KPMG

MAS Monetary Authority of Singapore

Accelerating Transformation Amidst Economic Slowdown: The Resilient ESG FinTech Sector

KPMG in Singapore

November 2023

Welcome Message

In an era marked by macroeconomic headwinds and economic slowdown, where traditional investment landscapes are shifting, KPMG in Singapore and the Monetary Authority of Singapore invite you to consider a buoyant exception – ESG FinTech. As the global economy grapples with uncertainty, this report delves into the remarkable resilience exhibited by investment in this emerging sector globally, a beacon of hope and progress amidst the turbulence of financial markets.

The need for ESG (Environmental, Social, and Governance) transformation has never been more pronounced. Financial institutions face a multifaceted challenge as they aim to meet ESG requirements, necessitating significant structural changes, external collaborations, and the strategic harnessing of data. Here, FinTech firms emerge as invaluable partners, propelling systemic and organizational transformations, shaping a more sustainable and equitable future for finance.

Building upon the foundations laid in the inaugural 2022 report, "Enabling tomorrow: The emergent ESG FinTech ecosystem," commissioned by the Monetary Authority of Singapore, this report continues to explore the convergence of ESG and FinTech into a distinct ESG FinTech sector. It offers insights into investment sizes across various segments, emphasizing critical enablers such as infrastructure and data utilization, and examines implications for both the financial sector and the real economy.

In July 2023, KPMG International unveiled its latest "Pulse of FinTech" report, providing a broad-ranging overview of global FinTech investment trends. The FinTech landscape faced ongoing challenges in the first half of 2023, from inflation to geopolitical tensions, yet the ESG FinTech sector stands as a resilient outlier.

This report should be viewed as a journey of exploration, studying the resilience of ESG FinTech against the broader FinTech backdrop. Despite the prevailing headwinds, ESG FinTech demonstrates consistent progress, spurred by the urgent imperative to transition to a low-carbon emission model and the unwavering commitment of large corporations. While M&A activity in ESG FinTech has slowed down in the first half of 2023, it weathers the storm better than its counterparts, bolstered by the ever-increasing in-house investments of tech and financial giants.

This report also delves into product verticals, spotlighting Carbon Services and RegTech as frontrunners in attracting investments, particularly from tech industry leaders and savvy investors. In contrast, the financial sector prioritizes investments in Infrastructure and Data, underlining their commitment to bolstering the foundation of ESG finance.

"Accelerating Transformation Amidst Economic Slowdown: The Resilient ESG FinTech Sector" is a testament to the resilience, innovation, and unwavering commitment of the ESG FinTech sector in reshaping the financial landscape and enabling a better tomorrow.

Anton Ruddenklau
Global Head of FinTech & Innovation, KPMG International
Partner and Head of Financial Services, KPMG in Singapore

Sopnendu Mohanty
Chief FinTech Officer, Monetary Authority of Singapore (MAS)
Chairman, Elevandi

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Executive Summary

The ESG FinTech sector is proving its resiliency in the face of a challenging macroeconomic environment. This report dives into the vibrancy exhibited by ESG FinTech despite high interest rates, depressed FinTech valuations, and a slowdown in external deal activity. Amidst this landscape, economies are striving to accelerate the transition to a low-carbon future while addressing broader ESG agendas. This report unveils net new insights into the sector, including global investment trends, estimated in-house spend by financial and tech giants, regional disparities, and dynamics within ESG FinTech segments.

Global investment resilience

The ESG FinTech sector has displayed remarkable resilience, with global investments projected to reach $28.8 billion in 2023, slightly below the $29.4 billion invested in 2022. This stability underscores the dynamic nature of this emerging FinTech segment. Despite economic headwinds, the sector continues to thrive, driven by the urgency of addressing ESG concerns.

In-house spending surge

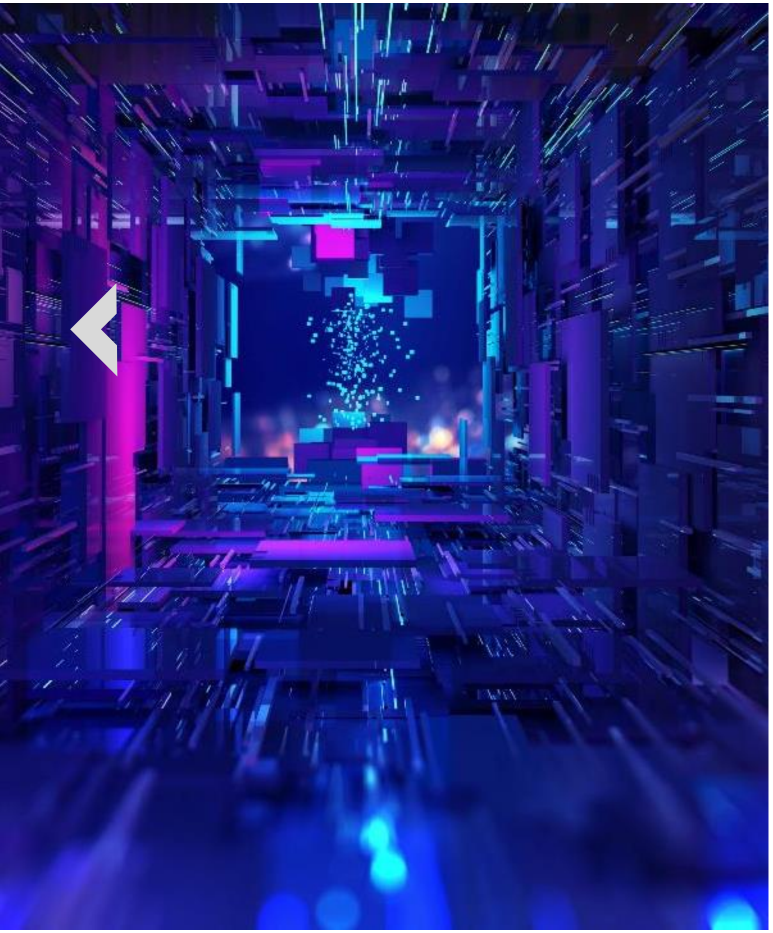
While external deal activity in ESG FinTech has slowed, a significant surge in in-house spending has been observed among financial sector players and tech giants. Globally, budgets allocated to developing and launching ESG financial products and solutions have increased in 2023 by an estimated 35.2% from 2022. Notably, banks, insurance providers, and asset managers lead this charge, with an estimated spend of $14.36 billion globally. This surge in in-house spending reflects a strategic shift towards incorporating sustainable and green finance products across more channels.

Acceleration on the horizon

KPMG in Singapore predicts that ESG FinTech investments will accelerate further, particularly from 2025 onwards with global investments projected to reach $123.7 billion by 2026. This acceleration will be driven by sustained in-house spending by the Financial Services and Tech sectors as ESG products become the norm. It will also be bolstered by updates in standards and regulations and a resurgence in external deal activity as markets adapt to evolving interest rate scenarios.

Regional disparities

Regionally, the Americas stands out as the only area where ESG FinTech external deal activity is growing in 2023, driven primarily by the United States where large banks and insurers start taking part in large rounds of development capital for late stage start-ups. Europe remains dynamic, with deal volume expected to match 2022 levels, although early-stage funding dominates as mature start-ups face funding challenges or live off existing balance sheets. In the Middle East and Africa (MEA), ESG FinTech deal activity remains relatively small, with a decline projected in 2023 to approximately $100 million. Asia Pacific (APAC) is expected to experience a sharp slowdown in 2023 as well, attributed to a lack of large deals that characterized 2022.



Carbon Services lead the charge among verticals

Within the ESG FinTech landscape, two segments take the spotlight: RegTech and Carbon Services, while exhibiting different trajectories in 2023. Carbon Services are poised for growth, driven by numerous deals, especially early-stage ones in the Americas and Europe. In contrast, RegTech experiences a decline in 2023, with estimated funding of $1.6 billion, down from an impressive $3.16 billion in 2022. InsurTech and Payments / Transactions face a funding drought in 2023, recording few deals globally after strong performances in 2022, attracting $1.42 billion and $2.04 billion, respectively.

Emergence of ESG FinTech hubs

Hotspots of ESG FinTech activity are emerging across regions. In the Americas, San Francisco and New York are at the forefront of ESG FinTech development, witnessing substantial levels of activity over the 18 months studied in this research. In Europe, London leads the sector, closely followed by Paris. In the Asia Pacific region, Sydney and Singapore stand out as ESG FinTech hubs.

A sector gaining prominence

The ESG FinTech sector's resilience and growth amidst challenging economic conditions underscore its significance in the broader financial ecosystem. While external deal activity has slowed, in-house spending and a commitment to sustainability are driving the sector forward. Regional disparities in activity and variations within ESG FinTech segments offer valuable insights for investors and industry participants. As ESG considerations continue to gain prominence, the ESG FinTech sector is poised for sustained growth and innovation, making it a compelling space for stakeholders to watch and invest in.

About This Research

This report is an exploration of a sector that shines as a beacon of resilience and innovation amidst the broader Financial Technology (FinTech) landscape, which grapples with economic turbulence and investment slowdowns. The focal point of this journey is the dynamic intersection of ESG considerations and Financial Technology – a realm we refer to as the ESG FinTech sector.

Purpose of this report

It is indeed an exciting time for companies, FinTech innovators, and stakeholders in the Financial Services sector. Beyond the traditional metrics of profitability and growth, enabling the transition to a low-carbon economy and addressing governance and social challenges is fast becoming a keystone to enable a more prosperous and sustainable future. This is not merely a responsibility; it is a global imperative, impacting not only consumers, businesses, and governments but the very planet we call home.
The purpose in crafting this report is multifaceted:

- **Fostering understanding:** At its core, this report aims to foster a better understanding of how FinTech innovations can be harnessed to support and accelerate ESG objectives. These objectives, rooted in sustainability, ethical practices, and responsible governance, are pivotal to the well-being of our world.
- **Measuring activity levels:** In a nascent but rapidly evolving landscape, we seek to assess the level of activity within the ESG FinTech sector. This includes a deep dive into external investments, primarily through Mergers and Acquisitions (M&A) deals, and the burgeoning in-house spending by Technology and Financial sectors.
- **Establishing a baseline for year-on-year comparison:** This foundational data enables us to track the sector's growth and transformation over time, offering valuable insights for investors, innovators, and policymakers, hence facilitating year-on-year comparisons in the ESG FinTech space.
- **Understanding emerging trends:** The world of ESG FinTech is dynamic and multidimensional. We delve into the emerging trends across ESG FinTech product verticals and use cases, shedding light on the innovations shaping the sector's future.
- **Identifying regional nuances:** As ESG considerations vary across regions, it is imperative to recognize regional specificities and hubs of ESG FinTech innovation worldwide. This exploration provides a broad-ranging view of how different parts of the globe are contributing to the global ESG agenda.
- **Assessing ecosystem strengths and gaps:** Finally, we turn our focus to ESG FinTech hubs. Here, we consider the strengths and gaps within various ESG FinTech ecosystems, highlighting opportunities for growth and collaboration.

Defining ESG FinTech

At the heart of this exploration lies the concept of ESG FinTech – a term that encapsulates a wide array of FinTech solutions, products, and services designed to address pressing issues at the intersection of ESG considerations and Financial Technology. These solutions adapt Financial Services-based technologies to ESG and climate change use cases, and they include, but are not limited to:

- **Lending Solutions for ESG Transformation:** ESG-focused lending platforms that provide financial support to organizations committed to making ESG-related changes in their operations. This can include financing for renewable energy projects, sustainable agriculture, or eco-friendly infrastructure.
- **Data Analytics for ESG:** Platforms and tools dedicated to the collection, analysis, and interpretation of ESG data. These technologies are vital for governance, disclosures, risk assessment, and compliance in an increasingly ESG-conscious world.
- **Climate Risk Assessment:** Innovations that enhance the assessment of climate-related risks for investment and insurance purposes. These tools aid in identifying and mitigating risks associated with climate change, including physical risks and transition risks.
- **Carbon Tracking Infrastructure:** Essential components of the global effort to combat climate change, carbon tracking solutions provide support and infrastructure for tracking, measuring, and trading carbon emissions. These are instrumental in promoting carbon reduction and offsetting efforts.
- **ESG Integration into KYC:** Integrating ESG variables into Know Your Customer (KYC) processes to better understand the ethical and environmental implications of business relationships. This fosters responsible and sustainable partnerships.

What does ESG mean for businesses?

- **Environmental:** A company's impact on the environment (e.g., GHG emissions, waste generation) and exposure to climate risks (e.g., flooding, drought).
- **Social:** A company's impact on its people, stakeholders, and communities it operates in and exposure to social risks (e.g., inappropriate labour practices).
- **Governance:** A company's governance, risks, controls, and accountability structures and processes.

