BURNING CAPITAL

How Taiwan's public funds risk public assets and fuel the climate crisis

ENVIRONMENTAL JUSTICE FOUNDATION

Protecting People and Planet

Executive summary

The past year has seen global average temperatures consistently break historical records, with average temperatures exceeding 1.5°C above the pre-industrial average for an entire year,[1] new heat records set for each month consecutively,[2] and global average sea surface temperatures hotter than ever before.[3] This global heating has been felt acutely in Taiwan, where 2024 saw the hottest April in history[4] and average temperatures are estimated to have risen by 1.5°C in the past 100 years.[5] These changes in climate are already resulting in significant economic losses, with these costs set to intensify in a warming world.[6]

Though science has proven that burning fossil fuels is the primary cause of the climate crisis,[7] many public funds[8] still pour trillions of dollars of investments into extracting and burning them.[9] The infrastructure invested in today will be in service for decades to come, locking Taiwan and the world into a carbon-intensive future.[10] Rapid, thorough and pre-planned divestments from fossil fuels are critical to tackle the climate crisis and reduce the financial risks posed to investors by extreme weather disasters and net-zero-related policies.

Taiwanese financial institutions are required to assess their exposure to climate risks. Many have developed investment policies concerning the climate and developed clear timelines for divesting from fossil fuels. Many international sovereign and pension funds are also taking actions such as excluding investment in fossil fuels, active ownership or divestment from fossil fuels to mitigate climate risks.[11] However, none of these assessments or actions are required of the four government-managed public funds, namely the Postal Savings Fund, the Labor Pension Fund, the Labor Insurance Fund and the Public Service Pension Fund. The four public funds manage Taiwanese peoples' assets on such a scale that their decisions are internationally significant - the Labor Pension Fund ranks 21st among global pension funds,[12] and if benchmarked with the world's sovereign wealth funds, the Postal Savings Fund ranks in 12th place.[13]

This report compares each of the four public funds' financed carbon footprints based on their limited disclosures, which cover of the top ten domestic stocks and bonds they invest in and their policies on divestment. Additionally, four major Taiwanese financial institutions were selected as references to offer a glimpse into how the public funds perform on managing climate risk, assessed using their financed carbon footprints. The findings show much lower standards for public funds to assess their portfolios' climate risks or to develop climate-related investment policies. The analysis also found most of the four public funds have high financed carbon footprints. Among them, the Public Service Pension Fund's financed carbon footprint is the highest with 10.11 tons of CO2 equivalent for every NT$1 million in investment and financing. A critical lack of transparency is a barrier for the public, the funds' beneficiaries, to understand the government's investment plan and to know where their money is invested, preventing them from participating in public decision-making and undermining public trust in public funds.

Government investments are important catalysts in net-zero transitions, and blended finance that leverages public capital to mobilise private investment is seen as critical to bridging the enormous financial gaps that currently inhibit pathways to net-zero globally.[14] Reaching net zero by 2050 is a legally binding target for the Taiwanese government, but continuing investments in fossil fuels hamper the country's efforts to slash emissions and mean the government is failing in its fiduciary duty as a fund manager for the people. It is crucial that Taiwan actively mitigates the climate crisis by transforming its public fund investments, together with all other sectors.

The Taiwanese government should urgently establish mandatory Paris-aligned climate targets and requirements for public funds. Critical elements of this are increasing portfolio transparency, conducting comprehensive climate risk analysis and setting climate-centric investment policies that help to achieve publicly-disclosed targets. Divestment from fossil fuels should be a central part of this process, and the government should develop a clear roadmap for an orderly transition to a net-zero financial system.

Background

The physical impacts of climate change for Taiwan

According to the latest Taiwan National Climate Change Scientific Report,[15] Taiwan is experiencing drastic changes in climate. In the past 120 years, increases in average temperature have accelerated, and Taiwan's winter has shortened by half while summer has doubled from two months to four to five months. Precipitation has also changed since 1961, with both drier years overall and more intense individual rainfall events becoming more common. Under all the climate scenarios analysed in the report, days with temperatures higher than 36°C will surge, possibly to an average of 75 days more frequently per year than in 2024, and Taiwan will possibly have less than one month of winter per year by the end of the 21st century. In the near future, Taiwan will experience more intense wet and dry seasons, and more extreme and frequent rainstorms. Climate change will also result in worsening air quality in autumn and winter as it alters the flow of air through the atmosphere, trapping air pollutants near the ground.

These scientific predictions demonstrate how the climate crisis will affect everyone's everyday lives. Food production and security will be threatened due to more frequent disasters such as flooding, landslides and droughts. Various health conditions face worsening risks, especially for respiratory, cardiovascular and infectious diseases due to changes in temperatures and precipitation.[16] Studies also reveal the impacts of the climate crisis on mental health: every 1°C temperature rise leads to an approximately 7% increase in the incidence of major depression.[17] Vulnerable groups bear even higher mental health risks because of factors such as food insecurity, social isolation and loss of native land. These impacts are not only future projections, they are also the reality now: the continuing high temperature this May has set record-high dengue fever cases,[18] and cases of heat injuries in June reached an all-time high.[19]

To tackle such a difficult and critical situation, a 'whole of government' approach is needed. Within this, finance plays an important role in triggering the decarbonisation of the economy. However, Taiwan's climate budgets have been criticised for being insufficient,[20] and the four major public funds are also failing to fulfil their fiduciary duty to align with international sustainable investment policies and climate risk management.

The bottom of a dried-up reservoir in Miaoli during Taiwan's 2021 drought. Droughts in Taiwan are expected to intensify as temperatures rise. © EJF

The global transition to net-zero through financial measures

As most countries have committed in recent years to reaching net zero by 2050 or later, international and domestic policies aiming to drive this transition have surged accordingly. The COP28 agreement's commitment to a "transition away from fossil fuels in energy systems, in a just, orderly and equitable manner" marks a historic shift in global policies on fossil fuels.[21] Following the agreement, G7 countries committed to phasing out unabated coal power by 2035 in April 2024.[22] In the same month, the UN Secretary-General further called on the G20 countries to commit to dramatically accelerating fossil fuel phase-out "well ahead" of 2025.[23]

On top of the growing consensus in favour of divestment, investing in fossil fuels has become a risky decision as performance decreases have been apparent in the past decades,[24] and the industry is set to be further negatively impacted by the net-zero transition. According to the International Energy Agency, structural changes in global policies are accelerating the energy transition, and oil and gas will reach their demand peak by 2030.[25] Infrastructure extracting these resources will, therefore, face production declines in the 2030s, with some facing early closure.[26]

To mitigate climate risks, it is important that financial institutions calculate their portfolios' emissions and develop Paris-aligned trajectories. This means that they should actively engage with investees to ensure that they also have their own Paris-aligned trajectories. For individual financial institutions and companies to set Paris-aligned targets, the Carbon Disclosure Project, UN Global Compact, World Resources Institute and World Wide Fund for Nature jointly launched the 'Science-Based Targets initiative (SBTi)' in 2015. These groups have been developing science-based targets (SBT),[27] creating a methodology with which reduction targets can be compared and validated. Many financial institutions in Taiwan have set their own science-based targets and some are officially approved by the SBTi.[28]

Since burning fossil fuels is the largest contributor of greenhouse gas emissions and the main driver of climate change, the latest Financial Sector Science-Based Targets Guidance version 1.1, published by SBTi in August 2022, states that "financial institutions seeking to align with the Paris Agreement should explicitly and transparently address the role of fossil fuels in their investment and lending portfolios." To achieve this, the SBTi offers two recommendations for financial institutions:[29]

1. to develop policies within six months of their targets being approved by SBTi to phase out financial support to thermal coal in all operational activities, to align with a full phaseout by 2030 globally;

2. to annually disclose annual investments, direct project financing and lending to fossil fuel projects and companies.

Furthermore, this guidance sends a clear warning: "Financial institutions that fail to phase out coal investments or disclose fossil fuel investments and lending make themselves susceptible to the risk of stranded assets and reputational damage."[30]

In terms of climate risk management governance and transparency, many institutional investors evaluate companies' climate performance based on international ratings or disclosure schemes, such as the Corporate Sustainability Assessment issued by the Dow Jones Sustainability Indices or the Carbon Disclosure Project (CDP) questionnaire. Financial institutions' decarbonisation strategies and goals, especially fossil fuel phase-out policies, are increasingly valued in these assessments.

Public investments play a crucial role in tackling climate change

Massive investment is required for a rapid and orderly transition to a net-zero economy, to guarantee adequate adaptation and resilience to ensure a livable future, and to avoid immense costs arising from climate impacts. However, according to the World Resources Institute, the sum total of global climate finance, both private and public, was only US$ 850 billion as of 2021.[31] This figure is not only far behind the 2030 global target[32] of US$ 5.2 trillion of mitigation investment annually, but also dramatically less than the total public financing for fossil fuels of US$ 1.1 trillion in 2021[33] and the global fossil fuel subsidies of US$ 7 trillion in 2022.[34] Compared to the status quo, global investments in mitigation need to increase by around three to six times to meet average annual needs between 2020 and 2030 if we are to limit global heating to 2°C or below.[35]

The United Nations' Principles for Responsible Investment (PRI) has been calling on investors, including sovereign wealth funds and pension funds, to incorporate environmental, social and governance (ESG) aspects into their investments. Those who manage fiduciary assets should fulfil the "fiduciary duty" to ensure that they are serving the interests of the beneficiaries rather than their own interests. In 2019, the PRI launched their final report on "Fiduciary Duty in The 21st Century", defining the fiduciary duties of investors, which require them to:[36]

- Incorporate ESG issues into investment analysis and decision-making processes, consistent with their investment time horizons.
- Encourage high standards of ESG performance in the companies or other entities in which they invest.
- Understand and incorporate beneficiaries' and savers' sustainability-related preferences, regardless of whether these preferences are financially material.
- Support the stability and resilience of the financial system.
- Report on how they have implemented these commitments.

It is therefore the government's responsibility and fiduciary duty to invest public funds with long-term sustainability in mind. Many international sovereign and pension funds are taking actions such as excluding investment in fossil fuels and active ownership or divestment from fossil fuels to mitigate climate risks. Public spending and investments in climate are not only important by themselves, but they are important levers to mobilise private capital. Policy progress and a growing climate budget would create incentives to relocate private capital. Furthermore, public capital can de-risk climate investments and encourage the involvement of privately-held assets in mitigation and adaptation solutions.[37] However, all these paradigm shifts can only happen once the government shows strong ambition in combating the climate crisis.

Taiwan is ill-prepared for climate-related physical and transition risks

Despite knowing the dreadful consequences of climate change, the Taiwanese government has not shown sufficient ambition to tackle the climate crisis and has not developed comprehensive policies to protect the vulnerable groups who are and will be impacted. In 2021, the Taiwanese government committed to achieving net zero by 2050. This, therefore, became a statutory target for both the public and private sectors. However, Taiwan's current emission reduction target for 2030 is only 24±1% relative to 2005 emissions. The target has been criticised for seriously lagging behind those of other nations and what is needed to reach the 2050 net-zero goal,[38] which should be 45% by 2030, according to the IPCC.

