of ESG strategies depends on whether employees can release their greatest potential. Cultivating a supportive culture is crucial. The main strategies can be divided into the following aspects:

- Incentive mechanism: establish a fair salary management system to stimulate employees' motivation;
- Employee rights and interests: promote transparency at workplace, strictly prohibit discrimination against employees with different backgrounds in the process of recruitment, promotion, remuneration and benefits to protect the legitimate rights and interests of employees
- Employee training and development: provide employees with enough amount of training resources, covering a series of ESG topics such as risk management, information security, and mental health;
- Employee benefits: Provide commercial insurance, high-end medical and health insurance, family physical examination packages, mental health consultation and other benefits, and a wellness platform to employees.

6. Information and Data Security

As the realization of business goals of insurance companies increasingly relies on technology, a reliable security management framework is essential to protect the data security of customers and partners. We summarize the information and data security strategies of APAC insurers as follows:

- Protect information security and privacy: Improve the company's information security management system, ensure confidentiality, integrity, and availability of information, and provide customers with transparent information on handling of their personal information;
- Strengthen data management: take measures such as vulnerability diagnosis, penetration testing, cyber security drills, etc., and providing threat intelligence services;
- Embed privacy protection into culture and processes: formulate a sound Data Privacy Compliance System and conduct mandatory compliance training for employees.

We could see some general insurers whose ESG strategy focus area is to create value for shareholders, customers, employees, the community and environment, and business partners, constantly seeking both business value and social value and helping people achieve better lives.

The general insurance company would integrate ESG into its strategies. Thus, general insurers focus on actions for the environment, operating a responsible business and stronger communities. Insurers have considered transitioning to a low-carbon business, decarbonizing investment portfolios and innovating sustainable products. To operate a responsible business, they offer inclusive public products and promote

financial literacy, as well as foster an engaging culture of ESG. From preceptive of building stronger communities, insurers can further address social needs.

By its nature, ESG is closely linked to the Property & Casualty (P&C) insurance industry. Specifically, on the asset side, P&C insurance companies pursue stable long-term investment returns for sustainability, which is consistent with ESG investment philosophy. For example, some non-life insurers launched carbon insurance that employs market mechanisms to realize forest ecological value compensation. On the liability side, ESG provides opportunities for insurers to innovate products to better serve the population as well as the society.

Insurers' detailed responses to ESG can be simply divided into three parts: the underwriting side, the pricing side, and the claims side. From the perspective of underwriting, many insurance firms strictly underwrite high-pollution and high-energy-consuming enterprises (such as coal mining companies). In contrast, they actively write businesses that are considered green and low-carbon fields. On the other side, insurers also provide a premium discount and higher coverage for customers that make contributions to environment-friendly businesses, guiding firms to focus more on the environment and social responsibilities.

Pensions are not only a question of capital investment choices, but also a social issue that a market will need to face. With the inevitable global aging trend, all markets will face the problem of overall population ageing, which is particularly a serious topic in Asian markets. ESG emphasizes the idea of combining environmental, social and governance together, which is strongly related to pension issues. Pension funds aim to provide cash flow for people after retirement through large amounts of retirement savings. Therefore, by nature, pension investments have characteristics of having and being public, which coincide with the ESG investment philosophy. Therefore, pension funds and ESG investments are naturally aligned.

The second pillar of pensions (enterprises) and the third pillar (individuals) are mostly based on individual accounts. Enterprises or individuals need to bear the risk of investing, so investment choices will cause some major concerns for pensions. Considering that pension cash flow is generally long-term and occurs after many years, a medium- to long-term investment portfolio will be a more suitable choice, which is in line with ESG's long-term investment philosophy. Secondly, the audience of pensions is generally the retired population. Responsible investment under the concept of ESG can effectively solve the problem caused by investment focusing on the short-term returns. However, ESG focuses on investing in green and sustainable industries, which have a positive impact on the sustainable development of the entire society and quality of life for the retired.

According to the Organization for Economic Cooperation and Development (OECD) (2021), the size of global pension assets exceeds US\$56 trillion, of which more than US\$35 trillion is in the form of pension funds. Among them, developed markets in Europe and the U.S. account for a large proportion of the pension market. These markets are also more advanced in the development of ESG investments. Thus, when making investment choices, there will be ESG investment options in the choice of personal pensions due to regulatory requirements.²⁴

For APAC markets, the development of pensions is at a relatively early stage. The public has just started to explore ESG investments. These markets have huge potential, but there are also many uncertainties. One reason is that individual pension accounts are not yet common in Asia. Even in markets and regions where individual pension accounts, ESG investment options are still not popular. Therefore, the development of overall pension ESG products will require support from relevant policies and investor demands.

2.2.4 ESG RISK MANAGEMENT

AGCS and The Value Group have undertaken pioneering research that identifies ESG parameters that can help predict risk events before quantitative evidence for the significance of ESG occurs for the insurance industry²⁵. However, unlike traditional risks, ESG risks are still difficult to quantify and assess, so incorporating ESG risks into risk management frameworks and processes is critical. Thus, it is not surprising that currently 65% of APAC insurance and pension fund companies are either not yet considered ESG in their risk management practice or only classified their ESG risks without addressing them, according to our survey results²⁶. At present, two forms of ESG risk management are adopted by insurance institutions. The second is to establish an independent ESG risk framework and manage ESG risk-related matters through the ESG risk framework.

1. Integrate ESG Risk Management into the Enterprise Risk Management System

Focusing on ESG risk management, some insurers such as Manulife, Great Eastern and China Pacific Insurance (Group) Company coordinate with their current enterprise risk management systems to identify, evaluate and monitor ESG risk-related issues and design relevant risk management measures.

(1) Risk Management Framework

Risk management frameworks are mostly based on the "three lines of defense" model, which aims to ensure that risks can be appropriately identified, assessed, managed and controlled. The first line of defense is the business department line of defense, which is responsible for operating and managing risks; the second line of defense is the risk management department line of defense, which is responsible for additional inquiries, monitoring, and review; the third line of defense is the internal audit department, which is responsible for certifying the overall internal system. Although the lines of defense are independent of each other, they work closely together to ensure effective oversight.

(2) Risk Management Process

- 1) Risk identification: mainly includes top-down, bottom-up and emerging risk identification methods. Identify risks in a timely and comprehensive manner according to systematic processes. ESG risks are included in this step.
- 2) Risk assessment: assess the level of ESG-related risks through different qualitative and quantitative methods, including seeking expert advice, estimating the impact of potential risks, conducting scenario analysis.
- 3) Risk response: based on the results of the above two steps, methods such as risk acceptance, avoidance, tolerance and reduction are adopted.
- 4) Monitoring and reporting: provide regularly the latest information to the Board of Directors and the Risk Committee.

2. Independent ESG Risk Framework

(1) Risk Management Framework

Based on the principles of protecting the environment, respecting human rights and promoting good corporate governance, companies identify, mitigate and avoid high-risk activities through advanced risk management tools. In addition, companies regularly review their ESG risk framework guidelines and

policies in response to the development of new risks. With such a risk management control process, companies can ensure responsible and sustainable business practices.

(2) Risk Management Process

The ESG framework applies to all business activities, including asset management and operations, but there are specific risk management processes for underwriting transactions, as follows:

- 1) Risk identification: For each transaction, use ESG risk exposure indicators to classify it into low, medium and high risks through ESG risk tools.
- 2) Risk measurement and assessment: Transactions identified as high risk will be reviewed internally by the ESG risk expert team.
- 3) Risk response: Take corresponding measures according to the recommendations from the ESG risk analysis conducted.
- 4) Monitoring and reporting: Disclose information through risk reports and other means.

Through research, we find that most APAC insurance companies are currently adopting the method of gradually integrating ESG elements into their own risk management framework, but a systematic forward-looking framework has not yet been formed.

In general, most APAC insurance companies disclose that they have taken ESG factors into consideration in their investment and financing activities. However, many insurers do not yet disclose in detail how to integrate ESG into the enterprise's own risk management framework, but only disclose their commitment or plan. For example, AIA states "address ESG risks according to the processes outlined in Risk Management Framework (RMF) and categorize them based on the nature of the risk to our operations,"²⁷ but does not elaborate. On the other hand, a few insurance companies such as Ping An of China have disclosed in detail how to integrate ESG into the Group's risk management system with details. Ping An also covers in their report their ESG risk management and control requirements within the existing financial risk management system.²⁸

Insurance companies are expected to integrate ESG into risk management frameworks on strategy, principles on climate risks, material risks, stress testing, ESG risk appetite and governance.

For the P&C industry, the climate change risk is likely to be significant, and the report will discuss these areas further. For example, general insurers would build a digital platform for physical risk identification and management. Companies will further improve data availability and strengthen data capabilities on natural disasters, meteorology, geographic data, remote sensing, and socio-economic data.

APAC Life insurers generally believe that integrating ESG considerations in their investment process ensures that investments are properly authorized, monitored and managed within internal policies that address asset-liability management, financial and operational risks. This is essential for driving the ESG transition while effectively managing risk and generating sustained returns for our customers and shareholders.

In addition, continuing to embed ESG considerations into business can deliver value to all shareholders by providing innovative products that meet customer needs and further strengthen long-term shareholder value.

Pension funds have designed their own risk management framework as their methodology for risk management. Most pension funds have incorporated ESG into their enterprise risk management (ERM) processes. There are a few cases demonstrated below.

AustralianSuper has addressed its concerns on ESG from nine enterprise-wide areas under its ERM framework, including governance, culture and conduct, strategy, compliance, investment objective, member offer, liquidity, operational risk, and security.²⁹

Looking at non-APAC markets, the Canada Pension Plan Investment Board (CCPIB) has also designed its own Integrated Risk Framework by breaking down its risk appetite to adjusted risk related to market & credit risk, liquidity & leverage risk, operational risk, regulatory & legal risk, strategic risk as well as three lines of defense to address its concerns on ESG.³⁰

2.2.5 METRICS AND TARGETS

Most insurance companies have developed ESG-related metrics and targets. The following paragraphs will analyze E, S and G metrics and targets.

1. Environmental

Usually includes metrics and targets on greenhouse gas emissions, environmental policies, waste pollution, energy use and management, natural resource consumption and management, biodiversity, and more. Common metrics reported by insurers in the APAC include carbon emissions from operations and/or investments, amount of paper use, renewable energy use rate, amount of renewable energy investment, etc.

Through comparison, we find that most APAC insurance companies tend to set up somewhat net-zero or carbon neutrality targets, following national carbon reduction regulations and goals. For example, most Chinese insurance companies have set 2060 as the year to achieve carbon neutrality, based on China's "3060" goals. While insurers in other APAC markets such as Singapore, Australia, and Japan have set the time earlier as 2050 for their carbon neutrality goals. In addition to setting net-zero/carbon-neutral targets, additional net-zero or carbon-neutral targets for operations and investment activities have been set. For example, Australia's QBE aims to reach net zero emissions (scope 1 and 2) in operations by 2030.³¹ Furthermore, some insurance companies which attach more importance to ESG have also set reduction targets to include their scope 3 emissions, on top of scope 1 and 2.

2. Social

Common metrics reported by insurers in the APAC usually include metrics and targets on employee benefits and health, recruitment and development, community relation building, responsible supply chain management, responsible product, employee training, etc.

In addition, some insurance companies have also set social-related targets for their business operations, such as the number of customers, annual premiums, and operating profits. For example, Prudential plc has proposed to have the ability to serve 50 million customers by 2025.³²

To empower employees choosing from diverse workstyle options, insurance companies, such as Nippon Life in Japan support employees who take on child rearing, nursing care, and other family responsibilities, by setting the targeted ratio of male employees taking childcare leave at 100%.

3. Governance

Common metrics usually include corporate governance, corruption, anti-monopoly competition, risk management, tax payment, reporting, and auditing. In addition, common metrics reported by insurers in the APAC region include diversity of leadership and Diversity, Equity & Inclusion (DEI). In terms of leadership diversity, APAC insurance companies pay more attention to the proportion of female leaders. For example, Prudential plc has proposed a goal of 30% female leaders by the end of 2021.³³ In terms of DEI, some insurance companies have established corresponding metrics to create an inclusive and fair environment. For example, in 2020 Manulife announced to invest more than \$3.5 million over the next two years to promote DEI in the workplace and communities.³⁴

Through the above research, we find that social and governance metrics and targets are less concerned than environmental elements. There are a few potential reasons, including carbon reduction target policy is set at the national level in different markets. In addition, insurance companies are often able to understand the impact of environmental factors on their sustainable development, as well as on their underwriting and investing activities.