Figure 1: ESG FinTech Taxonomy

Product vertical segments	▶ RegTech	▶ InsurTech	▶ Carbon Services	▶ Investment Management	▶ Lending	▶ Payments / Transactions
Enabling horizontal segments	▶ Data (e.g., data collection, analytics, verification)					
	▶ Infrastructure (e.g., reporting, exchanges, indices)					

Source: Enabling tomorrow – The emergent ESG FinTech ecosystem, KPMG Singapore, 2022

A dedicated taxonomy

In order to lend clarity to how we define this domain, KPMG and MAS introduced in 2022 a ESG FinTech taxonomy in their report, "Enabling tomorrow: the emergent ESG FinTech ecosystem." This taxonomy covered the complex and diverse landscape of product verticals and enablers (such as green market infrastructure and data services). This 2023 report follows the same taxonomy introduced in 2022.

Product verticals:

- **RegTech**: Regulatory technology solutions that streamline compliance processes, with a specific focus on ESG standards and reporting. These technologies help financial institutions meet their ESG-related regulatory requirements efficiently.
- **InsurTech**: Innovations in the insurance sector that incorporate ESG considerations into insurance practices. These solutions assess and mitigate risks associated with ESG factors, providing more sustainable insurance options.
- **Carbon Services**: Technologies and platforms dedicated to tracking, measuring, and trading carbon emissions. Carbon Services play a vital role in environmental stewardship and the transition to a low-carbon economy.
- **Investment Management**: Solutions that facilitate ESG-focused investment strategies and portfolio management. They empower investors to align their portfolios with ESG principles and sustainability goals.
- **Lending**: Platforms and services that enable lending to organizations committed to ESG-related initiatives and transformations. These solutions provide financial resources to drive sustainable change.
- **Payments / Transactions**: Technologies geared toward facilitating ESG-aligned payments and transactions, promoting sustainable financial activities and ethical commerce.

Enablers:

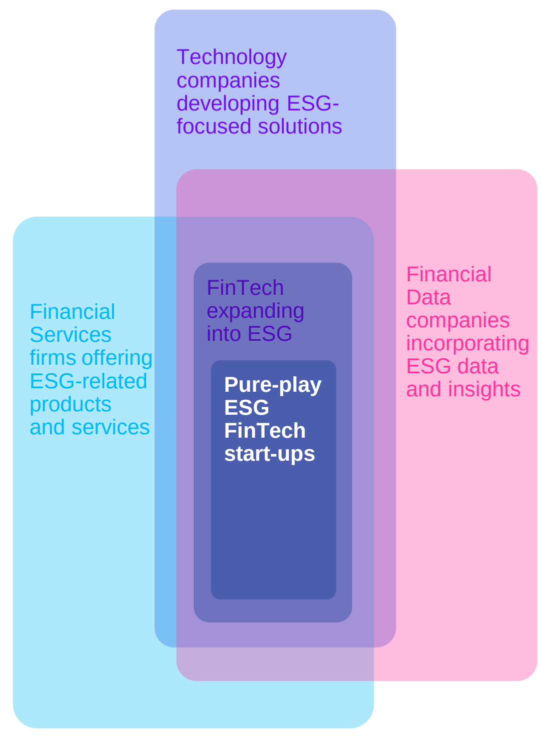
- **Data**: Data-centric technologies and infrastructure that support the collection, analysis, and dissemination of ESG data (e.g. data collection, analytics, verification). High-quality data is the lifeblood of ESG decision-making.
- **Infrastructure**: Foundational technologies, systems and standards essential for the functioning of ESG FinTech solutions (e.g. reporting, exchanges, indices)

Where FinTech meets ESG

The ESG FinTech space is a dynamic ecosystem comprising various company types. Established technology firms are enhancing their financial services offerings with ESG-focused solutions. Financial data providers are diversifying to capture and supply vital ESG data. Traditional financial institutions, such as banks and insurers, are introducing specialized ESG products. Emerging FinTech start-ups are entering this arena, either by expanding existing services or focusing on ESG from inception. Some start-ups are pure-play, wholly dedicated to advancing sustainability and ethical finance practices. Together, these diverse players are driving innovation and transformation in the ESG-driven financial landscape.

- **Technology companies**: Established technology firms that already serve the Financial Services sector and are extending their capabilities to include ESG-focused solutions in their offerings.
- **Financial Data companies**: Providers of financial data solutions expanding their offerings to capture and provide ESG-related data, a critical component of ESG decision-making.
- **Financial Services firms**: Traditional financial institutions such as banks, asset managers, and insurance companies that are increasingly offering specialized ESG-related products and services, such as green bonds and ESG-focused investment products.
- **FinTech start-ups**: Emerging FinTech companies that are entering the ESG space, either by expanding their existing offerings to include ESG services or by establishing themselves as ESG-focused entities from inception.
- **Pure-play ESG FinTech start-ups**: FinTech start-ups that are 100% dedicated to ESG solutions, reflecting a singular commitment to advancing sustainability and ethical practices in finance.

Figure 2: A Diverse ESG FinTech Landscape



Source: KPMG Research

Figure 3: Data Sources Utilized in this Report

ESG FinTech Investment	
External Deal Activity	**In-house Spend by Category leaders**
▪ Global M&A data analysis, including Pitchbook data ▪ KPMG internal resources, including Pulse of FinTech research ▪ Interviews and Surveys of category leaders	▪ Interviews and Surveys of category leaders ▪ KPMG internal resources, including statistical analysis ▪ Public ESG reports of category leaders ▪ Market Research reports on adjacent sector trends or geographical focus

Source: KPMG Research

Methodology of this report

KPMG in Singapore followed a multidimensional methodology to develop this report. We conducted desktop research, including analysis of Pitchbook data, supplemented by surveys and interviews with the Financial Services sector, Tech and FinTech industry leaders, and KPMG experts. We also utilized market reports, tapped into FinTech association directories, and leveraged KPMG's internal resources to enrich our research, resulting in a broad-ranging overview of the sector. This combination of sources helped KPMG professionals to estimate both in-house ESG FinTech spending by category leaders and external deal activity.

- ► **Global M&A Data Analysis**: We have meticulously analysed M&A data within the Financial Services and Technology sectors for the years 2022 and 2023. This analysis provides valuable insights into investment trends and the flow of capital within the ESG FinTech sector.
- ► **Interviews and Surveys**: Our research team conducted interviews and surveys with over 15 industry leaders representing a broad spectrum of stakeholders, including Technology, Financial Services, and FinTech category leaders. These conversations provide a first-hand understanding of ESG FinTech trends and perspectives.
- ► **Review of ESG Reports**: We delved into the ESG reports of category leaders in the Technology, Financial Services, and FinTech sectors. These reports offer deep insights into the strategies, commitments, and activities of major corporates.
- ► **Market Research Reports**: We leveraged market research reports to gather data and insights into the ESG FinTech sector's current state and future outlook. These reports serve as a valuable resource for understanding industry trends.
- ► **Directory of FinTech Associations**: We tapped into the directories of FinTech associations around the world to identify key players and stakeholders within the ESG FinTech ecosystem. This helped us connect with and gather information from industry associations and organizations actively shaping the sector.
- ► **KPMG Internal Resources**: Our research was enriched by drawing on KPMG member firms' internal directory and proprietary research from across the global network, allowing us to access valuable data and insights.

This publication was created as the result of an engagement between MAS and KPMG in Singapore. KPMG in Singapore's participation and contribution to this publication is not an endorsement, sponsorship or implied backing of MAS.

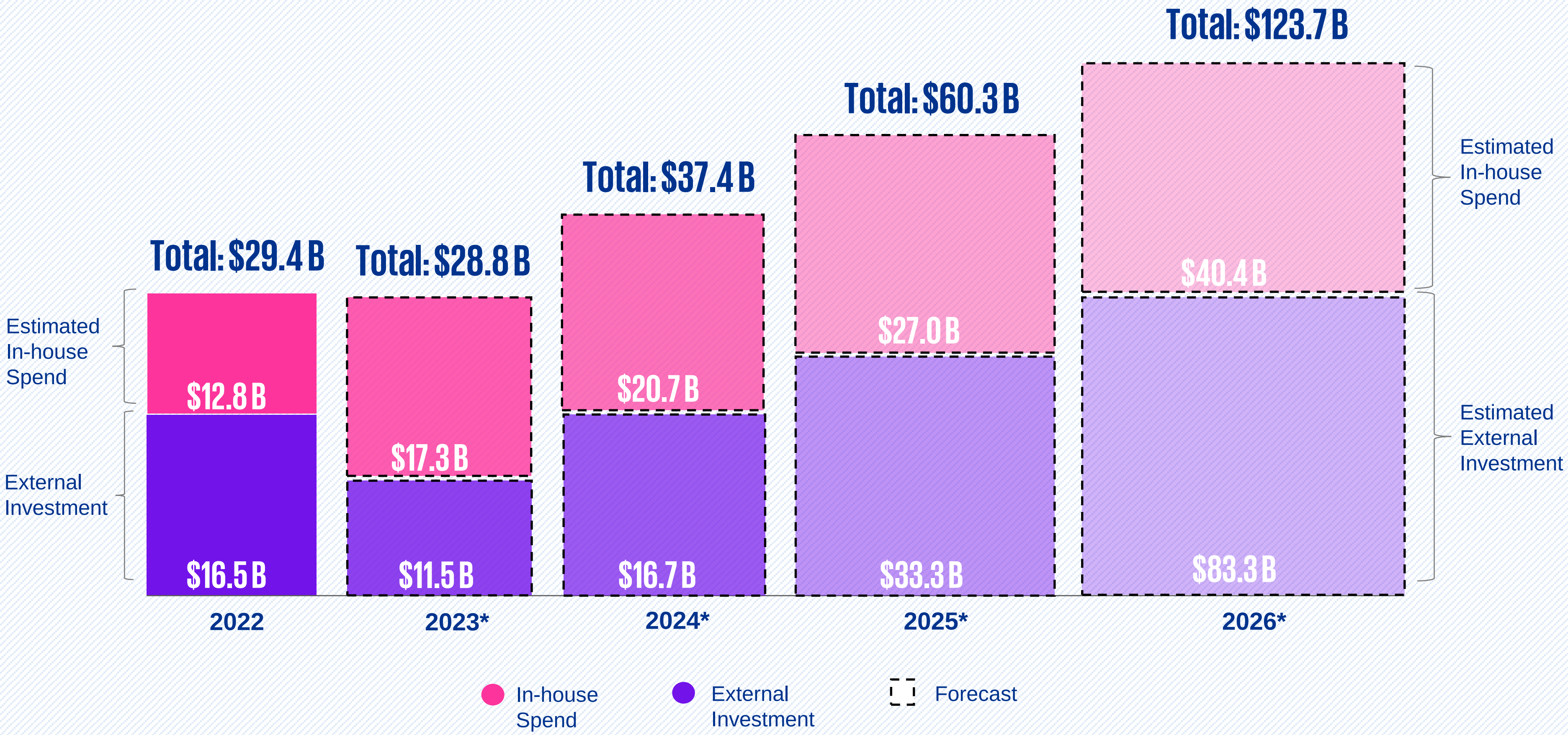
KPMG

Global Insights

ESG FinTech space buoyed in 2023 by increasing in-house spend as external deal activity slows down