An analysis of Asian pension funds found that most of them, including Taiwanese pension funds, have a higher climate risk exposure than those from other regions.[39] This is because large Asian public pension funds and sovereign wealth funds have significantly concentrated portfolios in their domestic markets, which are suffering from above-world-average climate-induced economic losses.[40] At the same time, these funds suffer the highest transition risks as they are not aligning their portfolios with climate-related policies.[41]

Taiwanese financial institutions' progress on climate finance

Due to policy demands, guidance from the Financial Supervisory Commission, the competent authority of Taiwan's financial institutions and pressure from international institutional investors, financial institutions in Taiwan are leading climate investment and risk management, while the government-managed public funds have been criticised for their comparative inaction.[42, 43]

Green finance policies for financial institutions

In March 2022, the National Development Council released 'Taiwan's Pathway to Net-Zero Emissions in 2050', where 'green finance' is included as one of the 12 key strategies[44] to develop a sustainable economy and reach the 2050 net-zero goal. Before that, the FSC successively launched the Green Finance Action Plan (hereinafter referred to as 'GFAP') 1.0 in 2017, 2.0 in 2020 and 3.0 in 2022[45] aiming to encourage climate-related financing.

The GFAP 1.0 encourages financial institutions to invest in and finance the green energy industry. Next, in order to enhance the transparency of climate risks for financial institutions, the GFAP 2.0 introduced 'Guidelines for Domestic Banks' Climate Risk Financial Disclosure' and the 'Guidelines on Climate-related Financial Disclosures of Insurance Companies'[46], which mandate that, as of 2023, domestic banks and insurance companies should annually disclose climate-related financial information following the guidelines outlined in the Plan. The guidelines require financial institutions to establish adequate mechanisms to respond to climate-related risks and opportunities suitable to the company's size. The mechanisms should include four core elements: governance, strategy, risk management and metrics and targets, and these four elements should be interlinked.

Common risk management mechanisms that embody the aforementioned framework include regularly reviewing climate risks and integrating them into inherent risk management or internal control mechanisms, such as in their three lines of defence.[47] Other examples include establishing additional review mechanisms or industry-specific phase-out policies for investment, targeting industries with higher climate-related risks, and adjusting portfolios by regularly assessing the investment targets' climate-related risks.

In June 2023, due to the release of International Financial Reporting Standards S1 General Requirements for Disclosure of Sustainability-related Financial Information (IFRS S1) and S2 Climate-related Disclosures (IFRS S2), climate and sustainability-related non-financial information is receiving even wider attention, not just financial information. Publicly-listed companies in Taiwan will be required by the FSC to disclose climate-related information in their annual reports, which are released along with their financial reports, starting in 2026.

In addition, the GFAP 3.0 developed a roadmap to direct financial institutions to disclose and verify their financed emissions,[48] which is the most significant source of emissions for the financial sector. Through this, stakeholders can get to grips with financial institutions' climate risk exposures and compare different financial institutions' climate risk management performance under the same methodology. Financial institutions can get a more precise scenario analysis of expected asset impairment and set quantitative emission reduction targets and strategies for responding to their exposures. 21 out of all 34 listed financial and insurance institutions disclosed financed emissions in their 2022 reporting.[49]

The FSC also launched the 'Sustainable Finance Rating'[50] to further deepen financial institutions' green finance measures. There are 79 financial institutions[51] being reviewed in the second year of rating, including most domestic banks, large securities companies, securities investment trust companies and insurance companies. FSC directs financial institutions with its rating design, factoring in policies such as climate-related financial disclosures (TCFD), nature-related financial disclosures (TNFD), and investment and financing activities for industries facilitating net-zero into the evaluation schemes. As a result, financial institutions are motivated to conform to the requirements of the rating.

Furthermore, the FSC also introduces policies, guidelines, and tools to support private finance institutions in achieving the requirements set in the GFAPs. Moreover, the scope of these requirements is gradually expanding to the value chain of financial institutions across their investment and financing portfolios. All these measures support the green finance development of financial institutions.

However, even though green finance has been incorporated into the Climate Change Response Act, the major climate change act in Taiwan, climate-related requirements for public funds are far behind those for the private sector. 'Encourage state-run companies, government funds and state-owned financial institutions to participate in investments in sustainable development projects'[52] is the only measure targeting public funds from GFAP 1.0 to 3.0. This measure is much weaker and incomplete in contrast to requirements imposed on private financial institutions, failing to utilise public funds in the net-zero transition.

President Lai (then Vice President) and the 12 Key Strategies of Taiwan's Pathway to Net-Zero Emissions in 2050.[53]

Voluntary divestment practices in the private sector

Taiwan's financial institutions have to meet policy requirements and are facing increasing pressure from international investors, asking for Paris-aligned targets, climate risk governance and transparency. In view of that and the recommendations from SBTi, many financial institutions in Taiwan have established plans to divest from fossil fuels. Some examples are shown in Table 1.

Table 1: Financial Institutions' Policies of Divestment from Fossil Fuel[54]
(Investment policy is the main focus here)

Name	Coal companies	Unconventional oil & gas companies[55]
Cathay Financial Holding Co. Ltd.[56]	Cathay FHC has formulated strategies and targets to gradually phase out coal from all proprietary equity and fixed income investments and mandated investment. ● Since 2023, there have been bans on new investments to companies operating along the coal value chain that are not actively transitioning to renewable energies and have a coal share of revenue (CSR) of above 30%. ● From 2025, there will be bans on new investments to companies operating along the coal value chain that are not actively transitioning to renewable energies and have a CSR of above 20%. ● From 2030, for coal industries in OECD countries, there will be bans on new investments to companies operating along the coal value chain that are not actively transitioning to renewable energies and have a CSR above 15%; for other countries: 20% CSR threshold.	No
Cathay Life Insurance Co., Ltd[57] (a subsidiary of Cathay Financial Holding Co. Ltd.)	● Since 2022, in addition to coal-fired power plants, industries along the coal value chain such as 'coal railroad transportation' and 'coal support services' with a CSR of above 30% and not actively transitioning to renewable energy were added to the 'exclusion list.' ● From 2025, CSR will lower to 20% for all countries. ● From 2030, CSR will lower to 5% for OECD countries. ● From 2040, CSR will lower to 5% for all countries.	If the company has an 'unconventional oil and gas' business that accounts for more than 50% (inclusive) of its revenue and does not meet the criteria for active transformation, it will be included in the "investment and lending exclusion list," and no new investment is allowed. ● From 2025, the revenue percentage thresholds will lower to 30% for all countries. ● From 2030, the revenue percentage thresholds will lower to 20% for OECD countries. ● From 2040, the revenue percentage threshold will lower to 5% for all countries.
Mega Holdings[58,59]	● Equity and bond investments: The Group will avoid new general investment for coal enterprises or increasing investment for existing projects, and will gradually reduce the general investment portfolio to zero out the projects by the end of 2040 latest. ● Underwriting: Avoid undertaking underwriting business for the control subjects.	● Equity and bond investments: The Group will avoid new general investment for unconventional oil & gas enterprises or increasing investment for existing projects, and will gradually reduce the general investment portfolio to zero out the projects by the end of 2040 latest. ● Underwriting: Avoid undertaking underwriting business for the control subjects.
	The control subjects may be excluded from the control perimeters if they have provided evidence and plans for sustainable transformation, or if the use of funds is for the purpose of sustainable development.	

<table>
<tr><th>Name</th><th>Coal companies</th><th>Unconventional oil & gas companies</th></tr>
<tr><td rowspan="2">E.SUN FHC[60, 61]</td><td>● All active investments, all passive investments, and all third-party managed investments

(1) New Positions: E. SUN FHC is no longer investing in coal companies or investing in projects related to coal mining, coal-fired power generation, or coal- related infrastructure.

(2) Existing Positions: the Company shall reduce investment exposure to coal companies each year. Using the exposure to coal companies at the end of 2022 as the baseline, the exposure shall reach a 50% reduction by 2030 and complete exit by 2035.

(3) Investments in state-owned companies that have provided transition plans or entities with more than 50% ownership from local governments are exempt from the above restrictions.

● Underwriting: No longer underwriting activities involving coal companies. However, this restriction does not apply when companies issue sustainable development bonds and ESG-related securities that are approved by the Taipei Exchange (TPEx).</td><td>● Banking investment, securities investment, and venture capital investment

(1) New Positions: E. SUN FHC is no longer investing in unconventional oil & gas companies or investing in projects related to unconventional oil & gas extraction, production, and infrastructure.

(2) Existing positions: The Company shall reduce credit exposure to unconventional oil & gas extraction, production, and infrastructure each year. Using the exposure to unconventional oil & gas companies at the end of 2022 as the baseline, the exposure shall reach a 50% reduction by 2030 and complete exit by 2035.

● Unconventional Oil & Gas-related Underwriting: Ceased underwriting activities involving unconventional oil & gas companies. However, this restriction does not apply when companies issue sustainable development bonds and ESG-related securities that are approved by the Taipei Exchange (TPEx).</td></tr>
<tr><td colspan="2">E.SUN FHC and its subsidiaries may agree to business partnerships only after confirming that the use of funds is for an enterprise's low-carbon transition, and that coal and unconventional oil and gas companies to which they offer investment or financing have a clear and measurable low-carbon transition plan in place before 2035.</td></tr>
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Major Taiwanese public funds' limited efforts to address climate issues

Taiwan's four major public funds, the Postal Savings Fund, the Labor Pension Fund, the Labor Insurance Fund and the Public Service Pension Fund, are all government-managed assets. One of the aims of these funds, according to their enabling laws and websites, is to invest on behalf of Taiwanese people to provide them with financial stability[62]. However, little information related to the funds' investment portfolios, their climate risks and policies to navigate the climate crisis can be found. This presents a major barrier for society, the funds' beneficiaries, to understand the government's investment plan and how their money is being invested.

For more than three decades, Taiwanese public funds have been questioned by civil society,[63] Legislators and Control Yuan for their low-performing financial returns.[64] Repetitive insider trading cases,[65] insufficient portfolio disclosure compared with private investors,[66] inadequate government budget allocation[67] and questionable risk management[68] have also hindered society's confidence in these funds. Trust among the public and long-term plans that consider escalating climate risks are essential to public funds' continuous operations, but none of the public funds fulfils these duties.