Pension funds have various metrics and targets on different ESG focus areas. For example, climate change, deforestation for the environmental pillar, supply chain, and diversity for the S pillar. Finally, anti-corruption, and corporate behavior for the governance pillar. Furthermore, pension funds are also focusing on other topics such as internal training on new ESG initiatives to promote awareness, remote working to mitigate impacts from COVID-19, and actively conducting stewardship activities, etc.

Two popular targets related to pension funds are related to investment portfolio carbon emission reduction and COVID-19 impact mitigation.

- Portfolio Carbon Emission Reduction in Pension

There are some pension fund portfolio carbon emission reduction examples. For example, the Oxfordshire Pension Fund from England has reduced the carbon emissions of its portfolio by 17.7% in 2020, which is ahead of its target goal³⁵. Furthermore, New York State Pension Fund has set its Net Zero Carbon Emissions Target by 2040.³⁶

In the APAC region, GPIF has also used GHG emission level as a measure of its portfolio. The analysis on GHG is divided into different industries for both equity and bond markets. AustralianSuper has also made a Net Zero 2050 commitment that it will achieve a net zero carbon emissions goal for its investment portfolio by 2050.³⁷

- COVID-19 Impact Mitigation in Pension

GPIF has also actively invested in ESG investments with special COVID-19 bonds. To date, the largest COVID-19 investment GPIF has participated in is the “Fighting COVID-19” Social Bond by the African Development Bank (AfDB) to support African markets and peoples in combating the negative economic and social impacts of the COVID-19 pandemic.³⁸

2.3 CONCLUSION

In conclusion, insurance and pension fund companies in the APAC region are actively looking for ways to improve their ESG performance, which is mainly driven by stricter ESG disclosure regulations around the globe. By innovating approaches, advancing governance practices, implementing strategies, and advancing

risk management systems, insurance companies are striving to be more sustainable. Although the focus areas for ESG are slightly different between GI, Life and Pension fund companies, the general trend is similar.

Section 3: ESG Impact Analysis on Asset and Liability Business for Life, P&C and Pension

3.1 INSURANCE AND PENSION PRODUCTS RELATED TO ESG

We divide APAC insurance institutions into three categories: P&C, Life and Pension, and then summarize their ESG related products for each category. It is worth noting that some insurers such as Munich Re have developed their sustainable insurance products in line with the Sustainable Development Goals (SDGs)³⁹, which are considered as a megatrend.

3.1.1 P&C

Many insurers are accelerating the integration of ESG into the operations and management system, as well as undertaking more explorations responding to fields like climate change, energy transformation, common prosperity, and inclusive insurance for the better development of ESG.

The integration process includes both transitions of vision and some corresponding practical actions. While there are some challenges, including the unavailability and poor quality of ESG-related data, insurance companies need to consider ESG in their underwriting process and redefine their risk preference. Moreover, insurers should not only focus on the downside influences connected with the reputation and regulation (e.g., ESG will cause losses to companies if they do not take action), but should also pay attention to the upside aspects. For example, insurance companies could generate additional revenues from environmental infrastructure and renewable projects. This sheds light on product design aspects, such as green product generation and corresponding coverage.⁴⁰

This chapter focuses on products that are newly launched or updated by major insurers around the world to meet the ESG trends. And they can be divided into three sectors: product innovation, coverage innovation, and digital insurance.

1. Products Innovation

While rising ESG issues pose many risks, many insurance companies also see this challenge as an opportunity to develop new products to transition to a green economy. The main business lines involved in this process include property & construction, renewable resources, agriculture & forestry, and special products.

(1) Property & Construction

It encourages companies to use sustainable building materials and implement energy-saving upgrades to reduce carbon emissions.

Green Building Insurance is one of the most significant points for global insurers. People's Insurance Company of China (PICC) provides comprehensive protection for construction companies, including advance credit enhancement, mid-term risk control, and post-loss compensation.⁴¹ Entrepreneurs will have

access to additional coverage from Chubb insurance because of the use of environmental-friendly building materials.

Insurers around the world, including AXA,⁴² Chubb,⁴³ and PICC⁴⁴ have also introduced building energy-efficient reconstruction insurance products to encourage the implementation of green alternative energy systems in renovation projects by monitoring the construction process and covering the costs of material replacement.

(2) Renewable Resources

The increasing use of renewable energy technologies in recent years has introduced some unique business risks, including supply chain disruption due to technology outages. Therefore, global insurers have developed a number of new product portfolios to maintain the operation of renewable energy projects and finance the operators.

MS&AD Insurance Group Holdings has launched the “Green Power Certificate Stable Supply Support Insurance” to compensate green energy companies whose facilities are closed due to disasters or other events.⁴⁵

Munich Re has not only stopped underwriting certain pollutant lines of business but has also developed new solutions for manufacturers and operators of photovoltaic projects and solar thermal power plants.⁴⁶ Specifically, it has regulated underwriting guidelines for coal, oil sands, banned weapons, and Arctic drilling. For example, Munich Re ceased insurance services for new coal-fired power plants and mines in industrialized and emerging markets, suspended insurance and reinsurance coverage of the oil sands exploitation projects and related infrastructure development, and halted stand-alone coverage for Arctic oil and gas drilling activities.⁴⁷

(3) Agriculture & Forestry

Many global insurers focus on forestry and agriculture. Insurance companies such as Swiss Re, PICC, AIG, and Munich Re have launched carbon sink insurance to strengthen forest stock and carbon sequestration capacity, which converts carbon emission rights into economic value to ensure the stable development of carbon sink projects.

Chubb Insurance cooperates with Federal Crop Insurance and the states of Iowa, Illinois, and Indiana in the U.S. to subsidize crop insurance premiums for more than 95,000 acres of cover crops.⁴⁸

Furthermore, China Reinsurance Company carries out agricultural insurance innovations according to local natural conditions (e.g., manure return to land liability insurance, biogas slurry manure application liability insurance) to encourage the full use of natural resources. Several Chinese provinces have provided livestock cost insurance and changed the agricultural mode to a combination of insurance, futures, and made-to-order farming.⁴⁹

(4) Special Products

Nowadays, hunger and food waste issues have attracted worldwide attention. Insurance companies are actively taking action to address these issues. For example, Sampo Holdings has developed an insurance product that compensates insured food companies for the cost of donating food that is judged to have lost its market value due to an accident in transit.⁵⁰ Similarly, MS&HD Insurance launched “Shoku-eco Insurance” for food operators to reduce product recycling losses.⁵¹

To meet the diversified demands of the agricultural industry, PICC has created a product service system featured by “one product for one village” or “multiple products for one county” called Local Characteristic Agricultural Products, which has covered 2,086 products including tea, fruits and vegetables, eggs and milk, traditional Chinese medicine and so on.⁵²

Munich Re cooperates with the European Commission and other organizations to provide innovative coverage for political risks, such as those connected with government failure to fulfil power purchase agreements.⁵³

2. Coverage Innovation

As the level of risk exposure changes, insurers revise or enhance the policies of existing products to differentiate themselves from others and increase their products’ coverage. This is evident in the renewables sector, mobility & transportation sector, environmental pollution sector, and special group care sector, as shown below.

(1) Renewables

General insurance companies express their support for green finance, not only to gradually promote zero emissions and carbon neutrality in the insurance industry but also to support the development of renewable energy through insurance solutions.

Practically, insurers around the world have enhanced their focus on renewable energy coverage. Several global P&C insurance companies design products linked to the construction and operation phases of wind, solar and geothermal plants. The insurance revenue relative to these aspects in the top 6 solar and wind markets doubled from 2013 to 2020. The Tokio Marine Holdings company has Offshore Wind Power Facility Package Insurance, which is expected to lead the corresponding insurance revenues to 5 billion Yen by 2023.⁵⁴

Insurance also plays an important role in protecting renewable equipment and project developers. In 2021, the Chinese insurance market provided 55 billion RMB and 12.1 billion RMB coverage for maintaining the quality risks of wind power equipment manufacturers and photovoltaic companies, respectively. Renewable energy operators in Japan also transfer various risks (e.g., property damage, liability, etc.) to insurers. The U.S. market even provides professional knowledge and coverage for tax-deductible investments in eligible renewable projects.

(2) Mobility & Transport

The widespread adoption of electric vehicles is changing the demand structure of energy, and several markets are further providing specific insurance to improve electric vehicle infrastructure. For example, PICC has developed charging pile liability insurance products.⁵⁵ Zurich Insurance company offers cover for loss or damage of the charging cable and provides 24-hour roadside breakdown assistance.⁵⁶ Allianz provides insurance for hydrogen fuel cells and reduced insurance premiums for low-commission vehicles.⁵⁷ Munich Re promotes solar power generation in case of manufacturers’ failure to meet expected annual energy outputs and offers reinsurance add-ons for electric and hybrid vehicles to cover battery damage and cars’ peripherals.⁵⁸ “Pay as you drive” discounts have also emerged as a key offering in vehicle insurance products provided by AIG, AXA, Aviva, and other insurers in recent years to promote more responsible and environmentally-friendly behavior.

Some specific-fleet insurance also involves attractive policies for maintaining or replacing traditional-fueled vehicles with green vehicles. Zurich, for example, offers coverage for bikes against events like theft. Allianz

covers e-bikes even for deliberate damage. Allstate provides insurance for ride-sharing operators and car-sharing services to realize low-carbon transformation.⁵⁹ Taiping HK minimizes premium payments for waivers of annual freight volumes due to COVID-19. The extension coverage not only protects the environment but also fully reflects the company's sense of social responsibility.⁶⁰

(3) Environmental Pollution

The situation where enterprises make profits from illegal pollution is mitigated by environmental pollution liability insurance.

Global insurers are affected by a series of environmental laws. The U.S. has a mandatory insurance system for liability for damage that may result from the disposal of toxic substances and wastes. Germany requires all companies using specific equipment with high environmental risks to purchase environmental liability insurance.

To meet customer and markets' needs, many commercial P&C insurance companies enhance the existing products to provide better protection. CPIC underwrote China's first environmental liability insurance for public areas.⁶¹ This insurance guarantees the safety of the public environment and is conducive to the healthy and stable development of a regional economy. Chubb Insurance HK provides coverage for pollution from contractors and property services.⁶² Japan offers not only pollution liability insurance but also soil purification insurance. Tokio Marine Holdings has even begun to consider liability insurance for water pollution to better protect the environment.⁶³

(4) Special Group Care

As competition in the insurance industry intensifies these days, insurers strive to stand out by operating a responsible business through enhancing value propositions and optimizing special groups' benefits. For example, Taiping HK takes over the taxi insurance surrender from Target Insurance and provides insurance renewal for 3,500 taxis in HK to support HK's stable employment and social livelihood.⁶⁴

Similarly, Allstate proposes "Host Advantage" landlord insurance, offering protection options to customers who rent out homes on sites like Airbnb and HomeAway to help address their personal property protection loopholes, which avoids the conflict between tenant and homeowner.⁶⁵

Australia also cares about special groups. Suncorp teamed up with Good Shepherd Microfinance to design affordable insurance with premiums of contents and motor cover from as little as \$4 a week for low-income earners.⁶⁶ It also launched small business insurance that charges lower premiums for women-founded businesses.⁶⁷

Likewise, Munich Re along with other institutions provide inclusive insurance solutions to meet the needs of low-income groups in emerging and developing markets. For instance, the company collaborates with local banks in India to promote a series of microinsurance policies for farmers in the market's rural regions, covering weather and fire-related risks.⁶⁸

Many insurers also undertake a more comprehensive responsibility for society and promote the sustainable development of the world. NTUC Income in Singapore considers how to improve the accessibility of offers to people at different stages of life and in diverse circumstances, including those who are underserved.⁶⁹

3. Digital Insurance

(1) Agriculture

Digital applications are creating a new scene in modern agriculture. Green insurance innovation is not only reflected in products but also in the mode and service of agricultural insurance, which will be an important direction for the future development of the green agricultural insurance market.

The digital operation platform of "E Agricultural Insurance" of China Pacific Insurance and the IFC digital Agricultural Weather Index insurance project are taken as examples to introduce the innovation of green insurance in the process of digital transformation.⁷⁰

AFSC is trying unmanned aerial vehicle technology, geographic information system, radar image, high-resolution satellite, and other high-tech to greatly improve the efficiency of agricultural insurance surveys and damage determination.⁷¹

Besides, the platform "SRAIRMP" developed by Swiss Re employs intelligent algorithms for the automatic development of weather index products, which effectively solves the designed problem of agricultural insurance products.⁷²

(2) Cyber

Moreover, Munich Re has developed NatCatSERVICE to analyze and evaluate the loss caused by natural disasters. The company also applies modern technologies in other Nat-Cat relative sectors. For example, it supported the foundation of Caribbean Catastrophe Risk Insurance Facility, which provided over \$4.8 million for tropical cyclones and excessive rainfall. Another example is The Belize Blue Bond Debt, which will waive 6-month of Belize government's obligatory payment if a hurricane arrives and exceeds a certain intensity threshold.⁷³

Many general insurance enterprises employ technology to reduce the risks posed by various cyber risk threats, which maintains the stable and efficient operation of individuals, companies, and society.