Global Insights

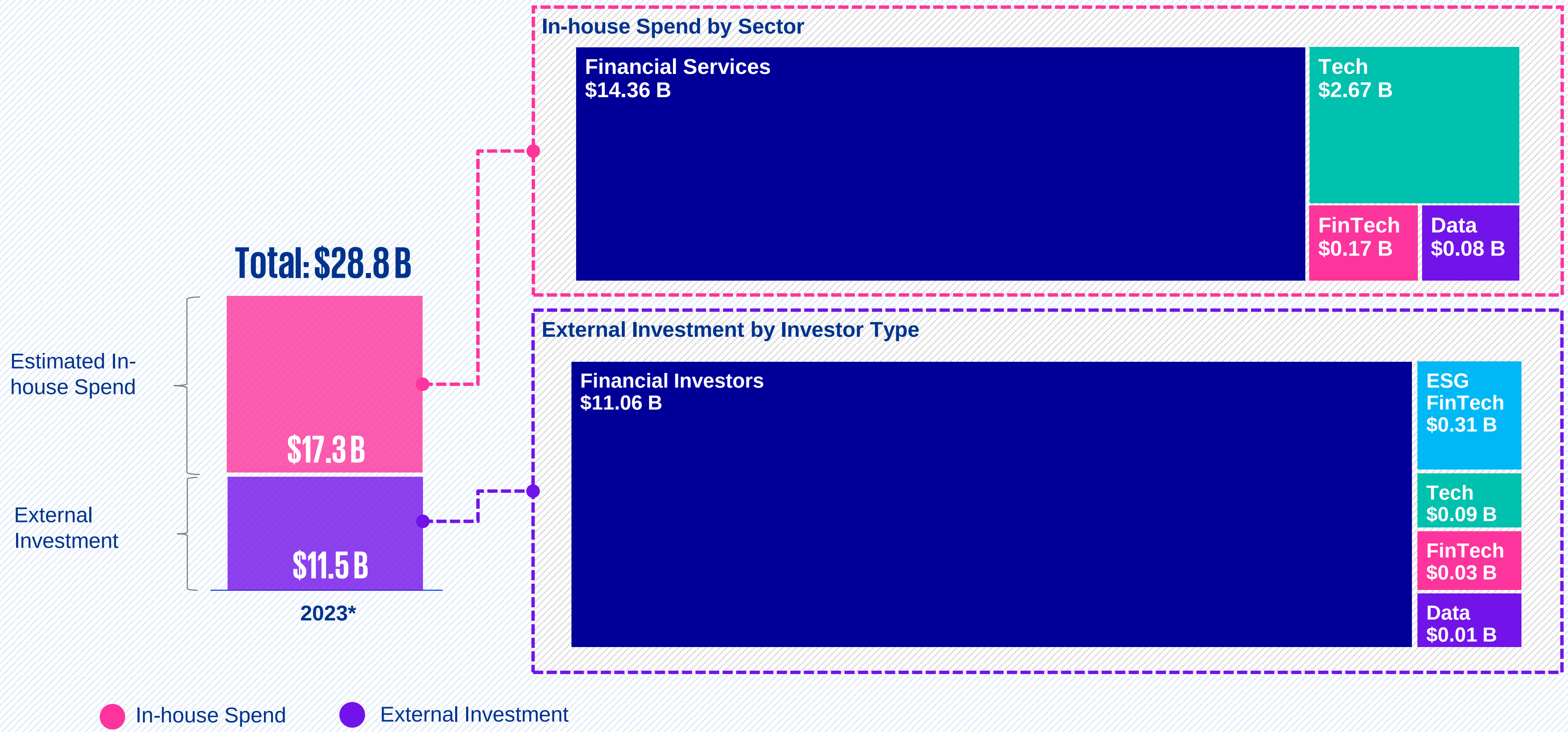
Figure 4: Total Anticipated Global Investment in ESG FinTech (USD)



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research and Surveys

Global Insights

Figure 5: Estimated 2023 Global Investment in ESG FinTech (USD) by Investor Type



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research and Surveys

Global ESG FinTech investment expected to remain stable at $28.8 billion in 2023 as higher in-house spend by financial and tech giants offsets a lower external funding base

The Global ESG FinTech sector is experiencing a dichotomy in investment trends, shaped by a mix of in-house spend and external deal activity. As we delve into the intricacies, we find a dynamic landscape that reflects the conflicting need to accelerate transition to low carbon economies amid an ongoing macroeconomic slowdown.

Resilient ESG FinTech sector driven by higher budget allocated to developing ESG friendly solutions

In 2023, the overall investment in ESG FinTech is expected to reach $28.8 billion. What's striking is that this figure remains relatively stable compared to previous years, thanks to a significant increase in in-house spend by category leaders in the Financial Services and Tech sectors. This in-house spend has surged by an estimated 35.2%, catapulting from $12.8 billion in 2022 to an impressive $17.3 billion in 2023. This substantial uptick signifies a strong commitment from sector leaders to develop and implement ESG FinTech solutions.

Financial Services is the main contributor by a significant margin

Financial Services, comprising banks, insurance companies, and asset managers, spearhead this surge in in-house spending. They account for an estimated $10.59 billion globally in 2022, surging to $14.36 billion in 2023. These institutions are taking substantial steps towards transitioning their financial products into the green economy, aligning themselves with ESG principles. In contrast, the Tech and Financial Data sectors have contributed a relatively modest estimated $2.74 billion of their budget during the same period, highlighting the dominance of traditional financial players in this arena.

External funding falls to $11.5 billion as headwinds persist

External investment has experienced a contrasting trajectory. In 2023, external deals are projected to amount to only $11.5 billion, down from $16.5 billion in 2022. As inflation remained high, interest rates continued to climb, exits remained illusive and start-up valuation saw significant downward pressure. These external factors, which have impacted the broader FinTech landscape, have not spared ESG focused FinTechs, resulting in a slowdown in deal activity globally.

KPMG in Singapore forecasts an increase to total ESG FinTech investment to $37.4 billion in 2024 and a strong acceleration from 2025 onwards

Notably, large deals have been scarce in 2023, while early-stage VC funding remains dynamic, indicating a shift in investor focus towards nascent, innovative ventures, and a brighter future for ESG FinTech external funding as this new wave of start-ups mature and support growth in demand for ESG FinTech solutions and products.

Promising outlook in 2024 driven by continued increase in in-house spend

Looking ahead, KPMG in Singapore forecasts a promising outlook for the ESG FinTech sector. Total ESG FinTech investment is expected to reach $37.4 billion in 2024, driven primarily by a continued surge in in-house spend by the Financial Services and Tech sectors. Simultaneously, external deal activity is anticipated to rebound to levels reminiscent of 2022 as interest rates stabilize at their current high levels or start a slow descent.

Fast acceleration from 2025 onwards as external deal activity bring total investment to new levels

Beyond 2024, the horizon appears even more promising. A strong acceleration of ESG investment spending is forecasted from 2025 onwards. Large companies are poised to hasten their transition towards a majority of ESG-enabled financial products. This transformation will catalyze a significant uptick in external deal activity, as the broader financial ecosystem adapts to support this burgeoning trend. Additionally, the easing of monetary policy conditions on a global scale should provide further impetus to the growth of the ESG FinTech sector.

In conclusion, the ESG FinTech sector is currently navigating a complex investment landscape characterized by a surge in in-house spend by industry leaders and a deceleration in external deal activity due to macroeconomic factors. However, the future appears bright, with robust growth anticipated in both in-house investment and external deals. As the world pivots towards ESG principles, the Financial Services and Tech sectors are gearing up for a transformative journey that will reshape the financial landscape for years to come.

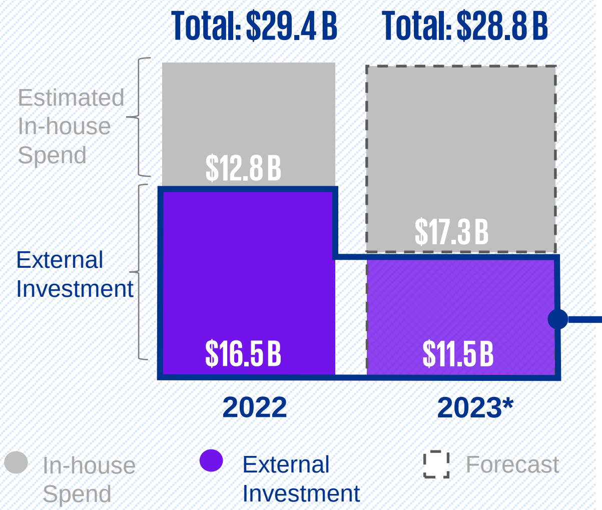
Regional Insights

Regional disparities in
ESG FinTech deal activity.
2023 sees contrasting trends
across regions.

Regional Insights

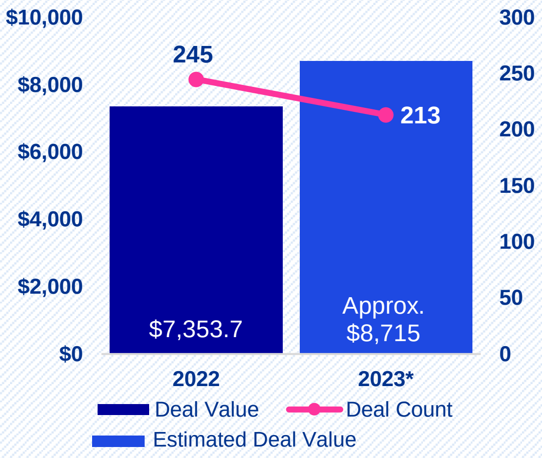
External deal volumes and value provide good proxies to understand and compare regional activity levels.

Figure 6: 2022-2023* Deal Activity in ESG FinTech (USD)

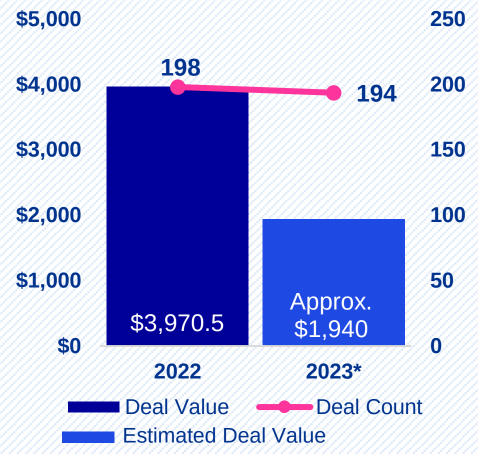


Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research and Surveys

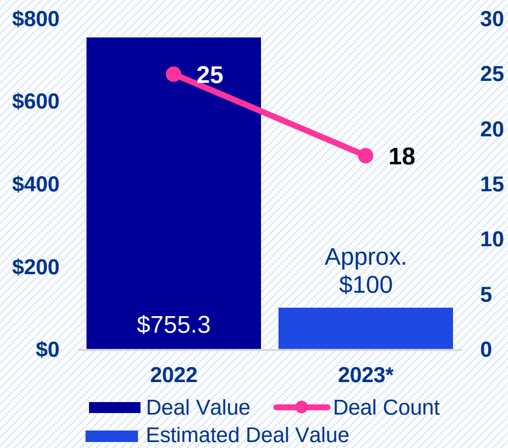
Americas: Total ESG FinTech Deal Activity (US$ million) 2022–2023*



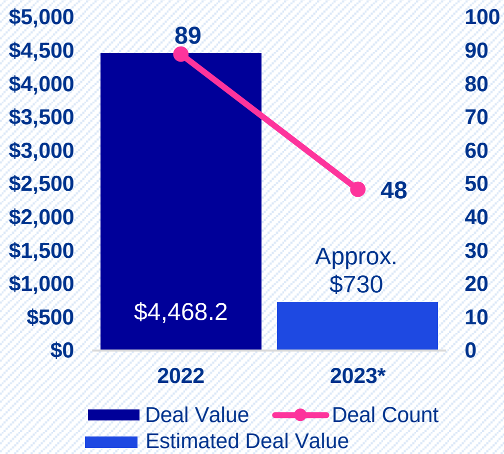
Europe: Total ESG FinTech Deal Activity (US$ million) 2022–2023*