Table 2: Comparison of Taiwan's four public funds, international peers and Taiwanese financial institutions

Name (Nation)	2022 Fund Size (USD Million)	Return (2012 - 2022)	Return (2017 - 2022)	Level of Transparency	Climate Risks Analysis	Portfolio Emission Calculation	Climate -related Investment Policies	Divestment Policies
Government Pension Fund Global (Norway)	1,181,345.38[69]	6.7%[70]	4.19%[71]	High (entire portfolio)[72]	Sufficient	Sufficient	Sufficient	Sufficient
National Pension Fund (Korea)	668,832.29[73]		3.94%[74]	Medium (global and domestic top ten/sector/geography)[75]	No	No	Partial	Partial
Taiwanese financial institutions (under FSC policies)	N/A	N/A	N/A	Medium (holding of securities or other transactions)[76,77]	Partial	Partial	Partial	Partial
Postal Fund (Taiwan)	252,764.98[78]		0.17%[79]	Low (high emission sectors in percentage)	Partial	No	Partial	No
Labor Pension Funds (Taiwan)	144,907.69[80]	4.11%[81]	3.71%[82]	Low (top ten domestic stocks and bonds)	No	No	Partial	No
Labor Insurance Fund (Taiwan)	23,840.64[83]	4.36%[84]	4.18%[85]	Low (top ten domestic stocks and bonds)	No	No	Partial	No
Public Service Pension Fund (Taiwan)	22,378.69[86]		4.37%[87]	Low (top ten domestic stocks and bonds)	No	No	Partial	No

Analysis of the four public funds' level of transparency and climate-related policies

The four public funds play important roles both in Taiwan and internationally - the Labor Pension Fund ranks 21st among global pension funds,[88] and if benchmarked with the world's sovereign wealth funds, the Postal Savings Fund ranks 12th place.[89] However, EJF's analysis of Taiwan's four major public funds finds huge room for improvement in both transparency and fiduciary duty fulfilment.

Table 3: Laws governing the four public funds

	Postal Savings Fund	Labor Funds			Public Service Pension Fund
		Labor Insurance Fund	Labor Retirement Fund (old system)	Labor Pension Fund (new system)	
Enabling law	Postal Remittances and Savings Act	Labor Insurance Act	Labor Standards Act	Labor Pension Act	Act Governing Retirement, Severance, and Bereavement Compensation for Public Servants
Competent authority	Chunghwa Post Co., Ltd.	Bureau of Labor Funds	Bureau of Labor Funds, Ministry of Labor	Bureau of Labor Funds, Ministry of Labor	Bureau of Public Service Pension Fund, Ministry of Civil Service
Scope of fund utilisation	Postal Remittances and Savings Act	Labor Insurance Act; Regulations Governing the Management and Utilization of the Labor Insurance Fund	Regulations for Revenues, Expenditures, Safeguard and Utilization of the Labor Retirement Fund	Regulations for Labor Pension Act on the Labor Pension Fund Management / Utilization and Profit / Loss Allocation	Regulations on the Management of Public Service Pension Fund; Enforcement Rules of the Regulations on the Management of Public Service Pension Fund
Disclosure requirements and accountability	Regulations Governing Postal Remittances and Savings Operations	Regulations Governing the Management and Utilization of the Labor Insurance Fund	Regulations for Revenues, Expenditures, Safeguard and Utilization of the Labor Retirement Fund	Regulations for Labor Pension Act on the Labor Pension Fund Management / Utilization and Profit / Loss Allocation	Act Governing Retirement, Severance, and Bereavement Compensation for Public Servants; Regulations on the Management of Public Service Pension Fund; Enforcement Rules of the Regulations on the Management of Public Service Pension Fund
Investment principles	Regulations Governing Investment of Postal Savings in Beneficiary Certificates, Listed Securities and Over-the-Counter Securities; Regulations Governing Investment of Postal Savings in Bonds, Bills and Notes	Utilization Directions for the Labor Funds			Enforcement Rules of the Regulations on the Management of Public Service Pension Fund

Postal Savings Fund

The Postal Savings Fund is owned and managed by Chunghwa Post Co., Ltd., a fully state-owned company under the Ministry of Transportation and Communications (MOTC). It has a capital size of more than NT$ 8 trillion, equivalent to US$270 billion (as of the end of 2023),[90] surpassing all other three public funds. According to Article 1 of the "Postal Remittances and Savings Act",[91] the Postal Savings Fund aims to encourage people to save and promote capital accumulation to carry out national policies. Its disclosure obligations are stated in Articles 12 and 13 of "Regulations Governing Postal Remittances and Savings Operations",[92] which require that the Chunghwa Post shall compile an annual report, financial statements, and other financial and operational information. The annual report shall record all important information related to the postal remittances and savings business. In addition, publicly releasing important financial information every quarter is required. However, unlike the other three public funds, the Postal Savings Fund never discloses any company in its portfolio.

In addition to the MOTC, the FSC has a statutory supervisory role over the Postal Savings Fund according to Article 2 of the Postal Remittances and Savings Act. Article 12 of the same act further states that "in the event that Chunghwa Post has violated ordinances or regulations, or violated sound management practices in managing its postal savings and remittances business, the FSC may order the Company to make amends within a certain period of time". Failure to adequately manage climate risks, one of the fiduciary duties fund managers should fulfil, could be regarded as "violating sound management practices in managing its postal savings and remittances business."

In 2023, Chunghwa Post became the first public fund management authority to publish a Climate-Related Financial Disclosure Report,[93] doing so again in 2024.[94] The report follows the TCFD framework and discloses the company's climate-related risk governance structure, risk/opportunity identification, management strategies, climate scenario analysis, and the indicators and targets for managing climate risks for different time frames. The company claims it has established internal governance organisations and procedures to identify and manage climate risks, but there is no evidence this has resulted in adequate responses now, nor made future adequate responses more likely.

A key problem is Chunghwa Post's target setting amid its high climate risks. The company analysed the potential loss arising from its assets' exposure by 2050 under three different climate change scenarios. The fair value of the invested stocks is projected to decrease by 8.04%, 16.15% and 33.60%, respectively. To respond to these risks, one of the measures proposed by Chunghwa Post is to gradually reduce their investment position in petrochemical-related industries.[95]

Table 4: Scenario analysis of the Postal Savings Fund

Scenarios/changes in percentage*	Expected losses in stocks	Expected losses in bonds	Expected losses in real estate
Orderly transition	-8.04%	-1.06%	-0.96%
Disorderly transition	-16.15%	-1.66%	-1.77%
Too little, too late	-33.60%	-3.14%	-13.16%

*Baseline date: 31st December 2023

Source: Chunghwa Post 2023 Climate-related Financial Disclosure Report, page 15 [96]

However, the goals for reducing the portfolio's climate risks are mismatched with the company's own analysis. Chunghwa Post pledges a 0.06% reduction of investments in petrochemical-related industries by 2050 compared to 2021 in the latest Climate-related Financial Disclosure Report. The target is disproportionately low compared with the expected losses from climate impacts, and the company does not provide any rationale for choosing this goal. It is worth noting that in the 2022 report, the goal covered not only petrochemical-related industries but all high-emission industries. The percentage of Investments in high-emission industries in fact grew by 3.37%, from 21.1% in 2022 to 24.47% in 2023. The growth is 56 times Chunghwa Post's original reduction target, but the company does not mention any changes in future investment practices except for shrinking its already weak commitment.

Another key change in Chunghwa Post's Climate-Related Financial Disclosure Report from 2022 to 2023 is the removal of its portfolio emission-related commitments. In the 2022 version, the company committed to reaching a net-zero portfolio along with net-zero operations by 2050. These changes to its climate-related goals seriously undermine Chunghwa Post's responsibility to engage with companies from high-emission industries. For example, Chunghwa Post is the sixth-largest shareholder of China Steel Corporation[97] and tenth-largest shareholder of Taiwan Cement Corporation,[98] which are the second and ninth largest carbon emitters of Taiwan respectively.[99] With the old goals, Chunghwa Post would have been obliged to actively ensure these two companies aligned with its emission-related goals, as they are both from high-emission industries outside petrochemical-related industries. However, this motivation is entirely gone with the new goals. These secret changes violate the national net-zero goal and further threaten the credibility of Chunghwa Post and its actions to mitigate its climate risks.

Table 5: Climate indicators and goals set by Chunghwa Post in its 2022 and 2023 Climate-Related Financial Disclosure Report

Year of the report	Category	Key Climate Indicators	Goals for 2025	Goals for 2030	Goals for 2050
2022	GHG Emissions	GHG emissions from the portfolio.	GHG emissions from high-emission industries portfolio are no greater than the level in 2021.	GHG emissions from high-emission industries portfolio reduced by 5% compared to the level in 2021.	Achieve net-zero GHG emissions portfolio.
	Transitional Risks	The share of carbon-related assets in the portfolio.	The share of the portfolio exposed to high-emission industries is no greater than the level of 2021.	The share of the portfolio exposed to high-emission industries is reduced by 0.02% compared to the level of 2021.	The share of the portfolio exposed to high-emission industries is reduced by 0.06% compared to the level of 2021.
2023	GHG Emissions	(No portfolio-related emissions indicator)	N/A	N/A	N/A
	Transitional Risks	The share of carbon-related assets in the portfolio.	The share of the portfolio exposed to petrochemical-related industries is no greater than the level of 2021.	The share of the portfolio exposed to petrochemical-related industries is reduced by 0.02% compared to the level of 2021.	The share of the portfolio exposed to petrochemical-related industries is reduced by 0.06% compared to the level of 2021.

Source: Chunghwa Post 2022 and 2023 Climate-related Financial Disclosure Report.[100]

On 31st May, the MOTC replied to an official letter from EJF, asking whether they have any climate-related policies (The reply from the MOTC can be found in Annexe 1). In that reply, the MOTC claimed that Chunghwa Post has incorporated ESG factors into the investment-assessing process. In terms of emissions reductions, Chunghwa Post monitors investee companies' commitment, vision and strategy through CDP questionnaires and SBTi and considers adding companies with lower international ratings or not participating in the ratings to their engagement list. They will, in the future, disclose and verify their financed emissions in line with GFAP 3.0. Chunghwa Post also included some of these practices in its Stewardship Report.[101] However, the policies' details and indicators for assessment remain murky, and these policies did not result in effective climate risk management of its portfolio, as demonstrated by the Climate-related Financial Disclosure Report. Furthermore, engagement, as an important means to direct the net-zero transition, should be transparent, with escalating strategies and time-bound, to avoid concealment and greenwashing.