Tokio Marine Holdings' cyber risk insurance revenue is expected to increase by 5 million yen by 2023. The income from cyber risk insurance packages supporting small –and medium-sized enterprises will increase from 15 billion yen to 25 billion yen.⁷⁴

Allstate allows customers to get the digital footprint for free on the Allstate mobile app, learn what types of information companies collect, and how the information is used. Customers can choose how companies share their personal data and help protect themselves from attacks,⁷⁵ which provides operability and information transparency to customers.

QBE Insurance chooses to protect companies from litigation risks and reputational damage as well as mitigate the impact on IT systems from the impacts of cyberattacks.⁷⁶

3.1.2 LIFE

In the context of ESG, life insurers are focusing more on making healthcare affordable and accessible, widening financial inclusivity, expanding coverage, and delivering innovative products and solutions that meet people's diverse needs. These companies also aim to protect and increase people's wealth. Therefore, we divide the current life insurance product innovations in the APAC insurance market into three categories: product innovation, coverage innovation, and digital insurance.

1. Product Innovation

As ESG evolves, many life insurers seek to understand their individual and corporate customers and the diverse communities they serve. Insurers intend to provide inclusive products on ESG-related risks to support vulnerable groups. The discussion will be divided into two parts based on different target groups.

(1) Groups Affected by Environmental Issues

Under the influence of Covid-19, insurance institutions around the world have launched Covid-19-related insurance products, including but not limited to 1) extending Covid-19 protection to the original insurance products without increasing premiums; 2) developing insurance products related to Covid-19, such as vaccine insurance, quarantine insurance, etc.

At the same time, many APAC life insurers have noted the new demand from climate change and launched corresponding insurance products. For example, with global warming, human beings are facing the threat of morbidity and death from infectious diseases. As a result, insurers provide coverage against infectious diseases such as dengue, typhoid, measles, and malaria.

In addition, COVID-19 has negatively impacted the mental health and well-being of many people, resulting in an increasing demand for mental health support. As a result, APAC Life Insurers have developed innovative solutions for mental health issues, covering previously uninsured or partially insured situations. Additional mental health services have almost become standardized. Some insurers are giving employees an extra day of benefit leave to cushion the impact of Covid-19. The scope of mental health benefits continues to expand, including 7/24 hotline services for employees and customers.

(2) Low-income Groups

The APAC insurers help protect against risk by developing and redesigning low-cost, expanded coverage and affordable products and services in an inclusive manner for low-income groups, particularly in emerging markets and markets undergoing demographic shifts and varying levels of social security.

For example, most Chinese insurance companies have developed customized urban commercial medical insurance (Huimin insurance) products with "low premium, low threshold, and high security" to provide higher-level medical insurance for vulnerable groups such as the elderly, high-risk professionals, and patients with chronic conditions.

Moreover, Prudential plc has developed bite-sized insurance products that cater to those who seek convenient processes without filing complex documents, as well as underinsured consumers who seek financial planning without neglecting their income and lifestyle needs.

Additionally, many APAC insurers are moving ahead with preparations for the establishment of new small-amount, short-term insurance company to provide unique insurance products, not only life insurance but also non-life insurance, and to develop markets for specialized needs.

2. Coverage Innovation

In the context of ESG, the insurance needs of underserved groups are gradually emerging, and previous insurance products did not take into account their special needs. To this end, insurance institutions have designed more widely available, accessible, and affordable insurance products for underserved groups and markets. Based on the target group, we divide the analysis into four types.

(1) Seniors

To meet the growing demand for elderly care in the era of longevity, insurance companies in the APAC region have launched insurance products and services tailored to the needs of seniors. For example, Chinese insurance companies have developed exclusive commercial pension insurance for the slow development of the third pillar. Insurance companies in Japan offer dementia insurance and package services for the elderly in the context of Hyper-aging. Singapore's insurance relaxes health notification requirements and increases the age of insurance access (up to 74 years old), etc.

In response to dementia, one of the major social problems in the super-aging society, most Japanese insurance companies have developed dementia insurance/additional insurance to provide early protection for dementia patients, thereby achieving early detection and prevention. In addition to developing insurance products, insurance companies also provide online training services for policyholders to help seniors develop healthy habits of scientifically using their brains every day to prevent Alzheimer's disease. Some insurance institutions in China also include severe Alzheimer's disease in the coverage of critical illness or further develop medical insurance for severe Alzheimer's disease.

(2) Groups with Chronic Diseases

To help people cope with the high risk of chronic disease, many APAC insurers have developed insurance covering the chronic disease.

Let's take diabetes as an example. Many insurers began with diabetes care insurance for pre-diabetics and Type 2 diabetics and then developed comprehensive medical, critical illness, and life protection that can serve individuals with diabetes, hypertension, and high cholesterol. Furthermore, some insurers (e.g., Nippon Life) have started providing a diabetes prevention program, which is designed to prevent the onset of diabetes in people with pre-diabetes. Self-monitoring based on remote advice and devices allows for an effective program for people who do not normally have time to go to the hospital or who were previously not interested in improving their lifestyles. Now, some insurers (e.g., AIG) have launched life insurance designed specifically for people living with diabetes.

(3) Group with Flexible Insurance Needs

With the changing times, insurance preferences among individuals are becoming more and more diverse, and standard insurance products can no longer meet people's diverse needs. Therefore, insurance companies have successively launched tailor-made insurance packages this year. For example, "Mirai no Katachi", which Nippon Life launched in 2012, has developed into a platform that allows customers to flexibly combine 15 types of insurance under the four major insurance types of critical illness, death, medical care, and annuity, according to their needs⁷⁷ as a package of insurance plans with lifetime support. Customers can also freely modify the policy content according to their own life changes and needs after applying for insurance. In this way, customers can change their policy details at any time to precisely meet their protection needs. In the future, Nippon Life also plans to meet the wide-ranging needs of customers by continuing to upgrade and expand the coverage of "Mirai no Katachi" insurance products. More and more insurance companies are beginning to offer insurance plans that can be freely combined, further paving the way for innovation in customized insurance products.

Besides, most medical plans focus only on relieving insurant financial burdens on the diagnosis or treatment of insurant medical needs. For those insured who want to be covered from prevention to recovery, including outpatient benefits, cancer benefits, rehabilitation, hospice care benefits, and wellness assessments for different stages of life to ensure their overall well-being, APAC insurers have developed a comprehensive Medical Protection plan that can meet their needs.

In addition to medical insurance plans, some insurance institutions have also introduced insurance programs that can change insurance coverage without health notification for different stages of life. Also, this program provides the latest insurance that evolves over time, the best style of "latest security" that responds to changes in medical technology and social security systems.

(4) Other Special Groups

In addition to the above-mentioned senior, chronic disease groups, and groups with flexible insurance needs, life insurance companies also provide insurance and services for other underserved groups, including but not limited to female, religious minorities, gig workers, rural populations, and adolescents.

1) Female

In addition to launching more conventional insurance products such as women's accident insurance, women's fixed-term life insurance, disease insurance including women's exclusive diseases, and cancer insurance, some insurance companies have also developed women's insurance plans, backed by a portfolio of digital health services and insurance, including mindfulness, nutrition, and body measurement services. Particularly, AXA Insurance launched Singapore's First Prenatal Plan offering preterm Caesarean delivery benefit for the mother and free health insurance cover for the newborn.

2) Religious Minorities

To promote the diversification of insurance products and meet the diverse needs of people of different religious beliefs, some insurance companies in the Asia-Pacific region have developed Sharia-based traditional life insurance, which guarantees that contributions will only be invested in businesses with Shariah-compliant businesses, allowing Muslims to purchase insurance with peace of mind. A Takaful scheme not only protects individuals in times of misfortune but also provides mutual assistance to all eligible Takaful participants and their nominees. Some insurers provide Pilgrimage Protection (travel insurance) to help Muslims enjoy complete peace of mind as they embark on their journey to the Holy Land.

3) Gig Workers

To provide affordable accident and health protection for gig economy workers, China, the United Kingdom, Singapore, and other places have developed gig insurance. In China, accident insurance is the most common type, while British gig insurance products include vacation insurance, health insurance, accident insurance, welfare insurance, etc., and customers can choose a package to buy; In Singapore, insurers provide riders with a range of benefits by partnering with a food delivery company, including unexpected medical expenses, hospital cash, permanent or temporary disability, and damaged smartphones. These convenient and affordable digital solutions are an effective way to provide peace of mind for workers who enjoy the flexibility of the gig economy but may not be insured. Additionally, Swiss Re recently launched a new type of disability insurance in Germany aimed specifically at protecting blue-collar workers – and they are now expanding the product to Eastern Europe.

4) Rural Population

In order to consolidate the achievements of poverty alleviation and support vulnerable members of society, some life insurance companies have developed group medical insurance, group critical illness insurance, endowment insurance, and other types of insurance for the rural population, and provide medical insurance for those who meet the requirements of the relevant rural revitalization policies of the national or local government.

5) Adolescents

To protect children and young people with special needs, National Trades Union Congress (NTUC) INCOME offers SpecialCare (Autism or Down syndrome) to cover outpatient and hospitalization expenses, also covers the parent or legal guardian of the person with special needs or the insured in the event of TPD or death due to an accident, giving additional peace of mind to families.

3. Digital Insurance

To better serve customers in today's digital age, life insurers are increasingly focusing on digital transformation. Digital technologies now enable insurers' advisors, agents, and other customer-facing staff to better meet customers' changing needs and expectations in a flexible and personalized manner. Many life insurance companies not only have their own digital platforms but also have many digital partnerships.

The most common form is through the cooperation of insurance companies and technology companies to promote healthy lifestyles through incentives. For example, AIA Vitality is a personalized, science-based health and wellness program that supports policyholders every day to make healthier lifestyle choices. Based on data uploaded by policyholders, premiums discounts can be obtained directly from the insurance company or various product discounts from many third-party partners, depending on their level of participation in a healthy lifestyle. In addition to Hong Kong, mainland China, Singapore, Japan, Southeast Asia, and other Asia-Pacific markets and regions have also launched similar insurance products and services that reward healthy lifestyles.

APAC insurers have also noticed that customers' cash flow has been constrained in the context of the pandemic, so they are opting for more flexible insurance products with greater control over what, when, and how they are covered, including the ability to customize and consolidate their purchases at the preferred premium. In response, some insurers have developed subscription-based insurance (accessible through a mobile app), where customers have the flexibility to upsize or downsize their own insurance coverage according to their lifestyle for a short period (a month or even a week), as well as mix and match plans to find a combination that meets their needs. This new type of insurance product combined with digital offers customers a new insurance option.

Some insurers have also changed the traditional insurance model by combining technology to develop a stackable lifestyle-based microinsurance and investment platform (accessible through a mobile app) that allows users to pay small premiums to purchase insurance and investment with their daily activities (e.g., dining, grocery shopping, exercising and taking public transport). These innovative, industry-leading insurance propositions revolutionize the way consumers can engage with, purchase, and obtain insurance protection.

3.1.3 PENSION

With the increasing problem of aging and changes in the age structure of society, caring for the elderly has become an urgent problem that needs to be solved. The demand for long-term care and professional nursing services has increased. On the one hand, due to factors such as the accelerated pace of work, the one-child policy in China, and the continued decline in birth rates, the burden of parental support is gradually increasing. Therefore, the demand for professional nursing services and nursing homes will continue to be high. On the other hand, with economic development and the expansion of the middle class, the demand for high-quality elderly care communities will be greatly released in the future. Elderly care is not only the physical needs of nursing but also the mental needs of enjoying aging. Therefore, the

above two reasons together have opened a large market for elderly care services. To meet market needs, the Continuing Care Retirement Community (CCRC) appears to be an integrated solution.

The insurance industry's growth in the pension industry is positively influenced by policy support and the unique advantages of insurance institutions. Under the influence of ESG, pension insurance companies are exploring the possibility of building community-based elderly care services and improving related support services.