MEA: Total ESG FinTech Deal Activity (US$ million) 2022–2023*

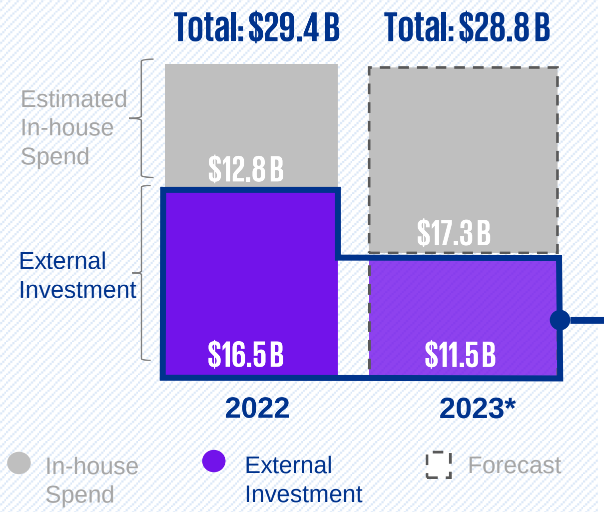


APAC: Total ESG FinTech Deal Activity (US$ million) 2022–2023*

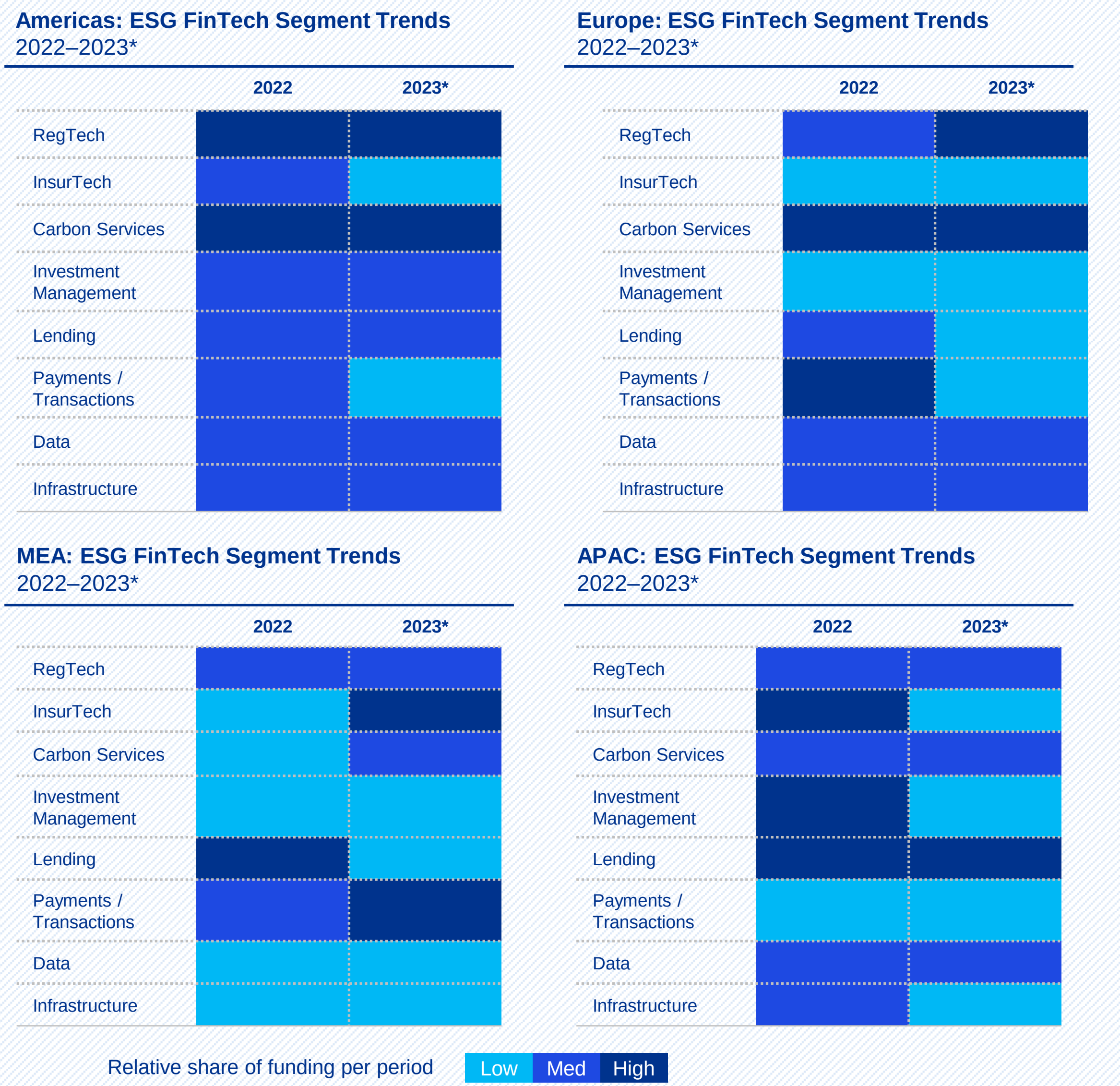


Segment disparities exist across regions

Figure 6: 2022-2023* Deal Activity in ESG FinTech (USD)



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research and Surveys



2023 ESG FinTech deal activity **continues to grow in the Americas**

Americas

Top 10 ESG FinTech deals in the Americas in H1’23

1. **Rubicon Carbon** — $1B, Marina del Rey, US — Carbon Services — *PE Growth*
2. **Xpansiv** — $525M, San Francisco, US — Carbon Services — *Late Stage VC*
3. **CleanCapital** — $500M, New York, US — Investment Management — *PE Growth*
4. **Galway Sustainable Capital**— $250M, Washington, US — Carbon Services — *PE Growth*
5. **Zapproved**— $237M, Portland, US — RegTech — *Buyout*
6. **Charm Industrial** — $100M, San Francisco, US — Carbon Services — *Series B*
7. **ClassWallet** — $95M, Hollywood, US — Payments / Transactions — *PE Growth*
8. **Measurabl** — $93M, San Diego, US — Data — *Series D*
9. **Kiwi (Consumer Finance)** — $79M, San Juan, US — Lending — *Early Stage VC*
10. **Worldly** — $55M, Kensington, US — Data — *Series B*

Source: KPMG in Singapore (data provided by PitchBook)

Regional Insights — Americas

Americas, and in particular the United States, lead the way in ESG FinTech Deal value

ESG FinTech funding expected to strengthen in the Americas in 2023 driven by larger average deal sizes

ESG FinTech investment activity in the Americas is experiencing a robust upswing, poised for significant growth in 2023. Forecasts indicate that the total deal value in this sector is set to surge by approx. $1.4 billion, reaching an impressive $8.7 billion. This surge is primarily driven by larger deal sizes, averaging $41 million, a notable increase from the previous year's $30 million, despite the challenges posed by high interest rates and somewhat depressed valuations. This trend for ESG FinTech aligns with the broader FinTech sector's momentum, as highlighted in KPMG's H1'23 Pulse of FinTech report.

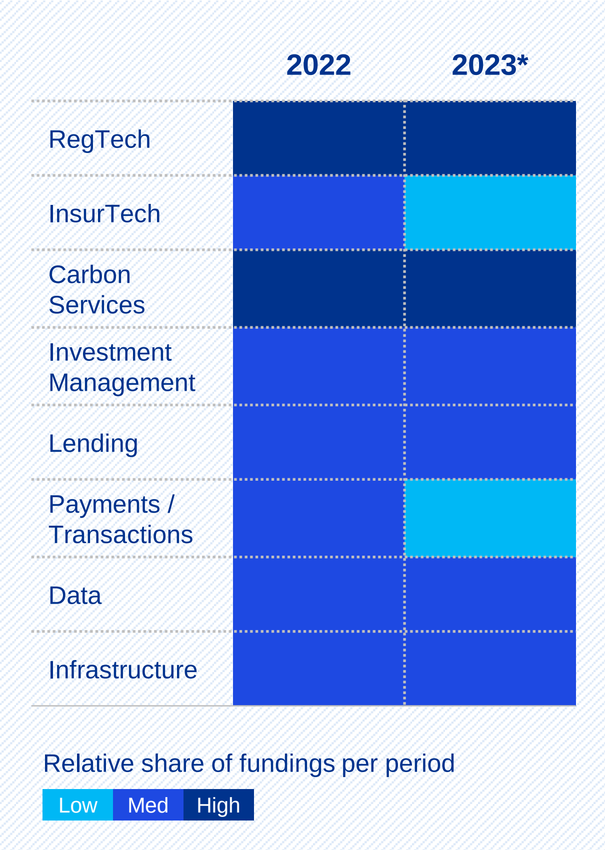
US attracts majority of ESG FinTech funding in the Americas

While ESG FinTech investment activity in the Americas is on the rise, it is worth noting that the United States remains the epicentre of this burgeoning sector in the Americas. The US is the undisputed leader, attracting the lion's share of ESG FinTech funding, with a staggering 283 out of a total of 342 deals recorded in the region over an 18-month period spanning from 2022 into the first half of 2023. This dominance underscores the country's pivotal role in sustainable finance innovation and development.

Canada emerges as the second major hub for ESG FinTech activity in the region, with 33 deals recorded over the same period, although it still trails significantly behind the US. In South America, Brazil leads the way with a total of 17 ESG FinTech deals, showcasing its growing importance in the sustainable finance landscape. The geographic distribution of ESG FinTech funding emphasizes the concentration of activity in key North American markets while signalling the potential for expansion in other parts of the region.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Carbon Services and RegTech continue to further attract more capital relatively to other product verticals

Within the dynamic landscape of ESG FinTech investment activity in the Americas, certain product verticals are standing out, while others show varying degrees of growth and contraction.

Carbon Services and RegTech continue to attract interest

Carbon Services, in particular, is the shining star in this ecosystem. It drove more than 25% of the deal activity in 2022 and is projected to strengthen its position significantly in 2023, potentially commanding over 50% of the total investment activity. This surge reflects the growing emphasis on carbon emissions tracking and mitigation efforts in the region.

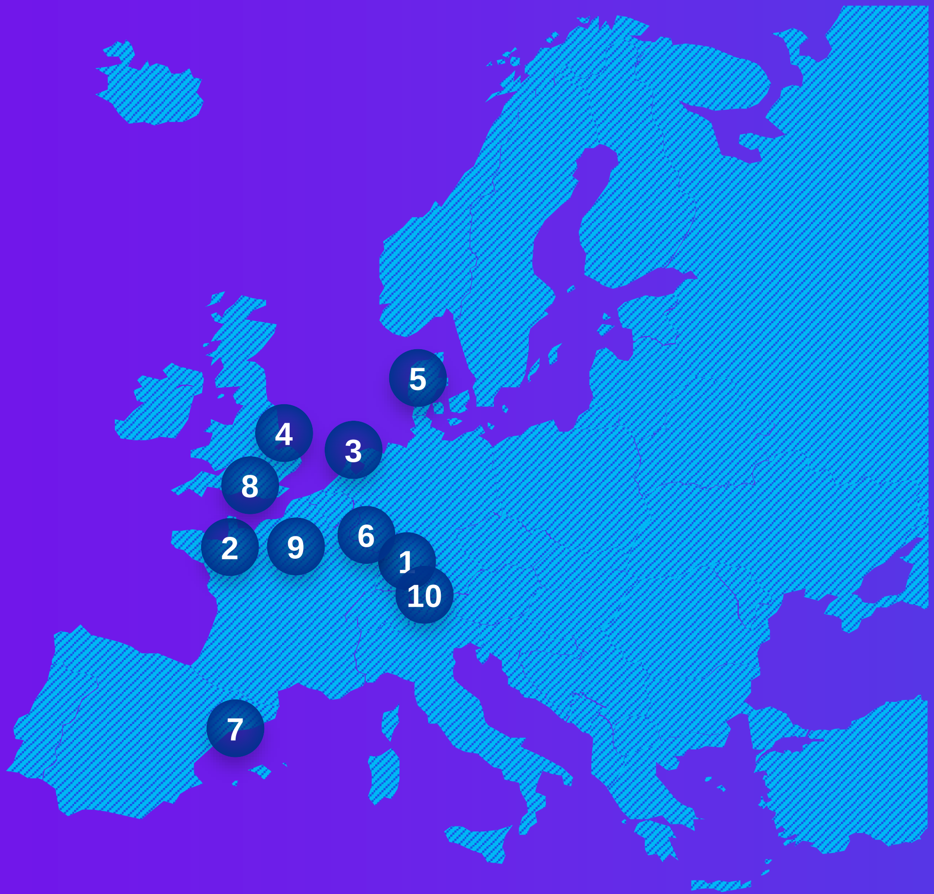
RegTech, while still highly active, is expected to see a decrease in deal value compared to 2022. Nevertheless, it remains a substantial driver, with expectations of accounting for over $770 million in deal value.

Some segments are experiencing a slow down

Conversely, InsurTech and Payments / Transactions segments are witnessing a slowdown in 2023. Together, they are expected to represent less than 4% of the deal value in the ESG FinTech space, signalling a shift in focus towards carbon-related services and regulatory technology as the leading drivers of innovation and investment in the Americas.

2023 ESG FinTech deal activity in Europe remains high **but smaller ticket sizes drive lower total deal value**

Europe



Top 10 ESG FinTech deals in Europe in H1'23

1. **IntegrityNext** — $113M, Munich, Germany — RegTech — *PE growth*
2. **Tennaxia**— $106M, Laval, France — RegTech — *Buyout*
3. **Fourthline** — $53M, Amsterdam, Netherlands — RegTech — *Late Stage VC*
4. **Circularr**— $50M, London, UK — Data — *Early Stage VC*
5. **Agreena** — $49M, Copenhagen, Denmark — Carbon Services — *Series B*
6. **SustainCERT** — $37M, Luxembourg, Luxembourg — Carbon services — *Series B*
7. **ID Finance** — $31M, Barcelona, Spain — Lending — *Late Stage VC*
8. **Railsr**— $24M, London, UK — Payments / Transactions — *Late Stage VC*
9. **Citron** — $21M, Suresnes, France — Data — *Buyout*
10. **HAWK:AI** — $17M, Munich, Germany — RegTech — *Series B*

Source: KPMG in Singapore (data provided by PitchBook)

Regional Insights — Europe

Deal value decreases amid global macroeconomic uncertainty while number of deals remains high

Sustained deal flow – smaller deal sizes

2023 brings both continuity and transformation to the European ESG FinTech space. Deal flow remains robust, with an anticipated 194 deals this year, mirroring 2022's figures. Yet, the winds of change blow through the realm of deal sizes. Macro-economic factors have significantly altered the terrain, resulting in smaller deals with an average size of $10 million, compared to 2022's $20.1 million average.