Automatic teller machines of Chunghwa Post.[102]

Labor Pension Fund and Labor Insurance Fund

Both the Labor Pension Fund and the Labor Insurance Fund are managed by the Bureau of Labor Funds under the Ministry of Labor. The Labor Pension Fund today includes funds from the old system (the Labor Retirement Fund) as well as the new system (the Labor Pension Fund). The old system was set up by the Labor Standards Act, [103] while the new system was set up by the Labor Pension Act,[104] and was enacted on 1st July 2005. Both systems have legally binding minimum returns, a requirement to match local banks' interest rates for a two-year fixed-term deposit, and the national treasury is obliged to make up the gaps. The Labor Insurance Fund is enacted by the Labor Insurance Act "to protect workers' livelihood and promote social security."[105]

Both the Labor Pension Fund and the Labor Insurance Fund only disclose their top ten domestic investee companies for stocks and bonds twice a year, demonstrating very limited transparency. As of December 2023, the top ten domestic companies cover only 34.86% of the Labor Insurance Fund's stock portfolio,[106,107] which is the highest coverage rate of the three funds, while for the new system Labor Pension Fund, this figure is merely slightly over one-fifth (21.7%) of its stock portfolio.[108,109] Disclosed bonds have even lower percentages: the Taiwanese public can only know 11.34% of the new system Labor Pension Fund bond portfolios.[110] Though the Labor Pension Fund and the Labor Insurance Fund tend to invest in the largest companies in Taiwan, their portfolios still demonstrate huge differences in their preferred industries, resulting in different levels of climate risks.

All funds managed by the Bureau of Labor Funds should follow the Utilization Directions for the Labor Funds, which mandates that "without sacrificing the income of the Funds, the corporate social responsibilities and the enterprise ethics of the investment targets shall be taken into consideration."[111] In its investment policy, the Bureau cites 'long-term investment' as one of the visions that should consider impacts on future generations, sustain the fund's operation, and include corporate social responsibility in the fund's management and utilisation.[112] The Bureau also claims on its website that "taking into account social and environmental factors, we choose to invest in sustainable companies."[113] However, among the top 10 investment targets of the old system - the Labor Pension Fund - enterprises in the steel, petrochemicals, textiles, cement and other industries with high emissions and high climate risk, are still prominent.[114]

According to an article published by the Bureau in the CommonWealth Magazine[115] in 2024, as a response to previous EJF demands for climate-centric investment policies,[116] its actions to promote climate and sustainability-related investments include engagement with investee companies, negative screening and consideration of ESG factors in investments. However, there are no clear guidelines which have been made publicly available to enable the implementation of these alleged practices. Though the Bureau states in its Stewardship Report that it "gradually conduct[s] an in-depth understanding of the comprehensiveness, carbon reduction trajectories and specific results of the short, medium and long-term climate commitments of the investee companies, and prioritise the investee companies with higher shareholdings and industries with high carbon emissions as the priority targets for engagement,"[117] it does not include its goals and position for engagement. Without clear goals, the public cannot learn whether the engagement is effective in mitigating the climate crisis. In terms of negative screening, the Bureau does not provide clear criteria for a "violation of corporate social responsibility", which would trigger a decision not to invest.

As for considering ESG factors in investments, the Bureau mentions that it benchmarks multiple evaluations, prizes and indexes for sustainability when selecting investee companies. However, an investigation conducted by Taiwan Climate Action Network and Green Citizens' Action Alliance has found that companies winning these so-called sustainability prizes do not necessarily guarantee they have adequate plans to reach net zero by 2050.[118] These prizes' unclear standards therefore raise the possibility of greenwashing and net-zero washing.

The domestic and international indexes the Bureau benchmarks against and invests in do not demonstrate clear ESG or climate standards, and the Bureau does not transparently disclose fund allocation. For example, the Bureau claims that 64% of foreign outsourced stocks (US$ 34.8 billion) are invested in those companies included in the sustainability indexes. However, it does not explain how it screens, selects and reviews these indexes, and how much money is invested in which companies. The only clue is the new system Labor Pension Fund's announcement of a US$ 2.3 billion investment in the 'MSCI ACWI ex China A Select Climate Paris Aligned Index' in 2022.[119] This number is significantly less than the US$ 34.8 billion mentioned in the article, with no updated number for 2023 available. Besides the missing standards and numbers, the Bureau never discloses any plans. Relevant stakeholders, including most Taiwanese people, therefore, have no clue of how climate-resilient the Bureau's portfolios are now or whether the Bureau will increase the coverage of its net-zero portfolios in the upcoming years.

The Bureau also argues in the same article that the government has been working hard to reach net zero and that the transition from fossil fuels should be just, orderly and equitable, in line with COP28's decision texts. This would necessitate comprehensive assessments of climate risks and measures to address these risks, evidence of which has not yet been forthcoming. Engaging high-emission companies with clear climate-related demands and divesting from businesses that base their operations on fossil fuels are both essential measures, but the Bureau must set reasonable timelines to do so, including interim targets to ensure the long-term net-zero goal is met.

Bureau of Labor Insurance.[120]

Public Service Pension Fund

The Public Service Pension Fund is governed by the Act Governing Retirement, Severance, and Bereavement Compensation for Public Servants,[121] and managed by the Bureau of Public Service Pension Fund under the Ministry of Civil Service. The fund has a similar legally binding minimum return as the Labor Funds, which matches the Bank of Taiwan's interest rate for a two-year fixed-term deposit.[122] The fund only discloses its top ten domestic investee companies for stocks and bonds bi-annually, covering around 50% of its domestic portfolio as of the end of 2023.[123] Since the fund does not disclose the amount of domestic and foreign investments respectively, the disclosure coverage rate of the entire portfolio remains unknown.

The Public Service Pension Fund has been doubted for its financial sustainability due to its unbalanced cash flows caused by historically defined benefits,[124] such as low contribution rates, high income replacement ratios and defined benefit plans. The government started to reform the Fund in 2016 to ensure it could continue to operate.[125] However, it is still under scrutiny from the Legislative Yuan[126] and being criticised for a lack of communication with its beneficiaries, the public servants.[127]

Compared with the other three public funds, which show some awareness of climate impacts on investments and the financial system, the Public Service Pension Fund demonstrates very little consideration of climate risks, the key decisive element of financial sustainability. In its investment policies, the fund claims to "consider ESG factors in investment" and "choose companies realising sustainable development".[128] However, none of these claims have clear definitions, and the fund has not disclosed how it applies them.

Since 2021, the fund has benchmarked its outsourced foreign and domestic stock investments with the MSCI ACWI Quality ESG Target Index and Taiwan Sustainable Index,[129] demonstrating that it takes ESG factors into consideration in investments. However, the fund does not explain its criteria for ESG considerations and choosing indexes, nor its future plans for ESG investments. In addition, the proportions of capital covered by these considerations are very limited: around 20% of the total portfolio for foreign outsourced stocks and around 12% for domestic outsourced stocks.[130]

In April 2024, EJF sent two official letters to the Bureau of Public Service Pension Fund and the Ministry of Civil Service, asking whether they conduct any assessment of climate risks or have any climate-related policies. The Bureau replied to one letter on 27th May saying that they have incorporated sustainable investment into investment policy,[131] disclose annual compliance with the Stewardship Principles for Institutional Investors[132] including ESG issues and engage investee companies who are at risk of materially breaching ESG principles on a particular issue, or jeopardising the long-term investment value of the Bureau. In terms of its engagement approach, the Bureau claimed that collaborative engagements with commissioned operating trustees, other government funds and other investors are considered, but no plans, partners or examples have been provided. In addition, the Bureau says it will refer to the domestic and overseas practice of climate risk disclosures and 'Guidelines for Climate Risk Financial Disclosure' to establish a disclosure format suitable for the fund.

The reply from the Bureau of Public Service Pension Fund can be found in Annexe 1. In this letter, the Bureau emphasised that sustainable investment is in line with its duties and obligations and is a spirit that it values. However, the policies or measures mentioned by the Bureau lack further details, and the lack of transparency around how it conducts climate risk assessments and manages the fund accordingly prevents any verification of its implementation.

The Bureau replied to another letter on 6th June with similar content (detailed in Annexe 1), further stating that it supports the energy transition, and will gradually increase its positions in the green energy industry and reduce its positions in high carbon emission industries.

A new system of individual accounts, featuring the option for account holders to choose from four portfolios recommended by the government, is due to be introduced to public servants and teachers.[133] The Bureau has commissioned private financial institutions to set up this self-investment platform and provide participants with investment portfolio advice according to their risk tolerance. The platform is expected to be established on 1st January 2025. Although the assets in the individual accounts have already been decoupled from the current Public Service Pension Fund, the Bureau should mandate appointed institutions to take climate risk into account when advising, and publish the methodology used for how the risk is assessed.

A Sanitation Worker from the Department of Environmental Protection of Taipei City. Heat in cities threatens outdoor workers' health, and climate change further worsens the situation. © EJF

Analysis of the four public funds' climate-related risks

To provide a more in-depth evaluation of the four major public funds' climate risk exposure, this report uses the portfolios' financed carbon footprint as an indicator. This indicator is calculated by dividing total financed emissions[134] by the total balance of investment and financing, obtaining the emissions for every NT$ 1 million in investment and financing. The financed carbon footprints are compared across the four major public funds and some representative financial institutions which have voluntarily disclosed their financed carbon footprints are also shown here as references. However, these analyses have the following limitations:

1. Calculations are based on 2022 data, as most companies have not yet disclosed their GHG emissions for 2023. For companies whose latest GHG emission disclosure is 2021, e.g., the Agricultural Bank of Taiwan, EJF uses its 2021 emission and financial data.

2. Currently, none of the public funds discloses their whole portfolios, and the Postal Savings Fund doesn't even disclose the names of any of the companies in its portfolio. Therefore, it was excluded from this financed carbon footprint analysis. EJF can only use the top 10 domestic investees as disclosed by the new system Labor Pension Fund, old system Labor Pension Fund, Labor Insurance Fund and Public Service Pension Fund to calculate the financed carbon footprints. However, the portfolio coverage of the top 10 domestic investees is only 20.83%, 27.80%, 20.63% and 25.14% for the aforementioned public funds respectively (the coverages can be found in Annexe 2). Therefore, readers should be mindful of comparing the financed carbon footprints across the four major public funds and the four selected financial institutions, since the financed carbon footprints disclosed by financial institutions are normally based on their entire portfolios.