Investment in CCRC is carried out mainly through three types of models: "heavy assets", "light assets" and "combination of light and heavy", where the key idea of CCRC is to use CCRC services as supplements to pension insurance. The core model of the CCRC is that policyholders purchase insurance products when they are young. When the insured amount or premium reaches a certain level, policyholders become eligible to live in the retirement community. The cost of living in a retirement community can be covered in the form of annuity payments along with insurance purchases.

1. Operation Modes

According to the size of the assets required and the different operation methods, the operation modes of China's elderly care community are mainly divided into three categories: heavy asset, light asset, and light heavy combined.

(1) Heavy Asset Model

This means that insurance companies participate in the investment and the construction of retirement communities through self-build or acquisition of retirement communities or fund the project through private equity and trust funds. In this case, insurance companies play three roles: investor, developer, and operator. Therefore, the asset-heavy operation model requires a large amount of funds and has a long-term investment cycle, but it is easy to centrally manage and can fully guarantee the overall quality of service. The main representative companies of this model include Taikang Life Insurance, New China Insurance, Ping An, etc.

(2) Light Asset Model

Refers to the cooperation between insurance companies and construction operators. Under this model, operators are responsible for land acquisition and management, while pension insurance companies provide support services. The asset-light model is mainly used by insurance companies to obtain pension communities through equity acquisition or third-party cooperation. The overall investment in insurance companies is limited, but resources from all parties need to be integrated, and this model requires a high ability of coordination. The asset-light operation model is mostly used to provide elderly care services at home as well as community-based elderly care, creating a new medical care service model by leveraging public medical resources. The asset-light operation model does not occupy a large amount of capital in the short term, and the capital will flow back quickly. Therefore, small and medium-sized insurance companies mostly use the light asset model or a combination of light and heavy approaches to deploy elder community products and services. The main representative companies of this model include Dajia Insurance and Everbright Pension.

(3) Light-heavy Combination Model

Refers to the combination of insurance companies holding elder care communities and operating third-party owned elder care communities. While retaining self-built communities, the coverage of elder care services in this case is expanded through cooperation, leasing, and entrustment. Insurance companies are

less involved in the development and construction of real estate, and thus more funds are used to provide care services and operational support. Therefore, this model does not occupy a large amount of cash flow from insurance companies in the short term. The main representative companies of this model are Taiping Life and United Life.

2. Case Studies

(1) Case of Heavy Asset Model: Taikang Pension

As the leader in elder care real estate in mainland China, Taikang Pension adopts the asset-heavy model. The retirement community adopts the CCRC (Continuing Care Retirement Center) model, covering self-care units, living assistance units, and special care units, providing different services for the elderly with different health conditions.

(2) Case of Asset-light Case: Everbright Sun Life

Everbright Pension adopts an asset-light operating model and builds an entire chain of public construction, private ownership, leased properties, and entrusted management. The company has successively acquired or participated in three outstanding elderly care institutions, achieving low-risk and rapid development. Everbright Sun Life utilizes the asset-light model to rapidly deploy and build a smart elderly care service model by introducing "one platform + N services". In this way, the company provides customers with cost-effective elderly care products and services.

(3) Case of Combination of Light and Heavy: Taiping Pension

In terms of the combination of "light and heavy assets", Taiping Life Insurance has previously launched the "Taiping Happy Home" elderly care service. Through organic collaboration, a multi-leveled elderly care service system has been built by Taiping. Currently, Taiping Life has three self-built CCRC communities and nine elderly care communities in cooperation with third parties. For Taiping, CCRC is a value-added service with the product, which helps the company stand out in the increasingly homogeneous industry competition.

1) Taiwan, China

The retirement communities in Taiwan are mainly asset-light type. Overall operating costs are low and the requirements for cash flow and capital are not particularly strict. This is because the main stakeholders behind Taiwan's CCRC are medical institutions instead of real estate companies. With such high competition in medical services, the asset-light model of senior care communities has become mainstream in Taiwan.

Taiwan's elderly care community can be divided into two types of services: institutional and community-based. The institutional service includes 24-hour care staff to take care of the elderly. Community care, however, allows the elderly to stay in their familiar living environment but receive different professional services.

Instead of relying on a single source of income in mainland China, CCRCs in Taiwan have more income channels, therefore the products are more diversified, and the markets are more competitive. For elderly care communities, the channels of income include diagnosis and treatment, rehabilitation, nursing, medicine, etc. Because of the connection with medical insurance, the cost of CCRC can be partially covered by medical insurance. As a result, the burden is smaller, and consumption of such care services will also be likely to increase.

2) Japan

Japan has entered a super-aged society. The pension service model currently adopted in Japan is mainly at home, forming a small but embedded model. Because Japanese society attaches great importance to the concept of family and offers relatively comprehensive coverage of home-based care for the elderly, most of the elderly in Japan choose home-based care. As a result, elderly care institutions have the characteristics of being small-scale, one-stop and multi-functional. Most institutions are relatively small, focusing on localized operations.

3) The United States

The United States was the first market to implement the concept of retirement communities. Taking Sun City for example:

The Operating model of Sun City is the Asset-heavy model. Sun City adopts the management method of property sales and service outsourcing. The investor, who is also the developer, is a leading real estate company in the United States. The operator is the retirement community committee established by Sun City, and the developer collects a rental fee from the community management committee every year.

The project income mainly comes from one-time sales and long-term income such as apartment rentals. Between these, one-time sales revenue can provide quick payment, but the long-term income of Sun City is an important part of the project's revenue. Meanwhile, Sun City's target customers are healthy seniors, reducing the cost of medical care and other supporting facilities to a certain extent.

From a product perspective, the project offers a variety of community services for seniors based on their needs. The community campus is equipped with architectural design and supporting facilities suitable for the elderly, offering supporting facilities such as clubs and sports venues.

3.2 INTEGRATING ESG INTO INVESTMENT PROCESS

3.2.1 ASSET ALLOCATION AND SELECTION

Based on international practice, if insurance companies need to integrate ESG factors into their investment processes, there are usually three key steps. Firstly, companies should cultivate and establish a top-down ESG investment culture. The value created by ESG investment activities is thus validated from management to business lines. Secondly, companies should have the capacity to analyze and monitor ESG investment performance, including retaining talent and building modelling tools. In the meantime, the analysis results should be incorporated into the investment decision-making process. Lastly, ESG-related regulations and the market should continue to increase the level of attention paid to ESG investments, giving a higher level of recognition to companies that have good ESG practices. The following discussion will apply to investments made by insurance and pension funds before they are reimbursed.

To fully ensure the implementations on ESG investing, insurance companies should discuss a number of technical questions throughout the process. These issues may include, for example, how to integrate ESG factors into asset allocation decision-making, how to set ESG risk budgets and allocate them to different business units, how to improve companies' organizational structure and management practices around ESG, and finally, how to select specific ESG investment strategies.

(1) Overview of Asset Allocation

From the perspective of global insurance and pension industry practices, common asset allocation has the following four main characteristics:

- The decision-making process is long, and the allocation is affected by the characteristics of the insurance products. The strategy varies from Strategic Asset Allocation (SAA) to Tactical Asset Allocation (TAA) and then to specific trading strategies.
- Diversified investment types. Usually at the SAA stage, a multi-asset portfolio type needs to be constructed because different asset types have a certain risk diversification effect.
- The requirements for risk management are high to achieve stable returns. In addition to market risk and credit risk, attention should also be paid to risks such as liquidity risk and policy risk, which are difficult to quantify and require dynamic monitoring.
- Compared with other financial institutions, insurance companies and pension companies face stricter regulatory requirements on asset allocation.

(2) Consider ESG Factors in Asset Allocation

The development of ESG is more of an intervention rather than a structural subversion of asset allocation in the insurance and pension industries. Before making ESG investments, companies should consider the strategic objectives of ESG implementation, which must take ESG factors into consideration.

The formulation of strategic objectives reflects the management's value judgment on ESG, which will directly affect the decision-making and applied scenarios of ESG in future investment activities. For example, the management should make judgments on whether the company only needs to meet regulatory bottom-line requirements, or whether there are further improvement requirements within the company; how to incorporate ESG factors into the risk budget, and how such incorporation will affect the asset allocation plan.

The way ESG is embedded in each step of the allocation process includes considering the impact of ESG on the organizational structure of investment activities, the impact on the investment management system, the impact on models and tools, the impact on the selection of allocation plans, and the impact on specific investment strategies.

(3) ESG Risk Budget

ESG risk budgeting (also known as "sustainable budgeting" or "green budgeting") has been widely used by international financial institutions in recent years. Its core concept is similar to conventional risk budgeting. By quantifying ESG risk factors and metrics, adjustments made on capital allocation after considering ESG factors now become new constraints on asset allocation.

As one of the first financial institutions to propose ESG budgets, Schroder Investment Management North America Inc. outlined its core steps for formulating ESG risk budgets, including:⁷⁸

- Establish an ESG concept and consider balancing ESG metrics and value of risk-return.
- Fully understand the potential impact of ESG factors on the allocation structure, especially the risk diversification effect.
- Determine the asset classes that need to consider ESG factors.
- Identify specific methods for considering ESG factors in asset allocation.
- Develop evaluation methods to continue monitoring the impact of ESG on investment portfolios.
- Dynamically adjust ESG risk budgets based on monitoring results.

ESG risk budgets are made depending on the ESG indicators the company adopts. It can be embedded as a comprehensive evaluation indicator (such as MSCI ESG Score) or considered as a single/multiple sub-category ESG indicator. The ESG budget ultimately acts as the risk constraint of the allocation model, influencing the results of the allocation plan.

(4) Governance Structure and Management System

The governance structure and management system will directly affect how ESG risks are transferred to all aspects of investment activities. Take the California Public Administered Pension (CalPERS) as an example. CalPERS requires all asset classes in the portfolio to actively manage potential ESG risks. With a high level of requirements on ESG risk management, CalPERS has specifically set up an ESG investment team. In addition to actively assessing and managing ESG risks, the team also conducts in-depth research analysis to predict changes in the target company's ESG score and seize investment opportunities in well-performing companies. In practice, CalPERS requires a comprehensive analysis of ESG assessment scores for transactions, including requiring managers to report on the ESG factors that are considered. In addition, CalPERS sets stricter ESG monitoring procedures and performance management mechanisms in its internal management.

Based on the original governance structure, the CPPIB has considered ESG factors, thus setting up a sustainable investment committee and team, including:

- Sustainable Investment Committee: Responsible for supervising and approving matters related to sustainable investment, including policies, management systems, and investment exposure.
- Sustainable Investment Team: Provides ESG professional support and investment research analysis for the investment team and provides support in the active shareholder strategy.
- Climate Change Steering Committee: Approves the implementation strategy of the entire plan around climate change projects.
- Climate Change Project Management Office: Oversees management, implementation, and coordination of key climate change projects.

We conclude that the governance structure and management system of each region should be adjusted according to the current regulatory policies.

Models and Tools

The impact of ESG factors on the allocation models of insurance companies and pension companies is mainly reflected in the process of making assumptions and adjusting calculation logic and constraints.

Making assumptions: Common asset allocation models include Markowitz mean-variance, Monte Carlo simulation, and Black-Litterman (BL) model, etc. The key assumption is usually the value of returns, volatility, and correlation coefficients at the asset level. After considering ESG factors, in addition to risk-return indicators, ESG-related indicators also need to be identified at the individual asset level. In addition, in terms of asset classification, there is also a need to further analyze the level of ESG indicators, such as distinguishing between stocks rated with high and low ESG performance.

Calculation logic: After considering ESG factors, the allocation model has more refined modeling requirements, such as setting different levels of assumptions based on the stock's ESG ratings. However, the company needs to pay attention to the fact that when the refinement of the model passes to a certain degree, it will likely bring down the efficiency of the operation of the model.

Constraints: ESG factors will be used as new constraints to influence the selection of alternative combinations. There are usually two ways to intervene. One is to consider ESG as a strong constraint in the process of random scattering points at the effective frontier. The other is to screen multiple SAA options by considering risk and return indicators first and then taking ESG factors into account. Further optimization is made by generating and monitoring the performance of ESG indicators of different alternative portfolios under stochastic scenarios. Both methods need to configure the model to be able to output prediction results of ESG indicators in different combinations.

Balance of multidimensional constraints: Considering ESG factors reduces the scope of targeted investment assets. Compared to not considering ESG factors, the portfolio allocation plan and risk framework of assets have changed significantly after taking ESG into consideration. Along with that, the risk diversification effect of the portfolio has also been affected. Because when a company selects an allocation portfolio, it usually adopts multiple sets of constraints such as income, volatility, profit, solvency, duration, and cash flow gap. Therefore, after introducing ESG factors, it is necessary to consider the performance of various constraints and set the importance of different constraints based on the company's business strategic goals.