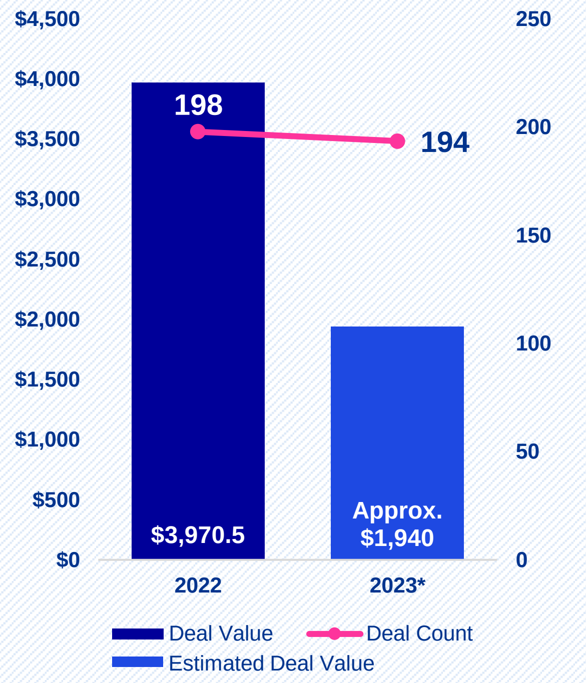
This shift translates to a decreased total external funding forecast, plummeting from $3.97 billion in 2022 to approximately $1.94 billion in 2023. Late-stage VC deals and seed rounds hold sway, showcasing a dual narrative— some recapitalization of established start-ups alongside a surge in dynamic, newly minted ventures.

Western Europe takes centre stage

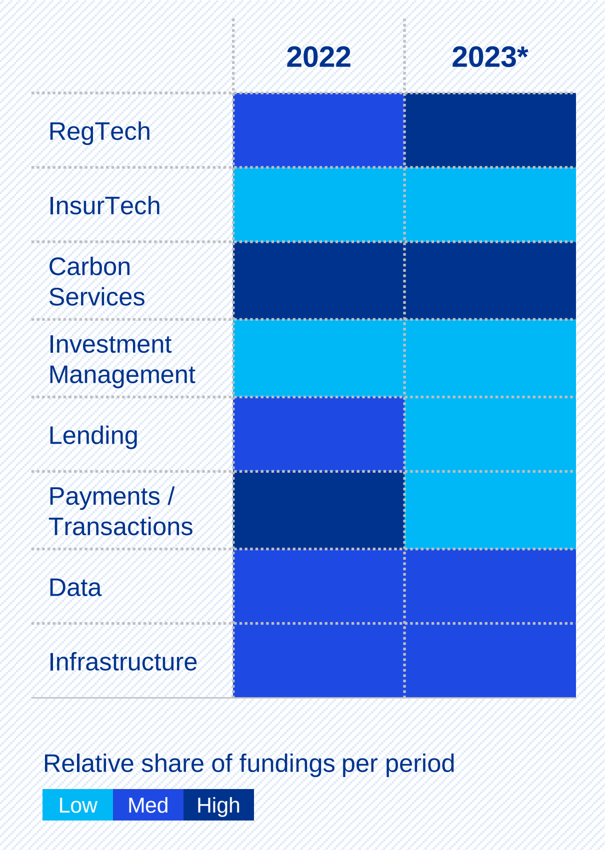
The United Kingdom emerges as a focal point, boasting an impressive 106 deals spanning the 18-month period from 2022 to H1'23. Not to be overshadowed, France and Germany command substantial attention with 38 and 44 deals, respectively.

Beyond these key players, a formidable third group of countries, including the Netherlands, Spain, and Sweden, have each recorded between 10 to 20 ESG FinTech deals during this timeframe. This geographic distribution underscores the region's diverse ESG FinTech landscape, with different nations contributing their unique threads to the tapestry of sustainable finance innovation across Western Europe.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

RegTech and Carbon Services major contributors

Dynamic ESG FinTech activity in some segments
Four dominant categories have emerged in Europe as the primary focus of deal activity in the first half of 2023.

Firstly, RegTech has emerged as a frontrunner, capturing the lion’s share of funding in H1’2023 with $321 million across 12 deals, reflecting European’s leadership in rolling out ESG standards and regulations.

Secondly, Carbon Services has seen the most activity with an impressive 48 deals in H1’2023 contributing a total of $305 million. Notably, many companies in this space are in their early stages, with an average deal value of only $6.4 million, indicating a vibrant ecosystem of startups dedicated to carbon-related solutions.

Additionally, Data attracted funding of $117 million in H1'2023, reflecting the critical role of data analytics in the ESG FinTech ecosystem and the European focus on ramping up ESG Data disclosure requirements.

Significant funding slowdown in Payments / Transactions
While the European Payments / Transactions sector is maturing, the funding reaching companies supporting the growth of this ESG FinTech segment slowed down in H1'2023 with investment representing only $21 million while it accounted for over $1billion for the full year of 2022.

ESG InsurTech and Investment Management continue to lag
On the other end of the spectrum InsurTech and Investment Management companies that focus on ESG solutions only attracted respectively $32M and $101M in funding for a total of 15 deals over the 18 months period (2022 – H1’23).

ESG FinTech deal activity in Middle East & Africa (MEA) slides **as large deals don’t materialize in 2023**

Middle East & Africa (MEA)

Top 10 ESG FinTech deals in MEA in H1'23

1. **Naked** — $17M, Johannesburg, South Africa — InsurTech — *Series B*
2. **Yellow** — $14M, Lilongwe, Malawi — Payments / Transactions — *Series B*
3. **Ballerine** — $5M, Tel Aviv, Israel — RegTech— *Seed Round*
4. **Beev** — $2.75M, Saint-Denis, Reunion — Carbon Services — *Seed Round*
5. **SunFi**— $2.3M, Lagos, Nigeria — Payments / Transactions — *Seed Round*
6. **Hohm Energy** — $2M, Johannesburg, South Africa — Carbon Services — *Seed Round*
7. **Amini** — $2M, Nairobi, Kenya — Data — *Seed Round*
8. **ThriveAgric** — $1M, Abuja, Nigeria — Lending — Grant

Source: KPMG in Singapore (data provided by PitchBook)

Regional Insights — MEA

Relatively lower activity is recorded in MEA with a significant slowdown in 2023 driven by a lack of large deals

Absence of large deals in H1'23
In 2023, ESG FinTech deals in the Middle East & Africa (MEA) region are anticipated to amount to just $100 million, marking a significant decline from the robust $755 million recorded in 2022.

The decline in deal value can be attributed to the absence of large-scale transactions in 2023. The previous year saw the surge in ESG FinTech investments thanks to five substantial deals ranging from $50 million to $200 million. However, as of publishing the current report, no such major deals have yet materialized in 2023.

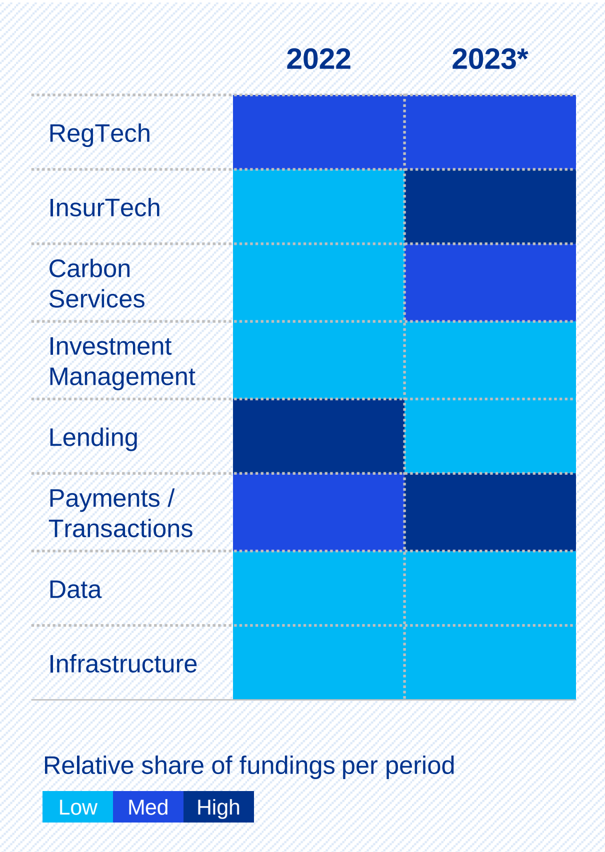
In the first half of 2023, seed rounds have taken center stage, dominating the investment landscape, with just two Series B deals reported. This shift in funding stages reflects macroeconomic conditions affecting large deals in the MEA region. Nevertheless, the potential for growth and innovation in this space remains promising, with the market poised for potential resurgence in the coming years.

Israel regional leader, followed by Nigeria
When examining the geographic distribution of ESG FinTech investment activity across the Middle East and Africa (MEA) over the extended period of 18 months spanning from 2022 through the first half of 2023, certain regional hotspots come into focus. Notably, Israel has emerged as the undisputed leader in this regard, with a remarkable tally of 10 deals during this period. Following closely behind is Nigeria, boasting 7 deals, highlighting its growing presence in the ESG FinTech arena.

Furthermore, South Africa and Kenya have also displayed potential as emerging ecosystems, with both countries recording 3 deals each within the same timeframe. Despite these promising pockets of activity, it's important to note that the overall ESG FinTech investment activity in the MEA region still lags behind that of other global regions, indicating substantial room for growth and expansion in the future.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Scattered activity, continued focus on Payments / Transactions

Room for growth beyond Payments / Transactions
ESG FinTech investment activity across the Middle East and Africa (MEA) over the span of 18 months from 2022 through the first half of 2023 recorded a lack of strong and distinct trends in product verticals. Notably, no particular product focus trend has emerged during this period, underscoring the relatively nascent nature of the ESG FinTech sector in the region.

However, a consistent focus on Payments / Transactions remains evident, particularly in Africa with a strong focus on financial inclusion, where the majority of this activity is concentrated. This focus suggests that the payment and transactional aspects of ESG FinTech are of continued interest to investors.

Activity is especially low in some segments
On the other hand, product verticals and enablers such as Infrastructure, Investment Management, and Data have witnessed consistently low deal activity throughout this period, with only a few deals occurring, and those deals tend to be of smaller sizes. This indicates that while ESG FinTech is gaining traction in MEA, it is still in the early stages of development across various product verticals, and there is potential for further growth and diversification in the future.

ESG FinTech deal activity slows down in Asia Pacific (APAC) **while Lending remains the most dynamic segment**

Asia Pacific (APAC)

Top 10 ESG FinTech deals in APAC in H1'23

1. **Gojo & Company** — $90M, Tokyo, Japan — Lending — *Series E*
2. **Lentra** — $87M, Pune, India— Lending— *Series B*
3. **ViewPoint Software (Malaysia)**— $40M, Serdang, Malaysia — RegTech — *PE Growth*
4. **Avanti Finance (Consumer Finance)** — $24M, Bangalore, India — Lending — *Series B*
5. **Kitabisa**— $20M, Kota Jakarta Selatan, Indonesia — Lending — *Late Stage VC*
6. **Zeroboard**— $18M, Tokyo, Japan— Carbon Services— *Series A*
7. **FLINTpro** — $9M, Canberra, Australia — Carbon Services — *Series A*
8. **Sensand**— $6M, Melbourne, Australia — Data — *Angel*
9. **Desilo** — $4.5M, Seoul, South Korea — Data — *Series A*
10. **StepChange** — $4M, Bangalore, India — Data — *Seed Round*

Source: KPMG in Singapore (data provided by PitchBook)

Regional Insights — APAC

A lack of large deals negatively affect the total deal value

Absence of mega deals in H1’23
A notable shift has emerged in the first half of 2023 for ESG FinTech deal activity in Asia Pacific. Notably absent are the colossal deals that marked 2022, with a substantial drop in ESG FinTech investment from $4.47 billion to an anticipated $730 million this year. While 2022 saw a flurry of mega-deals exceeding $1 billion each, 2023 has yet to witness any such massive transactions.

Instead, late-stage investments represent the majority of deals, as mature start-ups seek to recapitalize in response to challenging macroeconomic conditions. This shift underscores the adaptability of the ESG FinTech sector in APAC, as it navigates the changing investment landscape while remaining committed to sustainable finance and responsible business practices.