3. When an investee's emission and financial reporting boundaries match and are available, EJF uses financial and emission data of the same boundary to retain accuracy and fairness. When the boundaries are mismatched, EJF uses the following standards to select data:

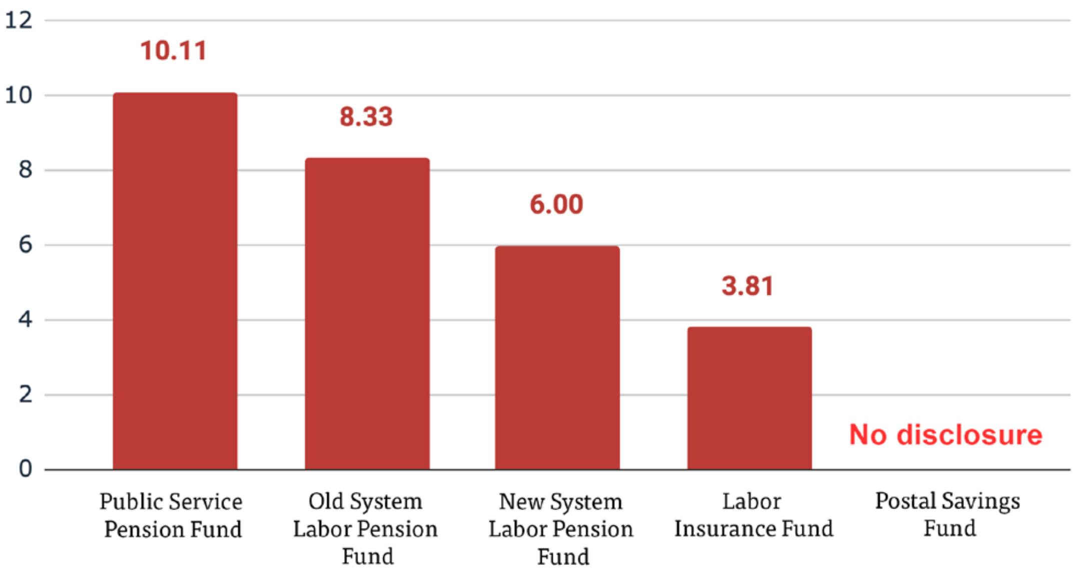
- If the investee is a group enterprise of which the emission reporting boundary only covers the parent company (company names can be found in Annexe 3), then EJF uses the parent company's standalone financial data.
- If the investee is a subsidiary of a group enterprise that doesn't disclose its emission information (company names can be found in Annexe 3), then EJF uses its consolidated financial and emission data.

4. The financial and emission data used for calculating financed carbon footprint is subject to investee companies' disclosure. EJF finds that companies' emission reporting is incomplete and inconsistent. Readers should be mindful of interpreting the data as:

    - Some companies do not provide scope 3 emissions (other indirect emissions), while only data from Taiwanese sites of operation are available for some companies. This may cause an underestimation of emissions from high-emission industries.
    - Some financial institutions include their financed emissions in the scope 3 emissions reporting (company names can be found in Annexe 3), while others don't, causing significant differences in emissions among financial institutions.

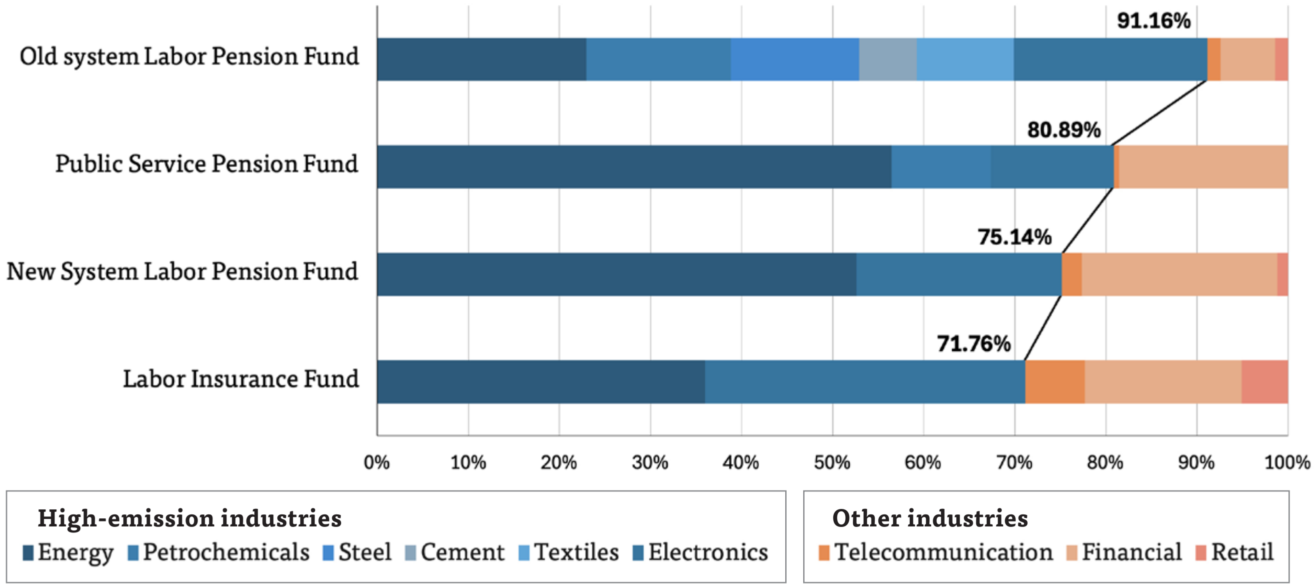
5. Financed carbon footprints focus on historical data. While this indicator provides a clue about the funds' climate risk exposure, it does not provide sufficient information on whether the funds' portfolios are Paris-aligned. EJF suggests that fund managers should also calculate all funds' implied temperature rise, as they have access to complete portfolio data.

As the funds' authorities only disclose their top 10 domestic equity and bonds investees, which account for a relatively minor share of their entire portfolios, EJF can only calculate their financed carbon footprints on that basis. According to EJF's calculations, shown in Graph 1, the Public Service Pension Fund has the highest carbon footprint among the four major public funds, and the old system Labor Pension Fund - the Labor Retirement Fund - follows. Although the Labor Insurance Fund has a lower financed carbon footprint of the four, this does not guarantee their future resilience amid enhancing climate impacts, as the fund has not developed comprehensive assessment and management strategies for climate risks.



Graph 1: The 2022 financed carbon footprints of the four major public funds' top 10 domestic equity and bond investments.[135]

EJF looked further into the public funds' portfolios (detailed in Annexe 3[136,137]) and Graph 2 to understand how different industries contribute to their high financed emissions. Our analysis finds these funds invest heavily in industries commonly recognised as high-emission or exposed to high climate risks,[138] such as energy, petrochemicals, steel, cement, textiles, and electronics, resulting in high financed carbon footprints.



Graph 2: Industry-based emission contributions from the four major public funds' top 10 domestic investees at the end of 2022.

Due to the low transparency of the public funds' portfolios, EJF is unable to calculate the financed carbon footprints for each of the public funds. Therefore, comparing the public funds and other financial institutions on financed carbon footprints is unfeasible, as the calculation would not compare like for like. However, to compare as much as possible, EJF selected four representative financial institutions, including a bank-led financial holding, a life insurance company, a financial holding company with a similar proportion of banking and life businesses and a financial holding with the government as its largest shareholder, to understand the level of public funds' relative climate risk exposures. As financed carbon footprints have gradually become one of the common disclosures for financial institutions, EJF believes that public fund managers have a duty to calculate and disclose them along with the funds' entire portfolios, including domestic and foreign investments, to enable public participation.

Table 6: 2022 financed carbon footprint for four selected financial institutions.

Financial Institution	Major business	Financed Carbon Footprint (tCO_2e/NT$ mn invested)
First Financial Holding[139]	Bank (Its largest shareholder is the Ministry of Finance.)	4.4 (for equity investments)
		5.0 (for corporate bond investments)
CTBC Financial Holding[140]	Bank and life insurance	4.3
Cathay Life Insurance Company[141 142]	Life Insurance	2.32
E.SUN Holding[143]	Bank	1.69

Despite public funds' role in investing in strategically important industries, they also have a fiduciary duty to ensure the country's sustainable development, fulfilment of climate goals and financial returns for their investors. To meet these duties, it is of central importance that public funds assist strategically important industries to reach net zero by 2050 with feasible and responsible transition plans. Public funds can no longer stay passive and merely count the number of companies setting net-zero goals in their portfolios.

Public funds should conduct comprehensive climate risk assessments of their portfolios, set solid interim targets to reach portfolio net zero and step in to facilitate investee companies' development of adequate and science-based strategies to achieve their targets. Fund managers should set transition rules for companies to follow, making it clear when and where the bottom lines for divestment are. The transition journey should be transparent to the public, including goal setting and progress monitoring.

International Case Study

While governments are still finding the best way to govern public fund climate risk management, some good examples can be drawn. The Norwegian Government Pension Fund Global has world-leading performance on transparency, comprehensive climate risk analysis, emission calculations, climate-related investment policies and divestment policies. The Korean National Pension Fund is still in the early stages of developing all the elements needed for comprehensive climate risk management, but it has already pledged its commitment to divestment from coal and so can be viewed as an example for Taiwanese public funds' next steps.

An industrial park in Kaohsiung. © EJF

International practices Taiwan can learn from: the Norwegian Government Pension Fund Global

Norway's Government Pension Fund Global (GPFG) is the largest sovereign fund (worth US$ 1,181,345.38 million) in the world, and it takes a strong stance on climate. GPFG has a close connection with Taiwan: it holds 497 Taiwanese companies, which makes Taiwan the third largest emerging market invested in by the fund. The fund discloses its entire portfolio and transparently enables all stakeholders to know essential information about these 497 companies, including the company names, the value of shares held, and voting rights and percentages owned.[144]

GPFG is governed by the Government Pension Fund Act (Lov om Statens pension fond), which mandates it to be a long-term investor[145] and sets various expectations for its investees to meet. Regarding climate issues, these expectations include setting net-zero 2050 and interim targets, developing time-bound and quantified transition plans and analysing and disclosing climate risks.[146] Critically, investee companies which base their operations on coal, with a certain percentage of coal-related revenue and level of production, face divestment from GPFC.[147] At the end of 2023, 68% of its financed scope 1 emissions (direct emissions) and scope 2 emissions (electricity-related emissions) were covered by net-zero targets for 2050 or sooner, and the fund continues engagement with investees to expand this coverage.[148]

In terms of climate risk assessment, GPFG comprehensively analyses its portfolio's role in global heating and how vulnerable the portfolio is when faced with these risks. The fund thoroughly calculates its financed emissions: as well as scope 1 and scope 2 emissions, it also models companies' scope 3 emissions in their upstream and downstream value chain, which includes transport and distribution, processing and use of products sold, leased assets and investments, and waste generation.[149] The fund further translates its equity portfolio emissions into how much temperature rise they imply, demonstrating the gap between its current status and the 1.5C Paris Agreement target. In terms of the portfolio's climate vulnerability, it is presented by estimating the portfolio's value reduction in the future under different climate scenarios. GPFG also notes openly that due to the limitations of the applied methodology, emissions, as well as the physical risks climate change poses, could be much higher than their current estimations.