(5) ESG Investment Strategy

For the selection of specific investment targets, ESG factors have a significant impact in the short term. World-leading ESG investing-related associations have announced very similar investment strategies as follows:

The Global Sustainable Investment Alliance (GSIA)	UNPRI	European Sustainable Investment Forum (EUROSIF)
Positive screening	Positive screening	Best in class
Corporate engagement & shareholder action	Engagement	Engagement & voting
ESG integration	ESG integration	ESG integration
Negative screening	Negative screening	Exclusion
Impact investing and community investing	Impact investing	Impact investing
Norms based screening	Norms based screening	Norms based screening
Sustainability themed investing	Thematic	Sustainability

For example, GSIA outlines seven ESG investment strategies as guiding principles for global ESG investment practices. In recent years, GSIA's description of the seven major investment strategies has been refined, but the overall framework has not changed.

- **ESG Integration:** Introduce ESG factors into traditional financial and financial analysis, and adjust the assumptions of the valuation model.
- **Negative Screening:** Screen the ESG evaluation factors of each underlying asset and exclude assets from the original investment pool that belong to a block list.
- **Positive Screening:** Screen the ESG evaluation factors of each asset, and only invest in assets from the original investment pool that belongs to an allow list.
- **Norm-based Screening:** Screen investment targets based on internationally used corporate behavior standards (such as United Nations, OECD or International Labour Organization), and exclude only companies that seriously violate the standards.
- **Sustainability Themed Investing:** When choosing asset targets, we prefer industries and themes that are considered sustainable, such as clean energy, poverty alleviation, sustainable finance, sustainable agriculture, etc.
- **Impact Investing and Community Investing:** Impact investment requires investors to measure and disclose the impact of ESG investment on themselves; community investment requires investors

- to make targeted investments in communities that are difficult to reach with traditional finance, providing community services such as affordable housing and medical care.
- **Corporate Engagement & Shareholder Action:** Actively exercise shareholder power in equity investment and other projects, influence and correct the behavior of the invested company through shareholder meetings or management communication, to meet the needs of investors.

Different companies will select several of these strategies as guidance for investment behaviors according to internal requirements. In general, screening methods offer a good starting point for companies to consider ESG in their investment process. As the strategy progresses, considering ESG factors as constraints to adjust efficient frontier is seen as a more advanced practice for companies.⁷⁹ For example, Ping An Group highlighted thematic investment strategies and shareholder proposition strategies in its sustainability report, requiring its investment team to select targets and post-investment management.

3.2.2 ESG RATING FOR INVESTMENT

In addition to traditional financial analysis, third-party ESG ratings can have a win-win effect on listed companies and investment performance. At present, several ESG rating agencies such as MSCI, Sustainalytics, Bloomberg, Thomson Reuters, Financial Times Stock Exchange (FTSE) Russell, and the Carbon Disclosure Project (CDP) have been developed and are popular. Those agencies focus on constructing standardized indicators to reflect the ESG performance of different enterprises.

ESG strategy integrates ESG rating results into investment decisions and focuses on the financial returns and social benefits. On one hand, they promote the sustainable development of enterprises. On the other hand, for investors, ESG investments will help them access companies in various ways and reduce portfolio risk. In general, the construction of ESG rating system is the core of screening strategy and ESG integration strategy. Different types of strategies, such as positive screening, negative screening, and ESG factor integration considerations, need to evaluate investment targets based on ESG ratings.

In addition to providing rating results for investors, ESG rating agencies can also encourage companies to disclose ESG-related information to improve assessment transparency and information availability. The goals are to better meet the needs of investors, provide strong support to investors, promote sustainability, and help companies better seize opportunities and respond to threats. Also, the ESG rating system helps regulators to have a deeper understanding of the industry dynamics, and promote standardization of ESG disclosure standards.

Although the evaluation subject of different ESG rating system is often about listed companies, divergence still exists among the rating systems. Scope divergence, measurement divergence, and weighting divergence are three main divergences identified (Berg et al, 2022). Scope divergence is caused by the fact that the rating agencies usually have different attribute sets when analyzing. Measurement divergence is caused by rating agencies using different indicators to measure the same attribute. Weighting divergence is caused by rating agencies taking different views on the relative importance of attributes. In the future, the construction of rating standards needs to be further strengthened to establish a unified ESG evaluation system that serves global listed companies.

Furthermore, measures of different ratings also vary among different markets and districts. For example, compared with more developed markets, China's ESG investment concept has a shorter development time, and China's economy structure is in the process of transformation. Although international ESG rating agencies, such as Morgan Stanley Capital International (MSCI) and FTSE Russell, have international standard evaluation frameworks, they lack a deep understanding on the characteristics of the Chinese market and their evaluation systems are not fully applicable to the Chinese market. For example, for the social pillar,

human rights indicators weight high in the international social responsibility index system. However, these issues are relatively rare in China, and Chinese companies are putting more emphasis on other indicators, such as social security, employee welfare, and poverty alleviation.

Therefore, blindly carrying the measurement standards of foreign markets without adjustments does not fit the actual situation in China. Moreover, the high degree of divergence among different agencies makes it difficult to use ESG scores. After all, investors do not want to miss the investment opportunity by eliminating the underlying index because of the low reference score selected, nor do they want to expose their portfolio to high ESG risk.

Based on the experiences of ESG development and combined with the actual situation of the domestic markets, many financial institutions, especially asset management companies, have chosen to build internal indicator systems.

In terms of ESG integration, with the gradual improvement of global ESG disclosure and rating system, the market share of ESG integration and shareholder participation strategy has rapidly increased, becoming one of the main investment strategies by investors.

For example, Legal and General is a multinational financial company providing life insurance, pensions, and investment management products and services to the global markets. Legal and General Investment Management (LG IM) is a subsidiary of L&G Group. LG IM, an investment facility for the group, includes quantitative analysis to form a comprehensive investment valuation system and adopts a ESG integration strategy based on the characteristics of different funds. As a key part of the ESG integration strategy, active engagement focuses on ESG issues that have the greatest impact on the industry in both short and long term. Additionally, it improves the efficiency of active participation activities by evaluating the impact level of these issues on the investee companies. If LG IM determines that an investee's conduct on an ESG issue is likely to have a negative impact, it will take action to actively engage the investees and guide them on the improvement.

With the improvement of database, the effectiveness of the screening and integration strategy is expected to be further improved. Stricter regulation and the application of big data will help promote ESG disclosures well as help investors find companies that truly meet ESG standards and perform well in the market.

3.2.3 QUANTIFYING THE TRANSITION IMPACT OF CLIMATE CHANGE ON INVESTMENT

Transition Impact on the Investment Side

To match liabilities, insurers typically hold a large portion of their portfolios in the form of debts. While bonds offer relatively stable yields, the uncertainty of cash flow increases with maturities, thus long-term bonds are more vulnerable to ESG factors. To assess this impact, insurance companies generally use a bottom-up approach to construct a function $C=f(\text{ESG})$ that reflects the impact of ESG indicators on the financial indicators of the invested companies, where C is the change in corporate costs. Then, based on the change on the operating cost of the invested company under different ESG ratings, and along with the cross-checking of the financial statements, changes on the main indicators of the income statement and balance sheet are calculated. These financial indicators are further developed into scorecards used by insurance companies for internal ratings, such as the credit rating evaluation model. Finally, by summing up the changes in the credit ratings of the invested companies, the integrated matrix of the industry credit rating on the invested companies is then created. At the same time, based on the relationship between the loss given default and the defect rate, the changes in the solvency of related industries are further

analyzed. The results help further evaluate the impact on the risk premium and liquidity premium of the invested corporate bonds.

TABLE 1 IMPACT OF ESG FACTORS ON THE DEBT INVESTMENT PRACTICES IN INSURANCE COMPANIES

Company name or platform	Involving the market	Key Practices and Philosophies
New China Insurance	China	In 2021, from a macro perspective, ESG was fully integrated into the macro scene dynamic analysis and the macro asset allocation decision-making system. According to the principle of prudence, ESG factors are incorporated into fundamental analysis through financial indicators and the implementation of ESG framework so to assess the importance and the value of corporate performance. When risk-adjusted long-term returns are roughly equivalent to other investments, the company prioritizes green and ESG investments. Based on the ESG rating system, the company has refined its risk appetite and risk management practices to suit ESG investment. Fixed income investment: Establish the company's credit investment counterparty ESG evaluation system, continue to monitor its own investment risk and introduce early warning concepts, especially for industries with high pollution and high carbon emissions. Develop detailed risk research and investment planning to enhance continuous monitoring of ESG-related factors in the company's investment portfolio.
AIA ⁸⁰	Hong Kong	Given the growing importance of ESG scores (representing best practice), an internal ESG score has been developed through the ESG Rating Scorecard. The ESG Ratings Scorecard quantifies AIA research analysts' assessments of investee companies' ESG risks and opportunities, then scores them across various ESG pillars. Following this, the overall ESG assessment has been mapped onto a five-point scale from A to E, with "A" being the highest. The scorecard is designed to complement the fundamental analysis performed by AIA research analysts.
AXA ⁸¹	Europe	Since 2018, taking the advantage of a partnership with Swiss environmental fintech company Carbon Delta (recently acquired by MSCI), a "transition risk" model has been developed which produces a "Warming Potential" (WP) metric expressed in rising temperature. This modeling approach combines top-down industry data with bottom-up corporate data to create a set of forward-looking, climate-related indicators so to guide bond investments.

Investment managers seek to quantify the impact of ESG performance and ratings on equity-type portfolios, such as by calculating weighted average portfolio returns and risk metrics. For alternative assets, the penetration measurement method can also be used to calculate the risk exposure of the bottom layer of the investment portfolio. However, data availability and double counting issues are posing challenges for insurance companies. Thus, insurance companies usually use industry or approximate methods for forecasting analysis. This requires investors to conduct more due diligence and urges invested companies to disclose more information. Moreover, the high concentration of industries in equity investing suggests that this strategy generates more ESG-related exposures. Therefore, investment managers should diversify

their investments across markets, regions, and industries. Leading companies such as AXA, Aviva, and Ping An have already tracked the carbon emission of their portfolios by calculating financed emissions.

TABLE 2 PRACTICES OF THE IMPACT OF ESG FACTORS ON THE EQUITY ASSET INVESTMENT OF INSURANCE COMPANIES

Company name or platform	Involving the market	Key Practices and Philosophies
AIA ⁸²	Hong Kong	During 2019, the carbon emission of a portfolio was firstly measured, and the carbon emission of stock portfolio was reported. AIA measured the carbon emission of its directly managed stock portfolio through the issuer's Weighted Average Carbon Intensity (WACI) in its stock portfolio.
AXA ⁸³	Europe	Since 2016, different approaches have been tested through a scenario analysis approach to analyze the "climate dynamics" of its investments. During 2020-2021, AXA advanced this research approach to asset-by-asset type with input from external climate risk experts (Carbon Delta MSCI, Beyond Ratings, S&P Global Trucost). Based on the value at risk of the climate risk, AXA analyzes the impact of physical risk and transition risk on company financials.
Ping An Insurance ⁸⁴	Mainland China	To reach the standardization of the group's ESG asset risk management, CN-ESG evaluation system, a centralized ESG evaluation standard, has been established internally. AI-ESG platform has realized the intelligence of the tools, which is the integration of ESG risk control, model building and investment portfolio management. The application provides intelligent tools and data support. It is thus able to integrate ESG factors into investment decisions, actively develop the CN-ESG smart evaluation system, and form evaluation standards and investment basis for ESG due diligence of listed companies, bond issuers, and projects.

The real estate sector accounts for nearly 40% of global energy-related company emissions.⁸⁵ When it comes to real estate investments, insurers view building energy efficiency and environmental friendliness as important criteria. Companies are committed to reducing the GHG emissions of their real estate portfolios to net zero by 2050, and increasing the number of properties with sustainability certifications. The Global Real Estate Sustainability Benchmark (GRESB) annually assesses and benchmarks the ESG performance of global real estate as well as monitors the industry's progress towards achieving global sustainability goals. Insurance companies carry out due diligence, assessment intervention, and other actions based on the ESG performance of the real estate they hold to increase the proportion of their environmentally friendly buildings. GPIF, as the world's largest pension fund, also joined GRESB as the first Japanese Investor Member for infrastructure to enhance ESG management practices across real assets.