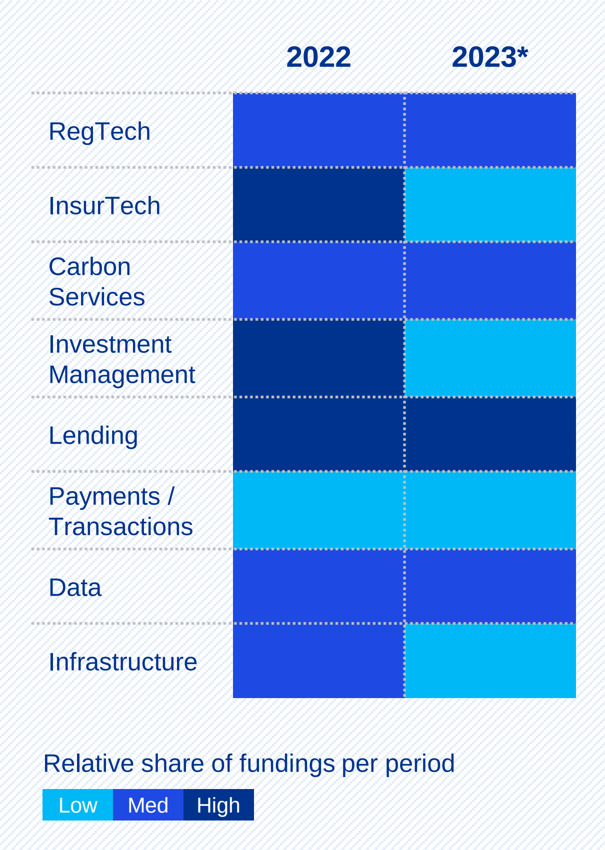
China, India, Australia and Singapore ESG FinTech leaders in APAC
Zooming in on the geographic landscape of ESG FinTech investment activity in the Asia Pacific (APAC) region, China, India, Australia, and Singapore emerge as prominent leaders in the sector. An extended analysis spanning 18 months, from 2022 through the first half of 2023, reveals these nations as hotspots for ESG FinTech innovation.
China and Australia, in particular, stand out with the highest deal values, collectively accounting for over two-thirds of the funding in the region. Their success is notably attributed to a series of substantial deals that have fortified their positions as frontrunners in sustainable finance.

India and Singapore, while notching fewer large transactions, have showcased their vibrant ESG FinTech ecosystems through a high volume of smaller deals, numbering 24 and 19, respectively. This underscores their commitment to nurturing innovative start-ups and driving sustainable finance solutions.

Additionally, Japan, though to a lesser extent, has demonstrated its dynamism in the ESG FinTech sphere, recording 13 such deals over the 18-month period. As APAC continues to evolve in the realm of sustainable finance, these countries are poised to play pivotal roles in shaping the region's ESG FinTech landscape.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Continued focus on Lending, notably in India

Within the dynamic landscape of ESG FinTech investment in the APAC region, certain segments and product verticals have emerged as frontrunners while others have experienced shifts in momentum.

Strong focus on ESG Lending in APAC

Sustainable and equitable lending continues to be a leading trend, attracting substantial funding across APAC and representing approximately 31% of the total deal activity in ESG FinTech over the period. Notably, India has seen a pronounced focus on lending, with numerous deals in this sector.

RegTech, Carbon Services, Data remain resilient

In addition to Lending, RegTech, Carbon Services, and Data have garnered consistent interest and investment over the analyzed 18-month period, reflecting the region's commitment to compliance, sustainability, and infrastructure development.

Conversely, InsurTech, Infrastructure, and Investment Management witnessed a slowdown in 2023 following a dynamic 2022. These three segments have been particularly affected by the shift in macroeconomic conditions and investor sentiments in 2023.

ESG FinTech Segments

- RegTech
- InsurTech
- Carbon Services
- Investment Management
- Lending
- Payments / Transactions
- Data
- Infrastructure

ESG FinTech – Global Segment Trends

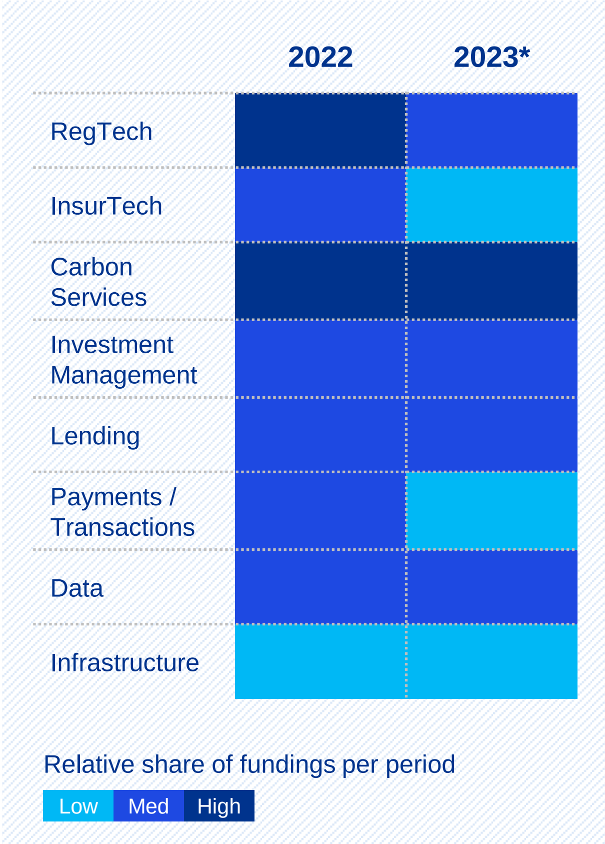
RegTech and Carbon Services recorded the most deal activity in 2022 while the latter pulls ahead in 2023

RegTech and Carbon Services attracted most funding globally in 2022
In 2022, ESG FinTech investment activity displayed a distinctive pattern, with RegTech and Carbon Services emerging as the clear frontrunners in terms of funding. ESG RegTech, a more mature segment, took the lead by attracting a substantial $3.16 billion in investments, with deals averaging an impressive $50 million each. Meanwhile, Carbon Services, a more dynamic sector, secured $3.01 billion in funding across 232 deals, with each deal averaging around $13 million. These numbers highlight the sector's early-stage vitality and its potential to address pressing environmental concerns. Interestingly, other segments in the ESG FinTech landscape garnered relatively similar funding levels, ranging from $1.4 billion to $2.6 billion, emphasizing the diversification of sustainable finance initiatives, with the exception of Infrastructure which collected only $488 million.

Carbon Services pull ahead in 2023
In 2023, the landscape of ESG FinTech investment activity witnessed a shift, further amplifying the dominance of Carbon Services. This promising trend from 2022 carried into the new year, with Carbon Services solidifying its position by securing an estimated 229 deals. What's even more striking is the growing average deal size, which is estimated to surge to $25.7 million, culminating in an impressive total deal value of approximately $5.9 billion. Carbon Services' meteoric rise underscores the urgency of addressing environmental concerns within the financial sector.

On the other hand, the 2022 champion, RegTech, experienced a significant slowdown. Funding for RegTech in 2023 is projected to be about half the size of 2022, marking a shift in investor focus within the ESG FinTech sphere.

InsurTech and Payments / Transactions experience a drought in funding in 2023
In 2023, the ESG FinTech landscape witnessed a noticeable shift as funding streams ran dry for two key sectors: InsurTech and Payments / Transactions.



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

InsurTech, once a thriving hub of innovation, bore the brunt of this funding slowdown. The first half of the year saw a dismal number of deals, and the projected funding for the year stands at a meagre $170 million, a stark contrast to the $1.43 billion it raked in just the previous year. This drastic decline raises questions about the industry's resilience and its ability to weather economic storms.

Similarly, Payments / Transactions, a linchpin of the FinTech ecosystem, experienced a substantial slowdown, with global funding plummeting to an estimated $340 million from a robust $2 billion in 2022. This drop signals a potential reckoning for the payment giants, as they grapple with evolving market dynamics.

Interestingly, other segments of ESG FinTech remained relatively stable, or at least experienced a less severe decrease in funding during this challenging year. As the industry navigates these troubled waters, adaptability and strategic planning will be paramount to survival and future success.

ESG FinTech — RegTech

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Following a remarkable year in 2022, funding in the RegTech sector has experienced a deceleration in H1’23

Total funding in RegTech slowed in H1’23

The ESG-focused RegTech sector recorded $3.16 billion in funding for 2022. However, there is a decline in the funding outlook for 2023, with a projected total of only $1.6 billion. This deceleration is primarily due to the notable absence of significant high-value deals that characterized both the first and second halves of 2022. Furthermore, the challenging macroeconomic conditions in 2023 have led to a shortage of funding within the FinTech landscape. This scarcity can be primarily attributed to elevated interest rates, resulting in many companies relying on their existing financial runway to navigate these challenging conditions.

In H1’22, RegTech secured $1.36 billion in funding, with a notable $456.77 million PE deal for Abrigo, a developer of risk management software designed to enhance compliance and efficiency in financial institutions. The second half of 2022 saw a surge, with funding reaching $1.80 billion, driven in part by a massive $1 billion deal for Exterro, a developer of GRC software.

While 2023 exhibited a slowdown in deal activity, totalling $722 million in the first half, funding activity is expected to remain resilient. The continued growth of regulations, combined with the essential role played by RegTech in facilitating compliance and efficiency, ensures a sustained focus on this segment in the ESG FinTech landscape.

The US and Europe emerge as frontrunners in the RegTech sector

Across 2022 and H1’23, the US completed 35 deals, amassing a substantial funding volume of $2.88 billion. In the same period, Europe secured funding for 32 deals, totalling $754 million. These numbers underscore the pivotal role both regions play in driving innovation and regulatory compliance within the ESG-focused RegTech sector. This influence is driven by the maturity of their financial markets and the emerging ESG regulatory frameworks they are implementing.

The increasing complexity of business operations and international regulations has propelled the demand for RegTech solutions

RegTech firms play an important role in supporting critical functions ranging from banking supervision to policy management, fraud prevention, and employing cutting-edge AI and ML techniques for monitoring, reporting, and compliance.

Compliance automation platforms continue to attract attention from Bank investors

Of particular interest were platforms using AI/ ML to digitalize and streamline end-to-end AML and KYC. The banking sector has been steadily moving from manual KYC processes to more automated systems with integrated workflow capabilities, alongside the adoption of digital onboarding and identity verification solutions.

Growing ESG regulatory requirements will continue to drive funding for RegTech

With the introduction of regulatory frameworks like the EU Sustainable Finance Disclosure Regulation (SFDR) and the SEC Climate Disclosure Rule, organizations are increasingly required to declare their ESG performance and impact. This has contributed towards funding in RegTech providers that offer technologies to streamline data gathering, integrate data sources, and generate accurate reports to meet regulatory requirements more effectively.

RegTech H1'23 deals spotlight

Deal value: US$53.7m

Fourthline (Target) | Finch Capital (Investor)

In 2Q23, Fourthline (Dutch regtech firm specialising in AI-powered and compliant KYC and AML solutions) raised ~US$54 million aimed at ramping up business growth and expanding regional operations. The company plans to use the funds to become 'undisputed tech platform of choice' to alleviate the compliance burden on European financial services and FinTech firms. In terms of go-to-market focus, the company continues to maintain its specialist stance on European financial services sector, at least in the near-term.

Deal value: US$51.0m

Red Oak Compliance Solutions (Target) | Mainsail Partners (Investor)

In 2Q23, Red Oak Compliance Solutions, intelligent compliance software intended for financial and insurance industries, raised US$51 million investment led by Mainsail Partners (Growth equity firm specializing in investment in software companies). The transaction will enable the company to augment innovative product development, continue upgrades to existing software suite and also expand its customer service model.

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech — InsurTech

InsurTech sector sees substantial investment slowdown from 2022 to H1'23

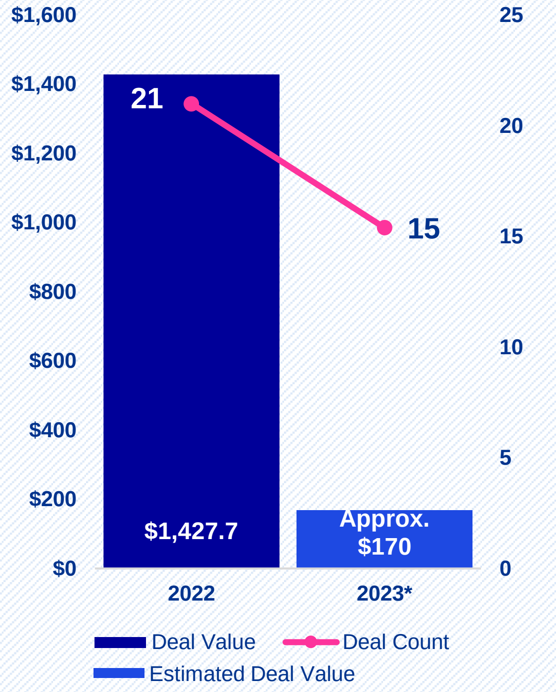
Sharp decline in funding flowing into the InsurTech sector
The InsurTech landscape has experienced a significant drawdown in funding over recent years, registering only 28 deals from 2022 to H1'23. In 1H 2022, the sector secured a total of $1.34 billion in funding, primarily driven by a substantial VC deal of $1.02 billion for Dinghe Insurance. Dinghe specializes in providing insurance services for the green energy sector, covering renewable energy, offshore wind power, large hydropower, and pumped storage.

However, the funding landscape took a sharp turn in the second half of 2022, witnessing a substantial drop to $86 million. This marked the onset of a slowdown in InsurTech investments, and this trend continued into the first half of 2023, with only $76 million in funding. This slowdown can be attributed to a broader market downturn and the specific challenges faced by InsurTech firms in achieving profitability, which created a more demanding funding environment.