Table 7: GPFG's financed scope 3 emissions, weighted by share of enterprise value including cash. 31 December 2023.[150]

Sector	Equity and corporate bonds portfolio, financed emissions, tonnes CO_2 - equivalent	Equity and corporate bond benchmark index, financed emissions, tonnes CO_2 - equivalent
Basic materials	7,460,294	8,042,053
Consumer discretionary	9,491,812	10,606,934
Consumer staples	11,101,210	12,438,587
Energy	11,203,103	11,703,051
Financials	1,449,191	1,472,557
Health care	2,166,894	2,309,510
Industrials	10,930,389	11,768,203
Real estate	383,706	269,823
Technology	3,741,422	4,137,971
Telecommunications	1,154,187	1,088,847
Utilities	1,998,025	1,920,256
Total	**61,080,233**	**65,757,792**

Table 8: GPFG's equity portfolio's implied temperature rise. 31 December 2023.[151]

	Equity portfolio implied temperature rise (degree Celsius)	Benchmark index implied temperature rise (degree Celsius)
Basic materials	0.14	0.15
Consumer discretionary	0.28	0.29
Consumer dtaples	0.10	0.11
Energy	0.13	0.14
Financials	0.25	0.26
Health Care	0.19	0.19
Industrials	0.30	0.32
Real Estate	0.10	0.05
Technology	0.35	0.35
Telecommunications	0.05	0.05
Utilities	0.05	0.06
Total	**1.94**	**1.96**

Table 9: GPFG's climate scenario analysis for its equity portfolio. 31 December 2023.[152]

Scenario	Estimated Reduction in value, percent by 2080	Estimated reduction in value, billions of kroner by 2080
Transition risk: 1.5°C Net zero, orderly (NGFS)	9	995
Transition risk: 2°C , orderly (NGFS)	2	221
Transition risk: 2°C , disorderly (NGFS)	6	663
Transition risk: Nationally determined contributions (NGFS)	2	221
Physical risk: RCP 8.5	12	1,326

GPFG has guidelines for placing companies under observation and exclusion from its portfolio based on their conduct or products. Conduct-based criteria are around severe environmental damage and violation of human rights. Three Taiwanese companies, Evergreen Marine Corp (Taiwan) Ltd, Formosa Chemicals & Fibre Corp, and Formosa Taffeta Co Ltd, have been excluded due to these criteria.[153,154] The product-based criterion focuses on coal-related operations, covering mining companies and power companies. The fund engages companies that violate this criterion and continue their involvement in coal-related operations first, providing specific expectations for improvement and using divestment as a last resort. Since 2016, GPFG has excluded 84 mining and power companies based on their operations in coal.[155] The fund's owner, the Norwegian Ministry of Finance, has also removed oil and gas exploration and production companies from the fund's equity benchmark index.[156]

An example from Asian counterparts: the Korean National Pension Fund

The Korean National Pension Fund (NPF) is managed by the National Pension Service (NPS), commissioned by the Korean Minister of Health and Welfare. The fund views climate considerations as part of its broader efforts to ensure responsible investment. The National Pension Act (국민연금법) mandates that NPS "may take into account environmental, social, and governance factors related to investment targets, to achieve long-term and stable revenues". Sustainability is one of the principles the fund should follow when investing, according to the Guideline for National Pension Fund Management, and the guideline includes the consideration of ESG factors as part of the fund's fiduciary duty.

National Pension Act
Article 102 (Management and Operation of Fund)
(4) Where the Minister of Health and Welfare manages and operates the Fund pursuant to paragraph (2) 3, he/she may take into account environmental, social, and governance factors related to investment targets, to achieve long-term and stable revenues.
Guideline for National Pension Fund Management
Article 4 (Investment Principles)
5. Sustainability: To fulfill the fiduciary duty, particularly given ESG factors, to enhance the sustainability of assets under management

Graph 3: NPF's legal basis for considering ESG factors in its investment decisions.[157]

Under this context, NPS incorporates climate-change-related indicators into the environmental aspect of its ESG evaluation and conducts ESG evaluations of investee companies annually. NPS publishes the results of these evaluations for all domestic companies in which it invests.

ESG Evaluation Indicators

	Items (14)	Indicators (61)
Environmental	Climate Change	Greenhouse Gas Emissions and Energy Management System, Voluntary Climate Change Adoption, Carbon Emissions, Energy Consumption
	Environmental Impact Management	Environment Management System Certification, Environment Management Objective, Clean Production Management, Water Consumption, Air Pollution, Waste Emissions, Chemical Emissions
	Green Products Development	Green Product Development Activities, Green Patents, Green Product Certification, Product Environmental Improvement

Graph 4: The environmental indicators of the NPF ESG evaluation.[158]

As of the end of 2022, 954 domestic listed companies were evaluated and rated as follows:

2022 ESG Evaluation Result (Equity)

AA	A	BB	B	C	D	Total
94 (9.9%)	180 (18.9%)	201 (21.1%)	323 (33.9%)	149 (15.6%)	7 (0.7%)	954 (100.0%)

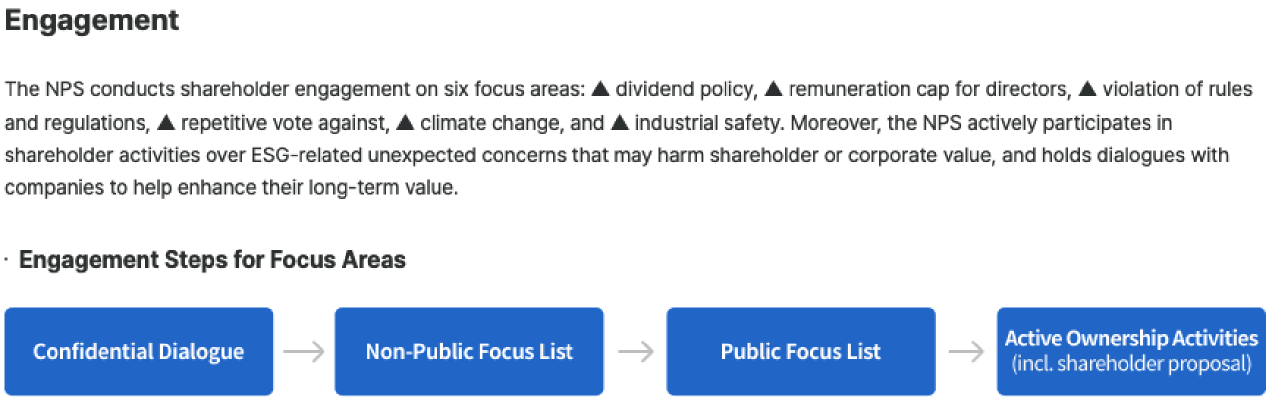
As for fixed income securities, 1,043 domestic listed companies, issuers of domestic corporate bonds, and listed companies that have issued non-corporate bonds were evaluated and rated as follows:

2022 ESG Evaluation Result (Fixed Income)

AA	A	BB	B	C	D	Total
109 (10.5%)	196 (18.8%)	233 (22.3%)	361 (34.6%)	139 (13.3%)	5 (0.5%)	1,043 (100.0%)

Graph 5: NPF's 2022 ESG evaluation results.[159]

According to NPS's current shareholder engagement process, climate change is one of the "focus areas" that triggers engagement.[160] Should this engagement be triggered, companies are first subjected to confidential dialogues with the fund, and engagement escalates until improvements happen. However, there is a lack of concrete details about engagement and the basis on which improvements are defined. Therefore, civil society groups in Korea are raising concerns, with one publishing a report to point out the lack of concrete and standardised voting guidelines on climate issues.[161]



Engagement

The NPS conducts shareholder engagement on six focus areas: ▲ dividend policy, ▲ remuneration cap for directors, ▲ violation of rules and regulations, ▲ repetitive vote against, ▲ climate change, and ▲ industrial safety. Moreover, the NPS actively participates in shareholder activities over ESG-related unexpected concerns that may harm shareholder or corporate value, and holds dialogues with companies to help enhance their long-term value.

· **Engagement Steps for Focus Areas**

Graph 6: NPF's shareholder engagement process for key focus areas.[162]

NPS committed to excluding coal mining and coal-fired power industry from its portfolio in 2021. However, no further progress has been made since the NPS's coal phase-out commitment. Korean NGOs therefore conducted research on air pollution and health damages caused by the NPS's coal investments in 2023.[163] As a result, 35 pensioners filed a lawsuit against the fund's chairman and other key executives in February 2024 for the lack of policies to restrict investments in coal.[164] Local NGOs aim to keep pressuring the NPS to introduce concrete plans for the phase-out of coal and other fossil fuels, and disclose its roadmap to reach net-zero by 2040.

Conclusion and recommendation

The global climate crisis presents an existential risk to life on earth; without urgent, systemic, global action it will devastate the global economy, drive local, regional and possibly global conflict and wreak overwhelming harm to communities and entire nations. In the face of these threats, there is an overwhelming imperative for Taiwan to take far greater action.

Investments in fossil fuels are escalating the climate crisis. In contrast, investing in solving the climate crisis now is the biggest cost-saving possible for all people today and in the future. A paper published in April 2024 shows massive income reductions for individuals due to climate change in the near future: a 19% drop within the next 26 years.[165] At the same time, it points out a window of opportunity: we need only invest one-sixth of the projected costs of climate change in climate mitigation today to ensure a Paris-aligned future.

The science is clear that we need to immediately transition from a highly fossil-fuel-dependent economic system to a clean, sustainable and just one. Public funds should fulfil their fiduciary duty to fully consider climate risks in investments, protect a livable environment for people and play critical roles in the transition.

In addition, climate change is an exceptional risk to human rights.[166] The latest draft of the 'Taiwan National Action Plan on Business & Human Rights' includes "Strengthening Human Rights Standards for Government Funds, Public Banks, and State-Owned Enterprises" as one of its action plans in the future.[167] The fund management authorities should quickly develop clear climate-centric investment policies to secure human rights, environment and economic prosperity.

EJF therefore recommends that the Taiwanese government:

- Enhance the 2030 national emissions reduction target to align with the scientific assessment for reaching net zero by 2050.
- Obligate the public funds to comply with all climate finance-related policies, including the 12 net-zero strategies.
- Drastically increase climate investment and mandate public fund investments as part of this strategy.
- Legally obligate all public funds to include climate risks in their investment and financing decision-making, involve all relevant stakeholders and publish all relevant information used to inform these decisions.
- Require all public funds to adopt policies that prohibit investment and/or financing in new coal mining projects or new coal-fired power plants, and phase out investment and financing in all coal assets without Paris-aligned timelines by 2035.
- Ensure all public funds publish medium-term timelines to stop new investments and/or financing in all oil and gas projects, and timelines and targets for phasing existing investments and financing in oil and gas down and out.
- Engage with investee companies with a transparent, Paris-aligned, time-bound climate agenda and escalating strategies.
- Legally obligate all public funds to disclose their entire portfolio and climate-related financial risk reports annually.
- Ensure that climate-related financial risk reports include at least the following:
    - Portfolio breakdowns with each sector's percentage cover, financed emissions percentages and carbon footprints in the past three years, and their implied temperature rise.
    - Paris-aligned science-based emission reduction targets, progress and gap analysis.
    - Climate risk analysis, management methodologies and mechanisms, and risk mitigation measures.