In addition, the purpose of financial institutions investing in real estate is usually to hold real estate assets for a long time, which is more vulnerable to environmental changes. Models used by insurance companies to assess the exposure and loss of real estate assets from natural disasters need to integrate fine-grained information about the physical composition of buildings. For example, building structure, height, year of construction, geographic location, etc. Through this, companies are then able to get a comprehensive view of their portfolio's climate-related exposures and related effects.

TABLE 3 GLOBAL INSURANCE COMPANIES PRACTICE ENVIRONMENT-FRIENDLY REAL ESTATE INVESTMENT CONCEPT PRACTICE

Company name or platform	Involving the market	Key Practices and Philosophies
PGIM Real Estate ⁸⁶	Europe	During 2020, PGIM Real Estate submitted 18 reports to GRESB, representing more than 85% of PGIM Real Estate's global assets under management. As of December 31, 2020, the majority of PGIM Real Estate managed properties have achieved energy related certifications, such as ENERGY STAR.
MetLife's institutional asset management platform (MIM) ⁸⁷	The U.S.	MIM tracks LEED certification and Energy Star status when real estate-related loans launch. MIM has also implemented an ESG takeover assessment as part of the due diligence required for all new real estate equity investments. The ESG performance of assessed assets is tracked through the GRESB survey.
Allianz Group ⁸⁸	Europe	Allianz is aiming to reduce GHG emissions from its real estate portfolio to net zero by 2050 and increase the share of properties certified under environment or sustainability related standards.
New China Insurance ⁸⁹	Mainland China	In the real estate investment of Xinhua Insurance, the company regards the energy conservation and environmental protection level of buildings as an important criterion in the typesetting and prioritizes environment-friendly buildings. As of 2021, the company has invested more than 2 billion Yuan in green buildings and will further increase investment in green buildings in the future.
Ping An Insurance ⁹⁰	Mainland China	Ping An always adheres to the concept of green city and actively promotes the green and low-carbon development of urban ecology. In recent years, Ping An has vigorously deployed green office buildings. Through the comprehensive use of number of green and environmental protection technologies, the company has set a benchmark for energy conservation and environmental protection of high-rise buildings in the world. As of 2021, more than 10 projects of Ping An have obtained green building certifications at home and abroad.
AXA IM Real Assets ⁹¹	Europe	The company uses real estate-related environmental certifications such as BREEAM and LEED to measure real estate performance, also uses GRESB annual survey to assess real estate and infrastructure fund performance.

TABLE 4 GLOBAL INSURANCE COMPANY PENSION REAL ESTATE INVESTMENT PRACTICE

Company name or platform	Involving the market	Key Practices and Philosophies
Taikang Life ⁹²	Mainland China	<p>Taikang Home adopted the self-service model and launched "1+N" service, that is, one case manager and N care teams. The care teams cover nursing, rehabilitation, medical treatment, pharmacists, social workers, entertainment, sports, catering, etc. In one aspect, it ensures comprehensive and multi-faceted care for the elderly. In addition, Taikang Home introduced a long-term care system (TK-LTC) to customize different levels of life care and nursing services.</p> <p>In addition to life care, Taikang Innovation proposed three major solutions of "longevity, health and wealth", created a new pension wealth solution, and established</p>

		<p>a " 1+N" wealth team. That is, one healthy wealth planner and "N" Taikang full ecological expert consultants. At the same time, Taikang launched the life service platform "Tai Life" to provide customers with 7*24 hours of wealth services, medical services, health services, etc.</p>
Multiple institutions	Japan	<p>Family-centered, life assistance, and nursing prevention are provided under the premise of respecting self-support for the elderly. The main body of related services is elderly clubs, self-government associations, volunteers, and non-profit organizations. In order to ensure timely provision in community service, the provision of service speeds up within 30 minutes. In this system, the five elements of "nursing, medical treatment, health care, assistance, and residence" of community resources cooperate with each other. Specifically, when community residents need hospitalization, they can choose community hospitals, chronic disease hospitals, and rehabilitation hospitals in the community. Nursing, health care, and other services are provided by the self-government association, volunteers, and other organizations. Any queries and comprehensive assistance can be resolved through the community comprehensive assistance center established by the government.</p>
Taiwan Chang Gung Cultural Village ⁹³	Taiwan, China	<p>Backed by the strong medical resources of Chang Gung Hospital, the world's largest silver-haired real estate community was built. It provides medical and health care services for the elderly to meet their fundamental needs. The community respects the psychological needs of the elderly, breaks the hospital-style life in traditional nursing homes, and plans a variety of activities for the elderly. The community also respects the personality needs of the elderly and sets up programs such as colleges and part-time jobs for them.</p>
Taikang Life ⁹⁴	Mainland China	<p>Taikang Home adopted the self-service model and launched " 1+N" service, that is, one case manager and N care teams. The care teams cover nursing, rehabilitation, medical treatment, pharmacists, social workers, entertainment, sports, catering, etc. In one aspect, it ensures comprehensive and multi-faceted care for the elderly. In addition, Taikang Home introduced a long-term care system (TK-LTC) to customize different levels of life care and nursing services.</p> <p>In addition to life care, Taikang Innovation proposed three major solutions of "longevity, health and wealth", created a new pension wealth solution, and established a " 1+N" wealth team. That is, one healthy wealth planner and "N" Taikang full ecological expert consultants. At the same time, Taikang launched the life service platform "Tai Life" to provide customers with 7*24 hours of wealth services, medical services, health services, etc.</p>

3.3 ASSET AND LIABILITY INTERACTIONS RELATED TO ESG

The SOA defines Asset Liability Management (ALM) as “the practice of managing a business so that decisions and actions taken with respect to assets and liabilities are coordinated. ALM can be defined as the ongoing process of formulating, implementing, monitoring, and revising strategies related to assets and liabilities to achieve an organization’s financial objectives, given the organization’s risk tolerances and other constraints.” For any institution that uses investment to balance, asset liability management is an important and applicable means of financial management.

The International Association of Insurance Supervisors (IAIS) issued standards on asset liability management and issued papers on asset liability management in October 2006, providing specific suggestions for the supervision and operation of asset liability management. Under the guidance of IAIS insurance asset liability management principles, major insurance markets in the U.S., Europe, Asia and other markets are constantly promoting and improving the supervision of asset liability management, which has an impact on the asset liability management of insurance companies through the internal and external evaluation system formed in the business process. However, there is no separate supervision system for asset liability management at present.

The TCFD Index also mentioned the management’s role in assessing and managing climate-related risks and opportunities related to asset and liability management. Therefore, ESG should be integrated into ALM models and practices.

TABLE 5 ALM PRACTICE OF INSURANCE COMPANIES WORLDWIDE

Company Name	Main Practice and Theory
Aviva ⁹⁵	As an Asset Manager, the company acts as a long-term steward of their clients’ assets, launching new assets that are aligned to a 2040 Net Zero pathway. Insurance companies should play the role of asset liability management. The nature of debt gives customers the opportunity to flexibly choose their investment direction. This also improves investment transparency to enhance customers’ investment ability. For long-term savings and pension products, customers can be the decision-makers of where their funds are invested.
MetLife ⁹⁶	MetLife integrates ESG into investment process with a future draw on the company’s cash flow, including environmental liabilities, mediation liabilities, possible contingent liabilities from a litigation perspective, and pension fund needs.
AXA ⁹⁷	AXA France offers SRI funds as well as ESG-managed funds (which may be AXA IM funds or third-party funds) to its retail customers and offers 100% SRI collective savings and pension products to companies for their employees. In 2018, AXA France launched a Unit-Linked account offer called Perspectiv’Allegro. All the underlying funds are evaluated based on their financial performance and ESG practices, including labelled platforms (based on official French savings labels). The Perspectiv’Allegro offer is made up of 55% invested in Unit-Linked accounts of equities and debt (including green bonds). The remaining 45% is invested in euros funds that integrate AXA’s responsible investment screening which eliminates coal, oil sands, tobacco, controversial weapons, and unsustainable palm oil sectors.
HSBC ⁹⁸	The Trustee of the UK Pension Scheme manages climate risk in line with its fiduciary responsibilities towards members.
Prudential ⁹⁹	ALM position is effectively managed, and the strategic asset allocation incorporated with ESG is in line with the business plan objective including the climate transition plan and risk appetite. Building ESG data and asset liability modelling to accurately assess the financial impact on the company, particularly for longer-term time horizons, which is challenging.
AIG ¹⁰⁰	Medium-and-long-term impacts are considered in strategy setting and asset liability management decisions in both the General Insurance and Life and

	Retirement businesses. While for short-to-medium-term, physical risks are considered more.
Ping An ¹⁰¹	Under the organization of the group, the asset risk management and actuarial departments should carry out climate risk testing and management on the asset and liability side. They should assess the impact of climate risk on the asset side, consider the impact of insurance products that will be affected by climate risk on the liability side, and ensure that assets and liabilities match each other in terms of duration, income, cost, etc.

Section 4: Risks and Opportunities for the Actuarial Profession

4.1 THE FUTURE DEVELOPMENT AND PROSPECT OF ESG

In recent years, disclosing ESG information in financial reports has gradually become a global trend. However, compared with Europe, America, and other regions, the concept of ESG is still in the early stage of development in the APAC region because it started later than other regions. From the policy perspective, regulatory authorities across different regions encourage enterprises to disclose ESG information, but a unified mandatory requirement for listed enterprises to disclose ESG-related information has not yet been formed. Despite this, regulatory restrictions on ESG have become increasingly stringent in recent years. For example, both the Shanghai and Shenzhen Stock Exchanges issued guiding documents on social responsibility and environmental information disclosure for listed companies, which require listed companies to actively perform their social responsibilities, initially reflecting the concept of ESG in China. In 2018, the China Securities Regulatory Commission (CSRC) revised the Corporate Governance Standards for Listed Companies and established the foundational framework for disclosing ESG information; In 2019, Shanghai Stock Exchange issued the Rules for the Listing of Shares on the Science and Technology Innovation Board, which put forward clear requirements and suggestions on the information disclosure and management of ESG for the listed companies on the Science and Technology Innovation Board. The increasingly detailed policies indicate that the trend for regulators to incorporate ESG-related information into the necessary disclosure requirements of listed enterprises will gradually intensify in the future.

From the perspective of enterprises, the proportion of listed companies actively disclosing ESG-related information has gradually increased in recent years, and the quality of disclosure has also improved. Taking A-shares as an example, as of April 2022, 1,366 listed companies had disclosed their 2021 social responsibility reports. These companies were mainly from the financial industry and the culture and sports industry, accounting for 29% of all listed companies, which represents a 2.5% increase in the number of companies disclosing ESG information compared to 2020.¹⁰² The average length of social responsibility report documents issued by all listed companies has exceeded 44 pages and continues to increase each year. There are two main reasons for this phenomenon. On the one hand, due to the policy guidance issued by regulators, enterprises have paid more attention to ESG information disclosure. To meet compliance requirements, enterprises begin to gradually establish an ESG information disclosure system. On the other hand, due to the change of investors' ideas and the significant long-term returns brought by ESG investment, more and more enterprises have taken ESG into consideration as a significant factor in the company's investment decision-making and risk management process.

Despite the overall positive trend, challenges remain across the globe in terms of financial institution's future ESG development, from both corporate ESG and ESG investing sides. Firstly, as the foundation of ESG development, there is still a lack of standardized regulatory guidelines¹⁰³. This might lead to poor reporting, which is likely to cause instability and even failure in the market. Similarly, on the corporate practice side, the level of understanding on ESG within companies has been relatively lower than other

matters. This trend is particularly seen in emerging markets such as APAC markets. Without increasing the level of understanding, implementing ESG practices within companies will face hurdles which can be hard to be tackled. On the ESG investing side, however, challenges arise from different aspects, but the underlying ideas can be similar. For example, fiduciary duty has been considered a barrier for ESG investing since traditional interpretation of fiduciary duty does not include non-financial objectives, including ESG.¹⁰⁴ This challenge has been addressed in recent years but still needs to be improved. Without integrating ESG into fiduciary duty, it is also hard to integrate ESG fully into the investment process.

4.1.1 ACTUARIES SEIZE ESG RELATED OPPORTUNITIES

With the development of the ESG concept, the traditional insurance industry has also been influenced. Actuaries, as important members of the insurance industry, should also take advantage of themselves, and seize opportunities to play an active role in all aspects of the ESG development process.