Looking ahead to 2023, the InsurTech sector is expected to grapple with ongoing funding challenges while adapting to evolving market dynamics and striving for sustainable growth, with an estimated total of $170 million. Notably, the reduction in InsurTech investments has been most pronounced in late-stage Series C, Series D, and subsequent funding rounds.

InsurTech deals are primarily centred in the Americas region
Geographically, the majority of InsurTech deals from 2022 to H1'23 has been concentrated in the Americas region, tallying 16 deals and accumulating a sum of $281 million. The standout outlier investment was in Dinghe which occurred within the APAC region.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Continued focus on Digitalization and Climate Resilience in the InsurTech sector amidst investment headwinds

Digitalization remains in the spotlight
Investments are flowing into technology-driven solutions aimed at enhancing the efficiency of back-office processes such as claims processing, risk assessment, contract management, and policy underwriting.

Additionally, there is a rising adoption of AI/ ML to underpin InsurTech solutions, particularly in critical areas such as fraud detection and forensics.

Increased activity in Climate Insurance
As climate-related losses continue to escalate, insurers are realizing the need for more precise, real-time climate data and advanced analytics capabilities to accurately price policies and manage claims.

In response to this challenge, investments are shifting towards InsurTech companies that provide advanced modelling and underwriting data analytics to better assess climate-related risks.

Furthermore, there is a growing presence of parametric insurance offerings from InsurTech firms, which offer pay-outs based on predefined weather conditions rather than traditional damage assessments. While initial parametric insurance pilots may be confined to specific regions or product types, their maturation is expected to drive them into the mainstream insurance market in the coming years.

InsurTech H1’23 deals spotlight

Deal value: US$17.0m

Naked (Target) | IFC (Investor)
In 1Q23, Naked (Africa-based end-to-end AI-driven InsurTech) entered into a Series B funding round from International Finance Corporation (IFC). Through this deal, the company plans to increase the penetration of tech-driven insurance solutions and contribute to financial inclusion in South Africa.

Deal value: US$6.5m

Raincoat (Target) | Two Sigma Ventures (Investor)
In 2Q23, Raincoat (Puerto Rico-based parametric insurance solutions provider) entered into an additional round of seed funding round led by Two Sigma Ventures. The proceeds of this round of capital are aimed at augmenting the company's expansion to new markets to provide FEMA-like services – much faster than existing emergency solutions – after particular disasters such as hurricanes and earthquakes. The company had earlier raised a US$4.5 million funding round led by Anthemis (InsurTech-focused investor).

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech — Carbon Services

Total ESG FinTech Deal Activity (US$ million)
2022–2023*

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

The Carbon Services sector is poised for remarkable growth

Surge in investment in Carbon Services
From 2022 to H1’23, the total funding for the sector reached a substantial $5.59 billion. This trend initially took off in H1’22, witnessing 126 deals with a total value of $1.74 billion. The sector maintained its robust performance in H2’22, with 106 deals amounting to $1.27 billion in funding. The momentum surged in H1’23, with 104 deals securing a total investment of $2.68 billion.

Standout investments in H1’23 featured Rubicon Carbon, securing an impressive $1 billion in funding, and Xpansiv, which attracted a significant $525 million in investment. Both companies are leading carbon-solutions providers, offering environmental commodities like carbon credits, renewable energy certificates, and energy solutions to address the rising demand for carbon credits.

The increased focus on carbon management stems from the urgency of addressing climate change, putting significant pressure on large businesses to reduce their carbon emissions. The finalization of the Paris Agreement Article 6 rulebook at COP-26 has provided an important foundation for public and private entities to leverage carbon markets in their efforts to achieve climate goals.

As the global climate agenda continues to gain momentum, the outlook for the Carbon Services sector remains highly promising, with expected funding reaching $5.9 billion in 2023.

Carbon Services sector thriving in the Americas and Europe
From 2022 to H1'23, the Carbon Services sector has seen substantial activity in the Americas and Europe regions. In the Americas, there were 143 deals totalling $4.11 billion, while Europe recorded 146 deals amounting to $1.28 billion. These regions have emerged as key players in addressing climate change, attracting significant investments to support carbon-related initiatives and sustainable practices.

Expanding Carbon Markets drive demand for goods and services related to Measurement, Reporting, and Verification (MRV)

Beyond opportunities in carbon exchanges/ platforms to facilitate the trading of carbon credits, the growing carbon market is also driving demand for technology-enabled carbon management solutions and assurance services.

Increased investments in carbon management solutions

As sustainability takes center stage, companies are under increasing pressure to minimize their carbon footprint. This has led to a surge in investments flowing into ESG FinTech firms that harness cutting-edge technologies such as IoT, data analytics, and machine learning to support companies in monitoring, calculating, managing, and mitigating their environmental impact.

Assurance takes off

Investments are also pouring into the realm of assurance services as market participants face heightened public scrutiny and accusations of "greenwashing" for their carbon credit usage claims.

The complexities inherent in the carbon credit market, along with the opacity surrounding project sourcing, have introduced substantial risks for corporations across various industries. Furthermore, the introduction of laws and standards regulating the utilization of carbon credits for carbon footprint offsetting has further underscored the necessity for robust assurance mechanisms. As a result, the demand for assurance, particularly for high-quality carbon credits, is experiencing rapid growth.

Carbon Services H1’23 deals spotlight

Deal value: US$1,000.0m

Rubicon Carbon (Target) | JetBlue Ventures (Investor)

In 4Q22, US-based carbon credit platform, Rubicon Carbon, raised development capital from Bank of America, JetBlue Ventures and NGP ETP. The company seeks to utilize proceeds to fund projects aimed at removing carbon and selling credits to other companies. Rubicon Carbon Capital is one such project which will enable the firm to work with developers and help fund new projects.

Deal value: US$525.0m

Xpansiv (Target) | Blackstone (Investor)

Carbon trading infrastructure platform, Xpansiv, raised venture funding from 13 institutional investors to fuel continued growth in Xpansiv's service offerings and technology platforms. The funds will be used to capitalize on their early lead, creating a uniquely positioned company with ownership of critical software, technology, and a scalable exchange for trading voluntary carbon offsets and related environmental products, as well as to fuel continued growth in Xpansiv’s service offerings and the firm's technology platforms.

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech — Investment Management

Resilient Investment Management segment with a similar number of slightly smaller deals expected in 2023

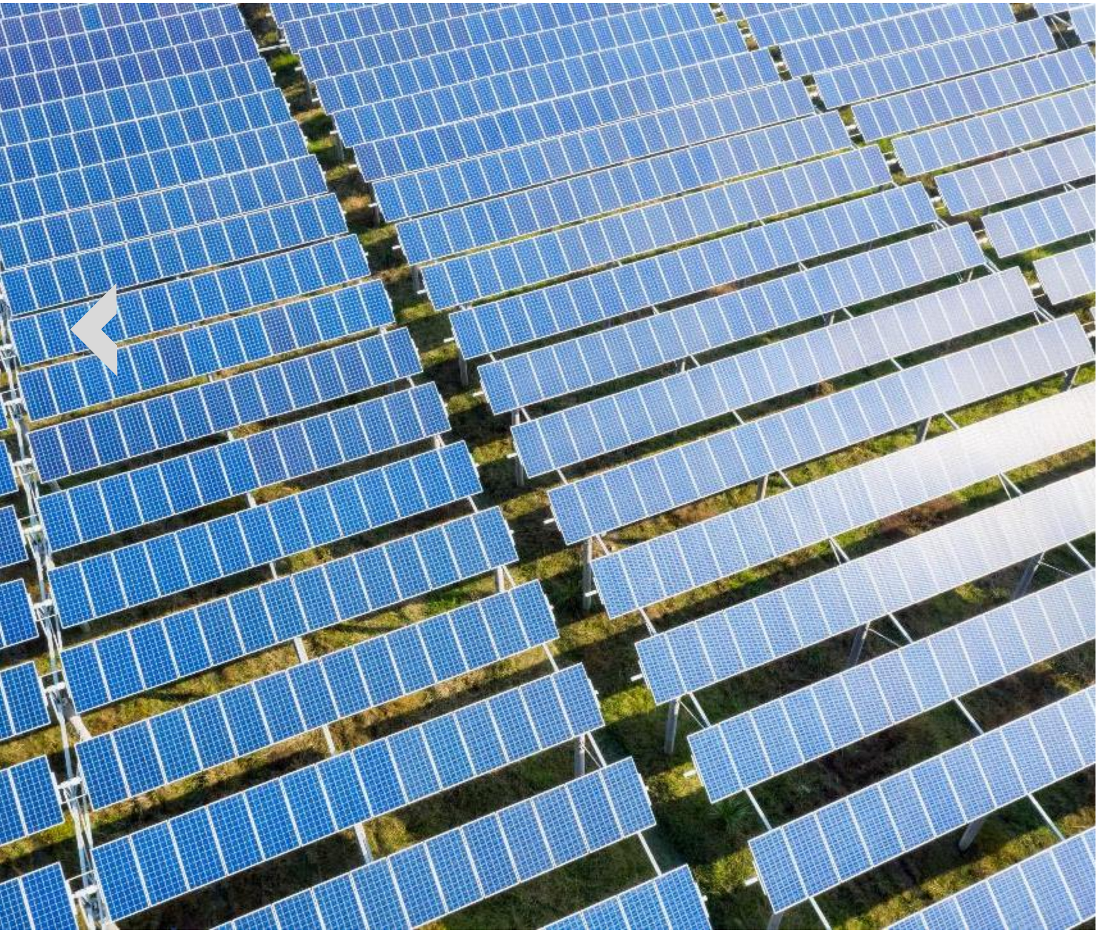
Funding of investment management platforms remains dynamic
The Investment Management platform sector, a prominent segment within the ESG FinTech landscape, is navigating a dynamic funding landscape in 2023. With an estimated number of deals remaining steady at around 22, the industry is showing resilience and stability in the face of evolving market conditions.

In 2022, the sector experienced a significant boost in deal value, largely propelled by the significant $1 billion acquisition of Australia-based platform Superhero by Swyftx. This mega-deal underscored the sector's potential for growth and innovation. However, 2023 has not witnessed the same level of mega-deal transactions, with the exception of CleanCapital securing $500 million in development capital from Manulife Investment Management in the US. This development demonstrates that while mega-deals may be rarer this year, there is still substantial interest and investment in the sector.

Activity is well distributed geographically, with the exception of MEA
Notably, investment management platforms continue to attract capital from various regions, including the Americas, Europe, and Asia. However, the MEA region appears to lag behind, with no such deals recorded in the 18-month period from 2022 to H1 2023. Despite regional variations, the investment management platform trend remains promising, underlining its enduring appeal to investors and the financial industry at large.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research



Investment Management H1’23 deals spotlight

Deal value: US$500.0m

CleanCapital (Target) | Manulife Investment Management (Investor)

In 2Q23, an online marketplace for clean energy investing, closed a US$500 million development capital funding round led by Canadian investment management firm, Manulife Investment Management. The company aims to use the funds to advance early-stage solar and storage development, and to acquire renewable energy assets throughout the US, as well as to expand partnerships in emerging markets.

Deal value: US$15.0m

LIQUiDITY Group (Target) | MUFG (Investor)

In 2Q23, Liquidiy Group (Israel-based investment management firm aimed at tech companies to eradicate financial challenges) secured US$40 million in venture funding round led by MUFG Innovation Partners. The new funding is set to be used to provide additional credit lines to tech growth companies. The partnership is driven by a common vision of using machine learning technology to enhance and accelerate the decision-making process of deploying large debt facilities and equity investments.

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech — Lending

Slowdown in both deal activity and ticket sizes, lack of large deals

Lending losing steam in 2023

Investment in ESG Lending, a crucial segment of the ESG FinTech landscape, is experiencing downward shifts in 2023. The year has brought forth a notable slowdown in deal activity and investment ticket sizes, marking a departure from the momentum witnessed in 2022. The forecast for 2023 anticipates a mere 33 deals, down from the previous year's 45, with an average ticket size plummeting from $56.7 million in 2022 to $27.3 million in 2023.

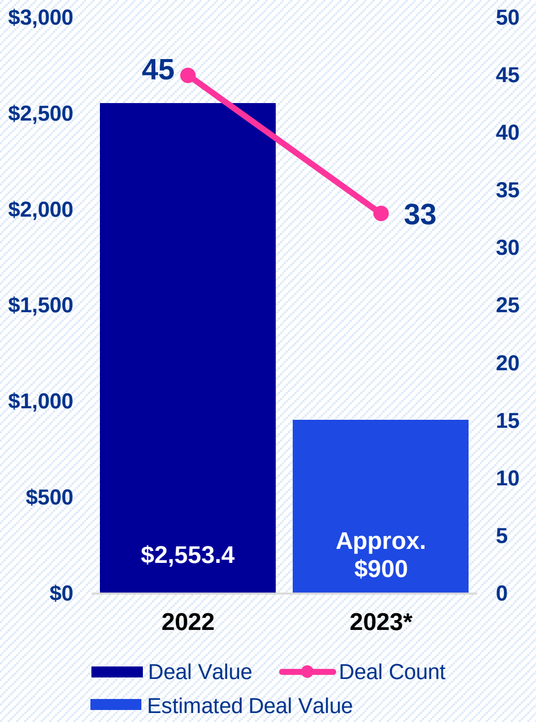
Large deals, which were conspicuous in 2022 with five surpassing the $100 million mark, have become elusive in H1'23. The blockbuster $1.1 billion acquisition of Australia-based La Trobe Financial by Brookfield Asset Management in Q1'22 contributed significantly to the 2022 deal value, yet no such mega deals have materialized in 2023, as of the report's writing.