ANNEXE

Annexe 1: Official replies from the Ministry of Transportation and Communications and the Bureau of Public Service Pension Fund.

Document 1: Official letters from the Ministry of Transportation and Communications (31st May 2024).

正本

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受文者：環境正義基金會

發文日期：中華民國113年5月31日
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密等及解密條件或保密期限：
附件：

主旨：有關貴會函詢「郵政儲金」有否將「氣候風險」納入投資應評估之原則並法制化、完整分析並揭露投資組合之氣候風險，同時訂定與巴黎協定一致的投資排放量目標一案，復如說明，請查照。

說明：

一、復貴會113年4月30日第2024043001號函。

二、本部所屬中華郵政股份有限公司(以下稱該公司)相當重視其所肩負環境永續發展之企業社會責任，為因應氣候變遷、推動2050年淨零排放、能源轉型及加強責任投資，已於112年設置永續發展委員會為其永續發展之決策與推動單位，由該公司董事長擔任主任委員，每季召開會議1次。

三、該公司已簽署機構投資人盡職治理守則遵循聲明及訂定機構投資人盡職治理政策，表明將環境、社會及公司治理(ESG)融入郵政儲金投資評估流程，佈局投資具有永續價值之各類標的，且於投資後持續管理，以利掌握氣候變遷風險之變化，適時採取因應措施。至於減碳及高排碳議題方面，該公司透過碳揭露專案(CDP)及科學基礎減量目標倡議(SBTi)，持續關注相關公司減碳轉型之承諾、

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願景及策略，並考慮將評級較低或未參與評級之公司納入議合名單，透過與其議合產生影響力，有機會降低投資風險，進而協助其轉型與提升長期投資報酬。

四、該公司依據「保險業氣候相關風險財務揭露指引」及「本國保險業氣候相關財務揭露實務手冊」，自112年起定期向董事會報告氣候相關風險之管理情形，於氣候轉型風險關鍵指標中，針對投資組合之石化相關產業資產訂定短中長期以降低曝險占比目標，且依規揭露前一年度氣候相關財務資訊。

五、該公司未來將持續配合金融監督管理委員會綠色金融行動方案3.0有關「金融業揭露及確信(查證)投融資組合財務碳排放(範疇三)之時程」，進行相關財務碳排放資訊揭露及查證事宜，並業於該公司全球資訊網永續發展專區及訊息中心公告欄揭露。

正本：環境正義基金會
副本：金融監督管理委員會、中華郵政股份有限公司

部長李孟諺

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Document 2: Official letters from the Bureau of Public Service Pension Fund (27th May 2024).

檔　　號：
保存年限：

公務人員退休撫卹基金管理局　函

[redacted]

受文者：環境正義基金會

發文日期：中華民國113年5月27日
發文字號：台管財二字第1131790424號
速別：最速件
密等及解密條件或保密期限：
附件：

裝

主旨：有關函詢本基金投資部位氣候風險評估與管理措施一案，詳如說明二，請查照。

說明：

一、依據銓敘部113年4月18日部監三字第1135692793號書函轉貴基金會同年月16日第2024041602號函辦理。

訂

二、自聯合國2004年首次提出環境、社會與公司治理（以下簡稱ESG）之永續投資概念後，10多年間已席捲全球金融市場，機構法人重視永續投資可促使企業看重社會責任之履行，並使整體社會受益而達成雙贏，不僅符合公務人員退休撫卹基金管理局（以下簡稱基金管理局）對社會的責任義務，也得以協助管理投資風險，並投資於營運成效得以長期延續的公司。謹就基金管理局現行投資策略及相關做法說明如下：

線

(一)為落實ESG投資政策，實現全球永續發展之目標，並善盡機構投資人的責任，基金管理局業將永續投資納入投資決策考量，並列入投資政策說明書，將被投資公司在ESG等面向之風險與成效整合於投資流程與決策中，進一步表達對社會及環境議題之關注，以及為全球氣候變遷等環境永續議題盡一份心力。

(二)為持續掌握永續投資最新發展趨勢與實務做法，基金管理局除積極參與相關研討會及論壇，並持續關注被投資公司編製之永續報告書，當被投資公司在特定議題上有重大違反ESG原則或損及基金管理局長期投資

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價值之虞時，將透過適當與被投資公司進行建設性之溝通及互動等議合作為，敦促被投資公司對環境永續之重視，謀取全體基金參加人員之最大利益，且不排除聯合委託經營受託機構、其他政府基金及其他投資人共同表達訴求，發揮機構投資人之影響力。

（三）為使社會大眾了解基金管理局社會責任投資及盡職治理之推動情形，基金管理局業於官網設置「盡職治理專區」，每年定期揭露包含環境、社會及公司治理等議題之盡職治理守則遵循情形，未來，基金管理局將持續於網站揭露經管基金管理運用概況及其他重大事項，並說明社會責任政策、盡職治理守則遵循聲明，以及基金管理局歷年推動社會責任投資執行情形。

（四）隨著氣候變遷對全球環境影響加劇，相關國際法規日趨嚴格，投資面臨風險隨之上升，基金管理局身為政府基金管理者，期在兼顧基金永續經營收益要求下，對致力發展綠色經濟之企業進行投資，達成減少碳排放與極端氣候風險控管等目標，未來將參酌國內外氣候風險資訊揭露實務及金融相關事業氣候變遷資訊揭露指引，研議退撫基金適當之揭露方式及內容，並以穩健積極的態度，辨識及管理氣候環境變遷之風險。

正本：環境正義基金會[redacted]
副本：銓敘部

局長 陳銘賢

Document 3: Official letters from the Bureau of Public Service Pension Fund (6th June 2024).

檔號：

保存年限：

公務人員退休撫卹基金管理局　函

[redacted]

受文者：環境正義基金會

發文日期：中華民國113年6月6日
發文字號：台管財二字第1131793600號
速別：最速件
密等及解密條件或保密期限：
附件：

主旨：有關函詢本基金是否將「氣候風險」納入投資評估並揭露及投資化石燃料產業等議題一案，詳如說明二，請查照。

說明：

一、依據貴基金會113年4月30日第2024043002號函辦理。

二、有關貴基金會所詢議題，本局謹就現行投資策略及相關做法說明如下：

（一）為落實環境、社會及公司治理(以下簡稱ESG)投資政策，實現全球永續發展之目標，並善盡機構投資人的責任，本局業將永續投資納入投資決策考量，並列入投資政策說明書，將被投資公司在ESG等面向之風險與成效整合於投資流程與決策中。另為持續掌握永續投資最新發展趨勢與實務做法，本局除積極參與相關研討會及論壇，並持續關注被投資公司編製之永續報告書，當被投資公司在特定議題上有重大違反ESG原則或損及本局長期投資價值之虞時，將透過適當與被投資公司進行建設性之溝通及互動等議合作為，敦促被投資公司對環境永續之重視，發揮機構投資人之影響力。

（二）為使社會大眾了解本局社會責任投資及盡職治理之推動情形，本局業於官網設置「盡職治理專區」，每年定期揭露包含社會、環境及公司治理等議題之盡職治理守則遵循情形，未來，本局將持續於網站揭露經管基金管理運用概況及其他重大事項，並說明社會責任

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政策、盡職治理守則遵循聲明，以及本局歷年推動社會責任投資執行情形。

（三）當前能源運用型態逐步由化石燃料轉向綠色能源已是全球重要的能源議題，能源轉型不僅有助於減少對化石能源的依賴，同時也有助於降低溫室氣體排放，保護環境與人類的健康，進而實現全球永續發展的目標。基此，本局將配合我國2050年淨零排放路徑規劃，持續關注能源轉型後續發展及其對金融市場之影響，審慎評估適合本基金長期持有之投資標的，逐步增加持有節能減碳等綠色能源相關產業，同時減少高碳排產業的投資比重，以對能源轉型議題表達支持的立場。

（四）隨著氣候變遷對全球環境影響加劇，投資面臨風險隨之上升，本局身為政府基金管理者，期在兼顧基金永續經營收益要求下，對於致力發展綠色經濟之企業進行投資，達成減少碳排放與極端氣候風險控管等目標，未來將參酌國內外氣候風險資訊揭露實務及金融相關事業氣候變遷資訊揭露指引，並研議退撫基金適當之揭露方式及內容，以穩健積極的態度，辨識及管理氣候環境變遷之風險。

正本：環境正義基金會[redacted]
副本：

局長 陳銘賢

Annexe 2: Carbon footprints of the four major public funds

Table 1: Data from 2022 on the four major public funds' investment balance in their top ten domestic companies, in both equity and bonds, relative to their total domestic and foreign investment.

	Investment balance of top ten domestic equity and bonds (NT$)	Total Investment balance of domestic and foreign equity and bonds (NT$)	Share(%)
Postal Savings Fund	The Postal Savings Fund doesn't disclose any investees and relative balances in its portfolio.		
New System Labor Pension Fund	537,059,363,677	2,578,252,999,000	20.83%
Old System Labor Pension Fund	201,187,916,455	723,696,479,000	27.80%
Labor Insurance Fund	179,760,037,870	587,099,091,000	30.62%
Public Service Pension Fund	63,153,204,407	251,255,310,000	25.14%

Table 2: 2022 financed carbon footprint for four major public funds' top 10 equity and bond investments.

Public Funds	Financed carbon footprint of top 10 domestic equity and bond investments (tCO_2e/NT$ mn invested)	Financed Carbon Footprint Ranking
Public Service Pension Fund	10.11	1 (Highest)
Old System Labor Pension Fund	8.33	2
New System Labor Pension Fund	6.00	3
Labor Insurance Fund	3.81	4 (Lowest)
Postal Savings Fund	The portfolios are not disclosed.	

Annexe 3: Top 10 domestic equity and bonds held by the four major public funds

Investee's Carbon Intensity = the investee's GHG emissions divided by the investee's operating revenue.

Table 1: Top 10 domestic equity and bond investments, financed emissions of the Public Service Pension Fund at the end of 2022.