Actuaries can play an active role in the formulation of ESG disclosure standards and the establishment of the evaluation system. Current view on the main roles of actuaries in advancing ESG practices is mostly related to traditional actuarial jobs, such as price adjusting than disclosure and communications¹⁰⁵. Actuaries, however, are believed to have more diverse ESG roles in the future. For enterprises that have not yet established ESG information disclosure standards, actuaries can provide relevant suggestions based on their previous experience such as the impact of climate, environment, and other factors on enterprise financial indicators. For enterprises that have established ESG information disclosure standards, they can review the standards regularly to ensure the disclosed ESG information is comprehensive and up to date. At the same time, actuaries can also help enterprises establish their own ESG evaluation system by collecting internal data and building quantitative models. In addition to working within the enterprises, actuaries can also strengthen cooperation with external ESG-related institutions. For example, they can participate in industry-related ESG seminars, and actively respond to opinion collections on the formulation of ESG standards set by the regulators. By doing so, they can help to promote the development of ESG in the insurance industry.

On the underwriting side, actuaries can integrate ESG factors into product design, analyze the environmental problems faced by different insurance subjects or industries, and adjust existing products according to their risk sources and risk categories. For industries or subjects directly affected by the environment, such as agriculture, new energy vehicles, etc., they can focus on product innovation and service innovation. In order to achieve ESG integration, it is suggested that insurers firstly identify their ESG targets and tolerance, then take an iterative, phased approach.

On the asset side, actuaries can use their quantitative advantages to help enterprises integrate ESG factors into the existing asset allocation framework, test the difference in returns before and after ESG factors are integrated, and assess the impact of environmental change on different asset classes by transforming climate-related scenario parameters into model parameters through modeling and conducting climate risk stress testing.

In terms of pensions, actuaries can give full play to their comprehensive advantages in computing, actuarial modeling, insurance finance, pension insights and other aspects, help multiple parties to communicate more effectively, analyze the needs of the pension market for ESG more clearly, and promote the high degree of agreement between pensions and ESG, therefore further promoting the development of the entire ESG.

With the change of the external environment, continuous learning, and growth, embracing changes, and providing better services are the constant themes in the actuarial career. Actuaries can use their skills in

financial risk analysis to help the enterprises they serve achieve sustainable growth under the premise of controllable risks. Actuaries should take advantage of their position to seize opportunities under the ESG trend, such as assisting in multi-party communication, building a quantitative model in line with climate change scenarios, and helping insurance companies identify ESG-related risks and opportunities. They should actively participate in the above activities and communicate with insurance companies to guide the transformation path of insurance funds.

4.1.2 ACTUARIES AND THE ACTUARIAL PROFESSION FACE CHALLENGES UNDER THE TREND

At present, the disclosure of ESG-related information by enterprises in the market is insufficient, and the quality of disclosure is not satisfactory. Additionally, the ESG evaluation systems established by different institutions are diverse, and the correlation between these systems is low. This indicates a lack of unified and transparent evaluation standards, which often leads to different ESG ratings for the same subject among different evaluation systems. Given this situation, helping enterprises promote the integration and development of ESG on the asset side using limited information is a challenge that actuaries need to address.

Moreover, climate changes such as floods, sea level rise, and greenhouse effect have a direct impact on the insurance industry, especially on the underwriting side of general insurance. This means that actuaries need to conduct more effective scenario stress tests to avoid risks. The transformation risks generated in the process of the enterprise's transformation to low carbon type also require actuaries to consider social factors such as political factors, legal factors, and market factors to design more diversified scenario tests for assessing risks.

With the demand for enterprise transformation, the function of actuaries also moves from traditional fields to new fields. For new fields such as environmental science and meteorology, actuaries need to have a certain understanding and knowledge reserves to analyze the underlying logic of quantitative model results and explain the main factors that affect the results, which puts forward higher requirements for their own abilities.

4.1.3 PAPER SUMMARY

In general, with the rise of the concept of ESG in recent years, markets around the world have formulated increasingly strict regulations on ESG information disclosure. Although there is no unified global standard for ESG information disclosure, certain general guidelines exist, such as GRI, TCFD, SASB, etc. In the APAC region, markets have different stages of development, but all of them propose further demands regarding to regulations of ESG disclosure. Some regions, such as the Hong Kong, Singapore, Malaysia, and Vietnam, require all listed companies to disclose their ESG reports. In other regions, such as mainland China and Japan, only listed companies meeting specific requirements are required to disclose their ESG reports. These ESG disclosure regulations are usually issued by the market's stock exchanges, which require listed companies to disclose information in environmental, climate, social, and other fields to provide more favorable information for investors to make decisions.

A large number of ESG reports issued by different companies in the insurance and pension industries show that the six major issues are currently the focus of both industries. They are mitigation of climate change through products and services, improvement of the overall healthcare level of society, diversity and inclusion, responsible investment, corporate governance practices, and community participation. These issues are closely related to sustainable development goals.

Insurance companies and pension fund companies in the APAC region take sustainable development strategy as the driving factor and integrate ESG core concepts and standards into enterprise management in an all-round way to build a scientific and professional sustainable development management system. For these enterprises, ESG has four key pillars: ESG governance, ESG strategy, ESG risk management, and ESG metrics and targets.

In terms of ESG governance, insurance companies usually have three structures: setting up a special ESG board of directors to take full responsibility for ESG-related matters, setting up an ESG Sustainable Development Committee at the board level to supervise and guide ESG-related matters, or not changing the corporate governance structure but incorporating ESG factors into enterprise decisions and activities through special procedures or mechanisms. Pension fund companies generally designate key departments to be responsible for and deal with ESG-related issues.

In terms of ESG strategy, insurance companies in the Asia Pacific region mainly have six categories: improving the availability of insurance products and services, improving customer experience, achieving sustainable investment, promoting responsible operation, effectively managing employees and culture, and maintaining information and data security. These ESG strategies are designed to help people achieve a better life by creating value for shareholders, customers, employees, communities, and the environment, as well as business partners. Similarly, pension funds, designed to provide cash flow and manage savings for people after retirement, also share obvious long-term cyclical and public characteristics, which is consistent with ESG's investment philosophy.

In terms of ESG risk management, most insurance companies in the Asia Pacific region choose to incorporate ESG risk management into the existing risk management process, instead of setting up a separate ESG risk management framework. General insurance companies integrate ESG into the risk management framework, which involves strategy, climate risk principles, major risk sources, stress testing, monitoring, and indicators, reporting and disclosure, ESG risk appetite and governance, etc. Life insurance companies generally believe that incorporating ESG into their investment processes can ensure that investments are properly authorized, monitored, and managed within the scope of internal policies addressing asset liability management, financial and operational risks. Different from the above, most pension fund companies have designed their own risk management framework and incorporated ESG into their risk management process.

ESG metrics and targets are mainly divided into three aspects: environment, society and governance. Insurance companies in the Asia Pacific pay less attention to social and governance factors than to environmental factors. Pension fund companies have different targets according to their ESG-focused areas. At present, two popular targets related to pension funds are portfolio carbon emissions and COVID-19.

In addition to integrating the ESG concept into the enterprise development system, major insurance companies around the market have also launched new and updated products to meet the ESG trend. They can be split into three parts: product innovation, coverage innovation, and digital insurance.

In the part of product innovation, general insurance companies tend to focus on industries that are more sensitive to environmental changes. They have launched new products for these industries such as Property& Construction, Renewable resources, Agriculture& Forestry. Worldwide problems such as hunger and food waste will also become their concerns. However, life insurance companies are more inclined to launch new products according to vulnerable groups. For example, groups vulnerable to environmental impacts and groups with a middle and low level of income.

In terms of coverage innovation, general insurance companies are revising or strengthening existing product policies to increase their product coverage. The representative products are mainly embodied in the renewable energy industry, transportation industry, environmental pollution industry, and special group care industry. Similarly, life insurance companies are designing broader, more accessible, and affordable insurance products for a wider range of groups and markets.

In terms of digital insurance, general insurance companies have launched new insurance models and services to meet the needs of customers in specific industries and used digital technology to predict and reduce risks more accurately. Life insurance companies are building their own digital platforms to better meet customers' changing needs and expectations in a more flexible and personalized way.

In addition to the insurance industry, pension insurance companies have introduced the concept of the elderly care community in response to the aging of society and changes in the age structure of the population. At present, it has been put into practice in mainland China, Taiwan, Japan, the United States and other places.

On the investment side, the development of ESG has more intervened in the investment process rather than subverted the structure of asset allocation in the insurance and pension industries. Prior to investing, companies embed ESG into each stage of the asset allocation process, including incorporating ESG factors into the risk budget, considering the impact of ESG on the organizational structure of the investment business line, the impact on the investment management system, the impact on models and tools, the impact on the selection of configuration schemes and the impact on specific investment strategies, to determine the final asset allocation. At the same time, companies also rely on external ESG rating systems to screen risk events, adjust investment strategies to reduce portfolio risk, and promote the sustainable development of the enterprise.

It is essential for enterprises to carry out asset liability management and achieve their financial objectives under given risk tolerances and constraints. The International Association of Insurance Supervisors (IAIS) issued asset liability management standards and asset liability management documents in October 2006, providing specific suggestions for the supervision and operation of asset liability management. Under the guidance of IAIS, major insurance markets in the United States, Europe, Asia, and other markets are constantly promoting and improving the supervision of asset liability management through both internal and external evaluation systems.



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Section 5: Acknowledgments

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Appendix

Figure 1

ORIGINAL SURVEY QUESTION: WHICH OF THE FOLLOWING STAKEHOLDER(S) HAS INFLUENCED ON DECIDING THE ESG REPORTING AND DISCLOSURE POLICY?

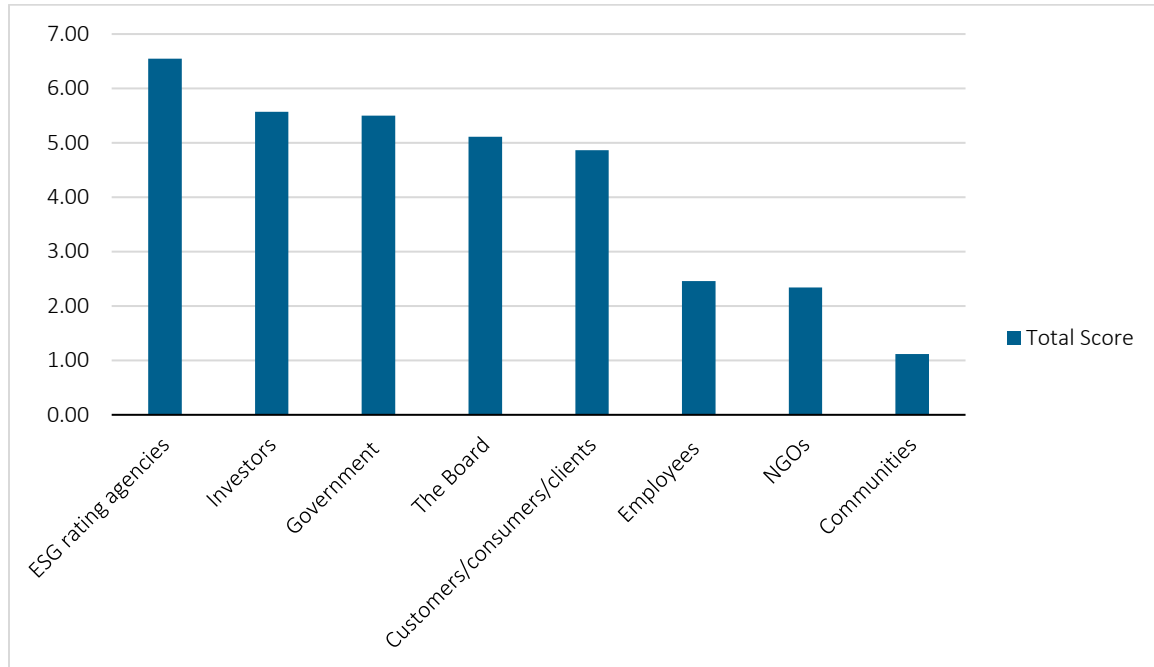


Figure 2

ORIGINAL SURVEY QUESTION: PLEASE STATE CURRENT CHALLENGES IN IMPLEMENTING A ROBUST ESG/SUSTAINABILITY SYSTEM OF GOVERNANCE.

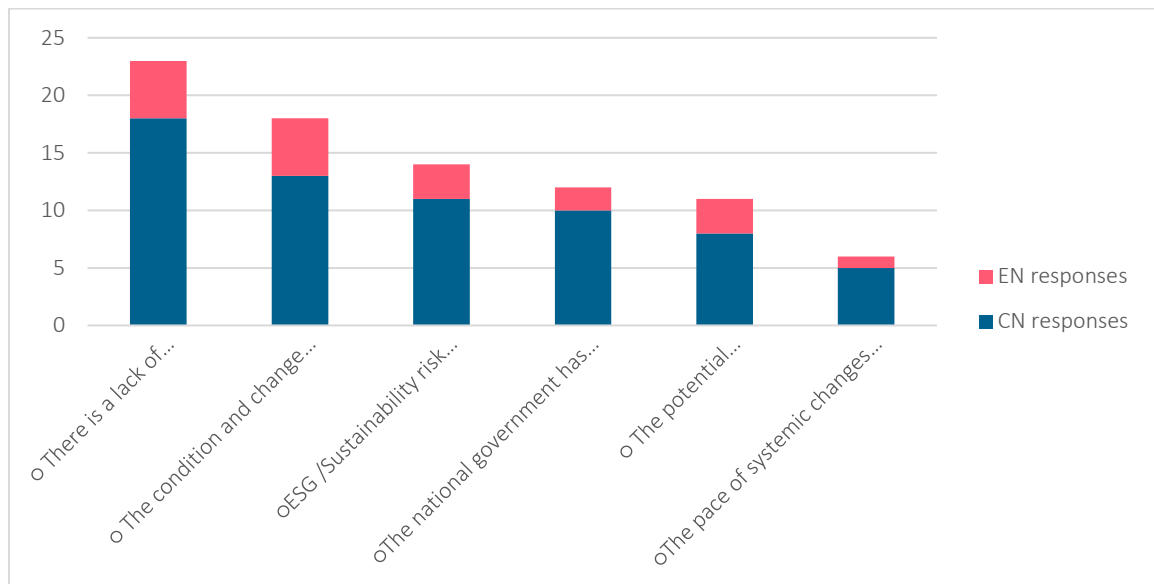


Figure 3
ORIGINAL SURVEY QUESTION: WHAT IS THE CURRENT LEVEL OF YOUR INSTITUTION'S ESG RISK MANAGEMENT?

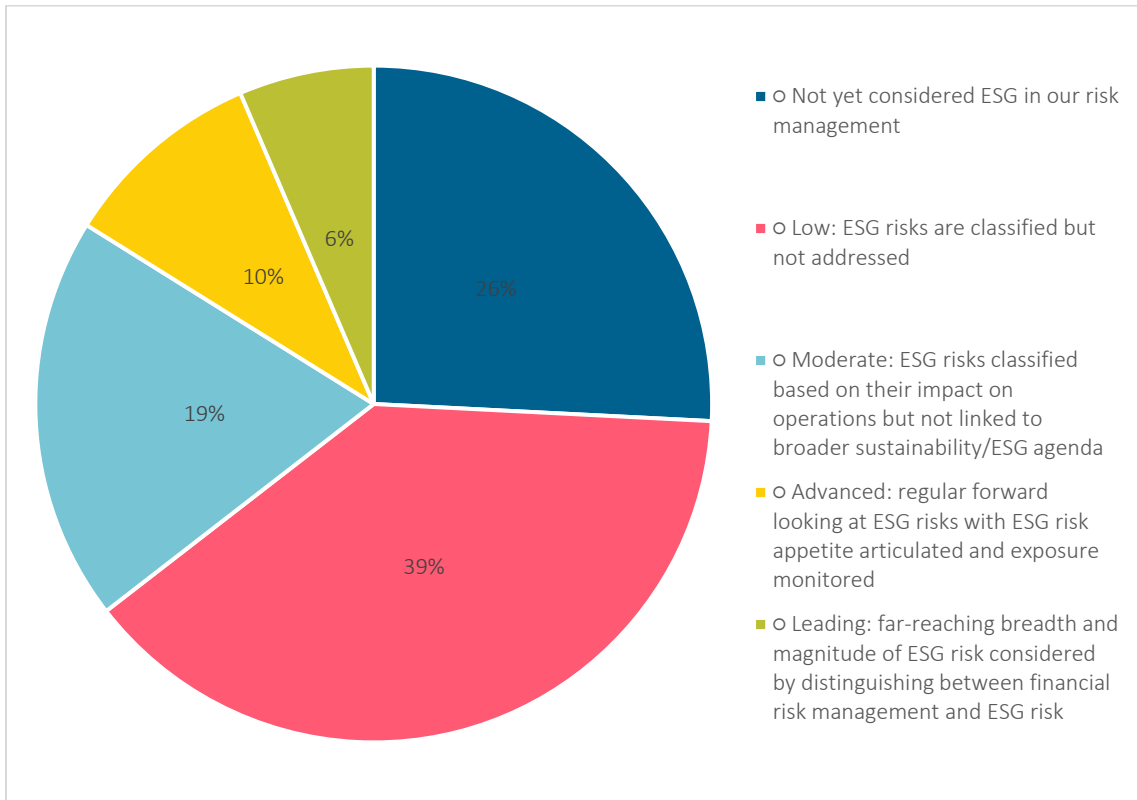
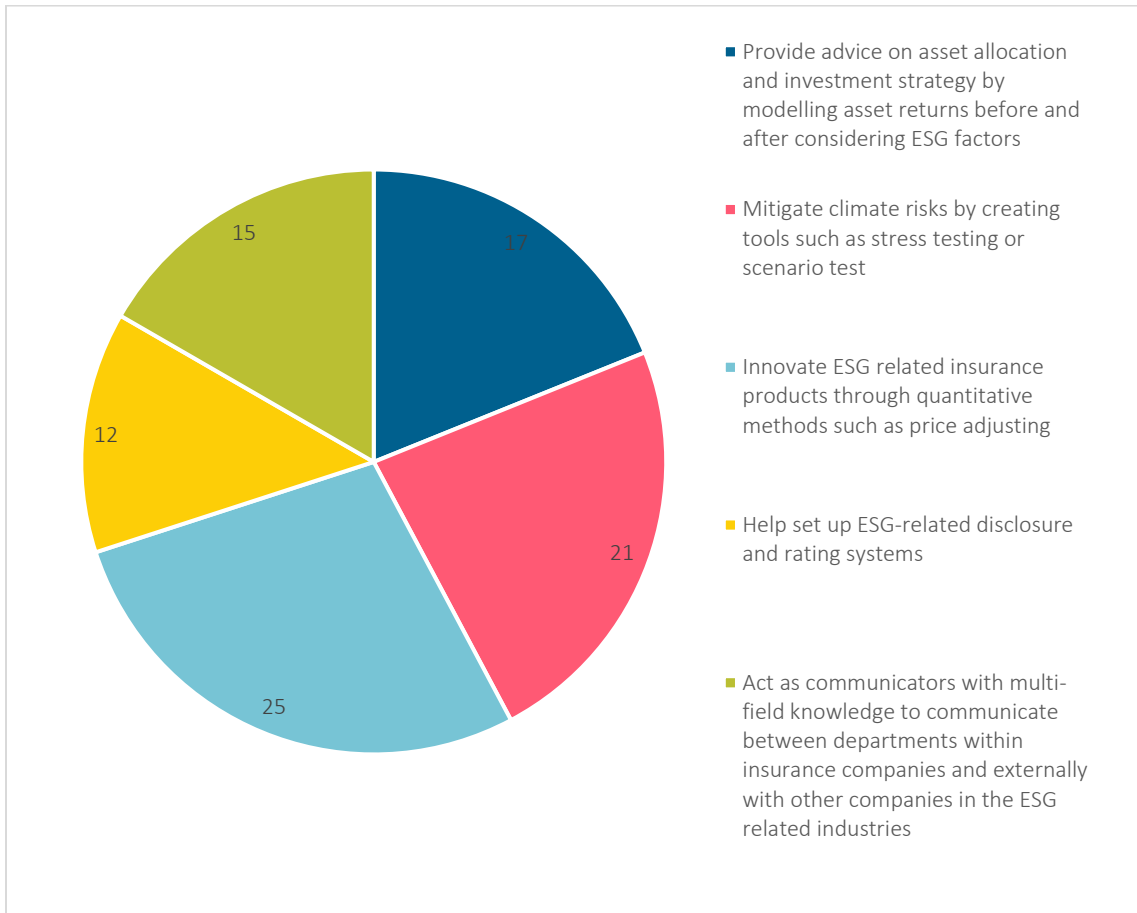


Figure 4

ORIGINAL SURVEY QUESTION: WHAT DO YOU THINK ARE THE MAIN ROLES OF ACTUARY IN ADVANCING ESG PRACTICES IN THE INSURANCE AND PENSION INDUSTRY?



Endnotes

- ¹ Based on the results of research survey, see Appendix Chart 1. for detailed results.
- ² Source: [Draft] IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information document, P22 Objective, Line 1
- ³ <http://www.cbirc.gov.cn/en/view/pages/ItemDetail.html?docId=1055048>
- ⁴ <http://www.cbirc.gov.cn/en/view/pages/ItemDetail.html?docId=1084955>
- ⁵ Source: How to Prepare an ESG Report by HKEX (Mar 2020). P1
- ⁶ Source: Appendix 27 Environmental, Social and Governance Reporting Guide
- ⁷ Source: Guidance on Climate Disclosures by HKEX (Nov 2022), P2
- ⁸ Source: Practice Note 7.6 Sustainability Reporting Guide by SGX (June 2016). 7.1
- ⁹ Source: Guidelines on Environmental Risk Management (Insurers). Dec 2020. Line 1.1
- ¹⁰ Source: Circular No. CFC 02/2022
- ¹¹ Source: Japan's FSA to Mandate Climate Disclosures from April 2022
- ¹² Source: SEC Staff Accounting Bulletin No. 99: Materiality
- ¹³ Source: Khan, Mozaffar, George Serafeim, and Aaron Yoon. "Corporate sustainability: First evidence on materiality." *The accounting review* 91.6 (2016): 1697-1724.
- ¹⁴ Source: Double materiality': what is it and why does it matter? - Grantham Research Institute on climate change and the environment (lse.ac.uk)
- ¹⁵ Source: GPIF (2021). GPIF FY2020 ESG Report. Government Pension Investment Fund
- ¹⁶ Source: Australiansuper FY21 annual report. (2022)
- ¹⁷ Source: GPIF (2021). GPIF FY2020 ESG Report. Government Pension Investment Fund
- ¹⁸ Source: Australiansuper FY2021 annual report. (Sep 28th 2022)
- ¹⁹ Source: ESG Governance: Board and Management Roles & Responsibilities (harvard.edu); Ceres, View from the Top: How Corporate Boards Can Engage on Sustainability Performance (October 2015)
- ²⁰ Source: GPIF (2021). GPIF FY2020 ESG Report. Government Pension Investment Fund
- ²¹ Based on the results of research survey, see Appendix Chart 2. for detailed results.
- ²² Source: P71 in 2021 AXA CLIMATE REPOTE
- ²³ Source: P213 in 2021 AXA Universal Registration Document
- ²⁴ Source: OECD (2021), Pension Markets in Focus 2021
- ²⁵ Source: The predictive power of ESG for insurance
- ²⁶ See Appendix Chart 3. For detailed results.
- ²⁷ Source: P104 in [2021AIA ESG report](#)
- ²⁸ Source: P19~P29 in [2021 Ping An Sustainability Report of China](#)
- ²⁹ Source: [Australiansuper FY21 annual report](#). (Sep 28th, 2022)
- ³⁰ Source: [2021 CPP investment Annual Report](#)
- ³¹ Source: P4/P75 in 2021 QBE Insurance Sustainability Report
- ³² Source: p4 in 2021 Predential plc ESG report
- ³³ Source: P6 in 2021 Predential plc ESG report
- ³⁴ Source: P70 in 2021 Manulife ESG report
- ³⁵ Source: <https://www.divest.org.uk/oxfordshire-pension-fund-begins-fossil-fuel-divestment/>
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- ³⁷ Source: GPIF (2021). GPIF FY2020 ESG Report. Government Pension Investment Fund
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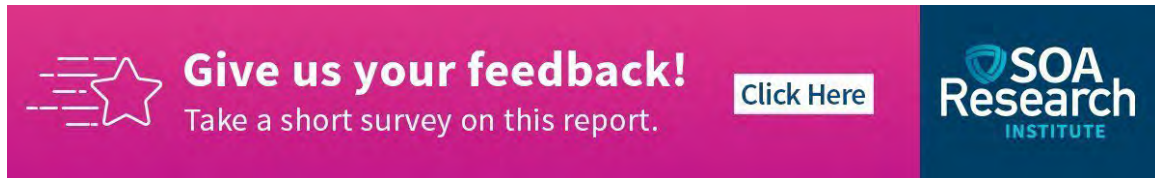
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¹⁰⁵ Based on the results of research survey, see Appendix Chart 4. for detailed results.

Feedback



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