Top 10 Domestic Equity Investments					Top 10 Domestic Bond Investments				
Investee	**Industry**	**Percentage of domestic equity investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)	**Investee**	**Industry**	**Percentage of domestic bonds investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)
Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	29.27%	22,470.08	8.42	Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	9.13%	10,438.58	8.42
Hon Hai Precision Ind. Co., Ltd.	Electronics	3.92%	4,437.05	0.87	Taiwan Power Company	Energy	7.36%	360,145.57	148.79
Delta Electronics, INC.	Electronics	2.92%	12,675.23	18.60	Hon Hai Precision Ind. Co., Ltd.	Electronics	5.79%	9,760.58	0.87
Formosa Plastics Corporation	Petrochemicals	2.55%	39,399.51	98.63	Cathay Life Insurance Company, Ltd.	Financial	5.71%	212.71	0.04
MediaTek Inc.	Electronics	2.33%	106.01	0.27	CTBC Financial Holding Co., Ltd.	Financial	4.16%	80,403.48	113.70
Chunghwa Telecom Co., Ltd	Telecommunications	2.48%	3,469.71	13.95	CPC Corporation, Taiwan	Petrochemicals	3.75%	30,607.73	6.20
ASE Technology Holding Co., Ltd.	Electronics	2.13%	26,254.75	22.53	China Development Financial Holding Corp.	Financial	3.59%	204.20	0.27
Fubon Financial Holding Co., Ltd.	Financial	1.88%	158.51	0.73	E.SUN Commercial Bank, LTD.	Financial	3.59%	27,041.75	72.78
Cathay Financial Holding CO., LTD.	Financial	1.77%	10,047.34	27.32	Fubon Commercial Bank Co., Ltd.	Financial	3.51%	132.14	0.35
First Financial Holding Co., Ltd.	Financial	1.74%	43.73	0.33	Taiwan Business Bank, Ltd	Financial	3.18%	224.93	0.52
Percentage of top 10 to domestic equity investments		50.99%			**Percentage of top 10 to domestic bonds investments**		49.77%		

Table 2: Top 10 domestic equity and bond investments, financed emissions of the old system Labor Pension Fund at the end of 2022.

Top 10 Domestic Equity Investments					Top 10 Domestic Bond Investments				
Investee	**Industry**	**Percentage of domestic equity investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)	**Investee**	**Industry**	**Percentage of domestic bond investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)
Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	33.44%	116,526.25	8.42	Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	8.96%	14,443.18	8.42
Delta Electronics, INC.	Electronics	4.57%	90,046.13	18.60	Far Eastern New Century Corporation	Textile	8.18%	179,237.04	41.62
Hon Hai Precision Ind. Co., Ltd.	Electronics	4.15%	21,322.19	0.87	Taiwan Power Company	Energy	5.57%	384,272.71	148.79
Formosa Plastics Corporation	Petrochemical	3.79%	265,806.49	98.63	Hon Hai Precision Ind. Co., Ltd.	Electronics	4.84%	11,503.41	0.87
Chunghwa Telecom Co., Ltd	Telecommuni-cation	3.76%	23,878.40	13.95	Cathay United Bank Co., Ltd.	Financial	4.65%	349.27	0.27
MediaTek Inc.	Electronics	3.39%	700.11	0.27	Asia Cement Corporation	Cement	4.27%	69,904.32	298.49
Mega Financial Holding Company Ltd.	Financial	3.13%	14,985.54	18.53	ASE Technology Holding Co., Ltd.	Electronics	3.93%	101,717.09	22.53
Fubon Financial Holding Co., Ltd.	Financial	2.93%	1,121.32	0.73	HSBC Bank (Taiwan) Limited	Financial	3.12%	154.22	0.19
Uni-President Enterprises Corp	Retail	2.92%	23,456.59	34.15	CTBC Financial Holding Co., Ltd.	Financial	3.09%	84,202.33	113.70
China Steel Corporation	Steel	2.83%	236,980.84	84.87	Taiwan Cement Corp.	Cement	2.89%	35,355.01	178.94
Percentage of top 10 to domestic equity investments		64.91%			**Percentage of top 10 to domestic bonds investments**		49.50%		

Table 3: Top 10 domestic equity and bond investments, financed emissions of the new system Labor Pension Fund at the end of 2022.

Top 10 Domestic Equity Investments					Top 10 Domestic Bond Investments				
Investee	**Industry**	**Percentage of domestic equity investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)	**Investee**	**Industry**	**Percentage of domestic bonds investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)
Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	28.69%	324,197.63	8.42	Taiwan Power Company	Energy	8.56%	1,694,313.93	148.79
Hon Hai Precision Ind. Co., Ltd.	Electronics	4.30%	71,643.03	0.87	Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	7.73%	35,749.51	8.42
Delta Electronics, Inc.	Electronics	4.01%	256,221.16	18.60	Hon Hai Precision Ind. Co., Ltd.	Electronics	5.56%	37,913.31	0.87
Chunghwa Telecom Co., Ltd	Telecom-munication	3.47%	71,460.91	13.95	Taishin International Bank Co., Ltd	Financial	4.97%	1,406.06	0.47
Fubon Financial Holding Co., Ltd.	Financial	3.29%	4,083.01	0.73	Taiwan Business Bank, Ltd.	Financial	3.07%	878.36	0.52
MediaTek Inc.	Electronics	3.23%	2,163.18	0.27	Shin Kong Life Insurance Co., Ltd.	Financial	2.65%	837.86	0.06
Cathay Financial Holding Co., Ltd.	Financial	3.06%	255,679.93	27.32	Cathay Life Insurance Co, Ltd.	Financial	2.49%	375.21	0.04
Mega Financial Holding Co., Ltd.	Financial	1.81%	28,101.43	18.53	CTBC Bank Co., Ltd.	Financial	2.49%	495.91	0.29
CTBC Financial Holding Co., Ltd.	Financial	1.66%	317,101.37	113.70	Cathay Financial Holding Co., Ltd.	Financial	2.43%	83,098.43	27.32
Uni-President Enterprises Corp	Retail	1.43%	37,251.16	34.15	Cathay United Bank Co., Ltd.	Financial	2.40%	517.19	0.27
Percentage of top 10 to domestic equity investments		54.95%			**Percentage of top 10 to domestic bonds investments**		42.34%		

Table 4: Top 10 domestic equity and bond investments, financed emissions of the Labor Insurance Fund at the end of 2022.

Top 10 Domestic Equity Investments					Top 10 Domestic Bond Investments				
Investee	**Industry**	**Percentage of domestic equity investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)	**Investee**	**Industry**	**Percentage of domestic bonds investments(%)**	**Financed Emissions**	**Investee's Carbon intensity** (tCO_2e/NT$ mn revenue)
Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	35.17%	188,893.62	8.42	Taiwan Semiconductor Manufacturing Co., Ltd.	Electronics	15.35%	54,617.12	8.42
Chunghwa Telecom Co., Ltd	Telecom-munication	7.47%	73,118.17	13.95	Land Bank of Taiwan Co., Ltd.	Financial	12.71%	2,245.32	0.58
Delta Electronics, INC.	Electronics	6.09%	184,949.66	18.60	Cathay Life Insurance Company, Ltd.	Financial	6.40%	741.96	0.04
Hon Hai Precision Ind. Co., Ltd.	Electronics	4.31%	34,130.95	0.87	Hon Hai Precision Ind. Co., Ltd.	Electronics	6.08%	31,897.03	0.87
Fubon Financial Holding Co., Ltd.	Financial	4.24%	2,501.02	0.73	Cathay United Bank Co., Ltd.	Financial	4.80%	795.81	0.27
Cathay Financial Holding CO., LTD.	Financial	3.90%	154,883.60	27.32	Taiwan Power Company	Energy	4.64%	706,590.58	148.79
Mega Financial Holding Company, Ltd.	Financial	2.67%	19,702.74	18.53	Nan Shan Life Insurance Company, Ltd.	Financial	4.00%	559.84	0.04
Taiwan Mobile CO., LTD.	Telecom-munication	2.64%	13,236.78	3.49	China Development Financial Holding Corp.	Financial	3.84%	679.74	0.27
President Chain Store Corporation	Retail	2.33%	67,596.11	16.01	E.SUN Commercial Bank, LTD.	Financial	3.04%	71,262.90	72.78
MediaTek Inc.	Electronics	1.68%	534.77	0.27	Agricultural Bank of Taiwan	Financial	2.08%	21.85	0.09
Percentage of top 10 to domestic equity investments		70.50%			**Percentage of top 10 to domestic bonds investments**		62.94%		

Additional information for emissions reporting boundaries:

- The public funds' investees as a group enterprise for which the emission reporting boundary only covers the parent company are China Steel, Formosa Plastics, Taiwan Cement, Asia Cement, MediaTek, Chunghwa Telecom, Uni-President, and President Chain Store.
- The public funds' investees as a subsidiary of a group enterprise that doesn't disclose its emissions information are CTBC Bank and E.SUN Commercial Bank.
- The public funds' investees as a financial institution, which includes their financed emissions in scope 3 emissions reporting, are CTBC Financial Holding, E.SUN Financial Holding and Cathay Financial Holding.

Annexe 4: Methodologies and data sources

For comparison of Taiwan's four public funds, international peers and Taiwanese financial institutions (Table 2)

Level of Transparency
- High: disclose the entire portfolio
- Medium: disclose domestic and foreign investees with significance (at least top ten for each category)
- Low: does not disclose most of the portfolio

Climate Risks Analysis
- Sufficient: analyse climate-related risks across the entire portfolio and effectively mitigate the risks based on that analysis
- Partial: analyse climate-related risks, but the analysis does not feed into effective risk mitigation

Portfolio Emission Calculation
- Sufficient: calculate financed emissions covering scopes 1, 2 and 3 and the portfolio's implied temperature rise
- Partial: calculate financed emissions at least covering scopes 1 and 2

Climate-related Investment Policies
- Sufficient: include Paris-aligned climate-centric factors in the investee companies' selection process
- Partial: include broader environmental factors in the investee companies' selection process

Divestment Policies
- Sufficient: set divestment standards or roadmaps covering all fossil fuels
- Partial: set plans for divesting from or stop investing in either coal, oil or gas

For carbon footprint calculations (Graphs 1 and 2)

Calculations of Enterprise Value Including Cash (EVIC)
- For listed companies, this is the sum of the market capitalisation of ordinary shares at fiscal year-end, the market capitalisation of preferred shares at fiscal year-end and the book values of total debt and minorities' interests.
- For unlisted companies, this is the sum of total equity and total debt at fiscal year-end.

Total debt is the sum of long-term and short-term loan payables or borrowings, notes payable, bonds payable, and lease liability.

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"Reaching net zero by 2050 is a legally binding target for the Taiwanese government, but continuing investments in fossil fuels hamper the country's efforts to slash emissions and mean the government is failing in its fiduciary duty as a fund manager for the people. It is crucial that Taiwan actively mitigates the climate crisis by transforming its public fund investments, together with all other sectors."

The Environmental Justice Foundation (EJF) exists to protect the natural world and defend our basic human right to a secure environment.

EJF works internationally to inform policy and drive systemic, durable reforms to protect our environment and defend human rights. We investigate and expose abuses and support environmental defenders, indigenous peoples, communities and independent journalists on the frontlines of environmental injustice. Our campaigns aim to secure peaceful, equitable and sustainable futures.

EJF has teams based in Belgium, France, Germany, Ghana, Indonesia, Japan, Liberia, Sierra Leone, South Korea, Taiwan, Thailand and the UK. Our investigators, researchers, filmmakers and campaigners work with grassroots partners and environmental defenders across the globe.

Our work to secure environmental justice aims to protect our global climate, ocean, forests and wildlife and defend basic human rights.

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