APAC dynamism

The APAC region stands out as a hotbed of ESG Lending activity, with lending initiatives playing a pivotal role in advancing environmental and social objectives. ESG FinTech Lending platforms in this space exhibit a dual focus: environmental sustainability by supporting carbon transition projects and social inclusivity through microfinance and inclusive credit scoring. This dynamic approach underscores the region's commitment to sustainable finance.

In conclusion, while 2023 has seen a temporary deceleration in ESG Lending, the strong emphasis on environmental and social aspects in APAC suggests that this FinTech segment remains a critical driver of responsible and inclusive finance, poised for resurgence in the near future.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Lending H1'23 deals spotlight

Deal value: US$87.0m

Lentara (Target) | MUFG Bank and others (Investor)

Indian cloud lending platform aimed at promoting financial inclusion, Lentara, raises US$27 million in series B funding round aimed at support digital innovation and expansion to other APAC geographies. By 2027, the firm targets to onboard 250 banking partners and reach $250 million (Rs 2,000 crore) in annual recurring revenue (ARR).

Deal value: US$79.5m

Kiwi (Target) | MUFG (Investor) | Advent-Morro Equity Partners (Investor)

Puerto Rico-based FinTech dedicated to helping consumers build credit history and improve financial literacy, raised US$79.5 million venture funding (combination of US$75 million credit facility and $4.5 million pre-series A funding round). The company intends to use the funds to continue to expand its services and reach more customers across the US and Latin America.

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech — Payments / Transactions

Total ESG FinTech Deal Activity (US$ million)
2022–2023*

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

The ESG Payments / Transactions space experiences a drought in 2023 funding

Drought in funding of ESG Payments / Transactions solutions
Deal volume and value in ESG Payments and Transactions solutions both experienced a notable downward shift in 2023. This year, the sector faced a drought in funding, with just an estimated 20 deals on the horizon, a stark drop from the 54 witnessed in 2022. Furthermore, the average deal size has also seen a significant decrease, plummeting from $2.04 billion in 2022 to $340 million in 2023.

Few deals to report in H1’23
H1’23, while marked by a scarcity of noteworthy deals, did bring a ray of hope with the impressive $95 million development capital infusion into the United States-based digital wallet technology platform, ClassWallet, courtesy of GuidePost Growth Equity. However, large-scale transactions, those exceeding the $100 million mark, have become a rarity, with none on the radar in 2023, a stark contrast to the over $1.4 billion they contributed in 2022.

High valuations from 2021-2022 depress the Payments / Transactions deal activity
Several factors have contributed to this sudden slowdown. Global economic anxieties, fears of recession, high inflation rates, and rapid interest rate hikes in numerous jurisdictions have cast a shadow of uncertainty over the investment landscape. Additionally, the high valuations for the broader Payments / Transactions ecosystem inherited from the booming years 2021 and 2022 has further exacerbated the challenges faced by ESG Payments and Transactions solutions in securing funding.

Payments / Transactions H1’23 deals spotlight

Deal value: US$95.0m

ClassWallet (Target) | Guidepost Growth Equity (Investor)

ClassWallet, digital wallet technology platform, received a developmental capital from Guidepost Global Equity in 1Q23. Through this funding, the company aims to grow its digital wallet-based purchasing and reimbursement platform for public funds, especially improving efficiency and transparency around fund disbursement in education. Patented digital wallet technology from ClassWallet streamlines funds distribution at scale, ensuring compliance through automation at every step of the purchasing and reimbursement lifecycle.

Deal value: US$14.3m

Aibidia (Target) | DN Capital and FPV Ventures (Investor)

Aibidia, raised a Series A venture funding in a deal led by DN Capital and FPV Ventures in 2Q23. Global Founders Capital and Icebreaker.vc also participated in the round. The funds will be used to further expand the team and its global presence in London and Helsinki and also continue innovating the platform.

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech — Data

Total ESG Data solutions funding slows down but early stage investment remains dynamic

Drop in large deals in 2023 affects total deal value in ESG Data solutions

The landscape of ESG Data solutions within the realm of ESG FinTech is experiencing a transformation in 2023. After a booming year in 2022, where the total deal value surged closed to $2.2 billion, this year has witnessed a notable dip, with estimates pegging it at $930 million. The decline can be primarily attributed to a decrease in large-scale deals, which were the driving force behind the impressive figures of the previous year.

In 2022, the ESG Data solutions segment made headlines with four deals exceeding the $100 million mark. One standout deal was the remarkable $521 million funding round for EcoVadis, a sustainability ratings provider. These sizable investments underscored the growing importance of ESG data in the financial world.

Funding activity shows a balanced mix between early and late-stage investments

Although there has been a decrease in the overall deal value, the ESG Data Solutions segment continues to thrive, displaying a balanced distribution of deals spanning both early-stage and late-stage financing in H1'23. This showcases a flourishing ecosystem that caters to a variety of funding options for start-ups and innovators at various stages of developing ESG data solutions.

Americas and Europe lead the march

Geographically, the Americas and Europe have emerged as the frontrunners in the ESG Data solutions arena. This prominence can be attributed to an evolving regulatory landscape and the standardization of ESG data disclosure, which has fuelled demand for such solutions. As companies grapple with the complexities of ESG reporting, the need for reliable data providers has never been more apparent.

Total ESG FinTech Deal Activity (US$ million)
2022–2023*

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

ESG FinTech — Data

Bright future ahead for providers of ESG Data solutions

Looking ahead, ESG Data is poised to become one of the leading segments within ESG FinTech. The anticipated surge in demand is driven by impending regulatory requirements and the continued standardization of ESG data disclosure. Additionally, the growing appetite for green finance and sustainable investments is expected to accelerate the adoption of ESG data solutions. As the financial world increasingly integrates environmental, social, and governance factors into decision-making processes, ESG Data solutions are set to play a pivotal role in shaping the future of responsible investing and corporate sustainability.

Data H1’23 deals spotlight

Deal value: US$93.0m

Measurabl (Target) | Energy Impact Ventures, Sway Ventures (Investor)

In 2Q23, Measurabl (ESG data platform), raised a Series D funding round worth US$93 million from a consortium of investors led by Energy Impact Ventures and Sway Ventures. Through this funding, the company aims to enhance its ESG technologies, expand geographic footprint and facilitate sustainable transition of real estate sector. Measurabl offers tools for managing, benchmarking, reporting and tracking sustainability of real estate business.

Deal value: US$40.0m

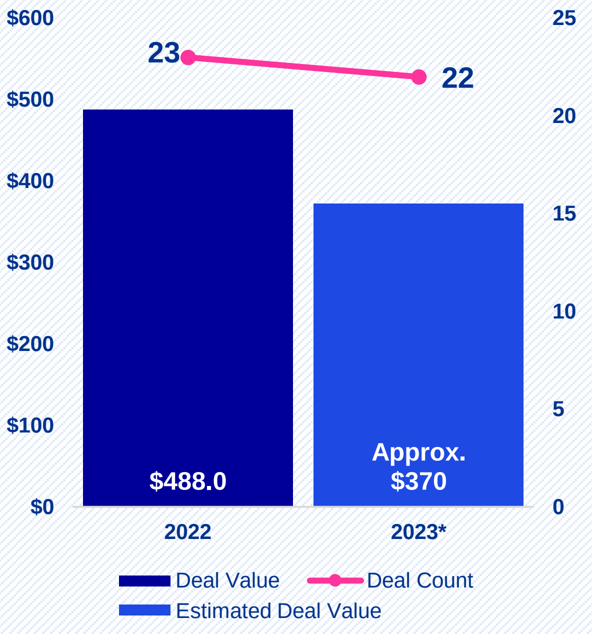
Versana (Target) | Morgan Stanley, US Bank, Wells Fargo (Investor)

In 1Q23, Versana (loan data platform aimed at bringing transparency in the US loan market) received fresh equity investments from leading US-based banking groups in 1Q23. The company, backed-up by seven of the top 10 banks in the US, aims to modernize the domestic syndicated loan market through straight-through processing technology. With the addition of new investors, the platform now has 75 percent of the US loan market agreements available in real-time.

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech — Infrastructure

Total ESG FinTech Deal Activity (US$ million)
2022–2023*



Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Amidst a minor funding dip, the FinTech infrastructure landscape evolves

Infrastructure deal activity relatively stable in 2023
In 2022, the infrastructure sector observed a total of 23 deals, accumulating $488 million in funding. The first half of the year displayed robust activity, with 14 deals securing a substantial $362 million. However, during the second half of 2022, there was a decrease in deal volume, with 9 deals amounting to $126 million in funding.

Transitioning into 2023, investment activity continues to be active, with the first half of the year seeing 10 deals and $169 million in funding. The full-year forecast for 2023 anticipates around 22 deals with an estimated funding of approximately $370 million, indicating a slight decrease compared to the previous year. Nevertheless, these statistics reflect the continued investor confidence and the industry's commitment to innovation and growth in the ESG FinTech infrastructure landscape.

Americas and Europe take the lead, APAC gains momentum
In the Americas region, there have been 17 deals with a combined funding of approximately $322 million, demonstrating a strong appetite for FinTech infrastructure investments. Europe is also an active player in this space, with 9 deals totalling $227 million in funding, highlighting the continued growth of FinTech infrastructure solutions.

In the APAC region, investment activity is notable, with 6 deals securing around $107 million in funding. APAC's FinTech infrastructure sector is on an upward trajectory, driven by the region's rapidly expanding financial markets and technological advancements.

Innovative applications are heralding a new era in the realm of FinTech infrastructure

The financial sector is witnessing a growing emphasis on harnessing data and analytics to introduce new products and services that enhance existing infrastructure with ESG data. This drive extends to streamlining back-end operations linked to data aggregation and reporting, with substantial investments flowing into the development of data and analytics solutions to meet the escalating demand.

Simultaneously, the market landscape is undergoing a revolution. The growth of alternative capital markets, encompassing private placements of equity and debt, and the emergence of digital asset markets, herald the advent of new liquidity sources, redefining traditional industry boundaries. To support this new development, there's an increasing focus on advancing traditional financial market infrastructure through technologies like blockchain and decentralized finance (DeFi).

These innovative applications underscore the sector's commitment to innovation and adaptability in the ever-evolving domain of FinTech infrastructure.

Infrastructure H1'23 deals spotlight

Deal value: US$45.0m

Unit21 (Target) | SPC and Tiger Global Management (Acquiror)

Risk and compliance infrastructure platform, Unit21, raised US$45 million in a series C funding round led by Tiger Global Management and South Park Commons in 2Q23. This funding is aimed at growing FinTech fraud DAO consortium – a collaborative approach to address fraud and money laundering.

Deal value: US$25.0m

Banyan Infrastructure (Target) | Energize Capital (Investor)

In 1Q23, Banyan Infrastructure, sustainable infrastructure financing platform, series B venture funding in a deal led by Energize Ventures. The funds will be used to double the headcount and further develop the company's proprietary software.

Source: KPMG in Singapore (data provided by PitchBook)

ESG FinTech Hubs

Regional Hubs are emerging in Americas, Europe and APAC

Defining ESG FinTech Hubs – KPMG Singapore Insights

Understanding ESG FinTech Hubs – Characteristics and Metrics

An ESG FinTech hub serves as the epicentre for ESG FinTech initiatives within a particular region or network. It constitutes an ecosystem encompassing all the infrastructure, organizations, and individuals within the hub, along with the dynamics of how these elements are organized and interconnected within urban settings.

ESG FinTech hubs exhibit unique attributes shaped by their historical development and local nuances. However, a common set of metrics can be employed to discern leading hubs. These metrics provide valuable insights into the vibrancy, growth trajectory, and competitive positioning of ESG FinTech ecosystems on a global scale.

Deal Count

Deal count provides an indicator of the level of activity among investors deploying capital within a particular city. A low deal count may suggest a reduction in investment activity, while a high deal count signifies active investor participation.

Deal Value

Investment deals are well-documented sources of capital and are commonly used within the industry to assess the state of ESG FinTech activity in different hubs. Elevated values and volumes of investment activity serve as proxies for heightened levels of ESG FinTech activity within these hubs.

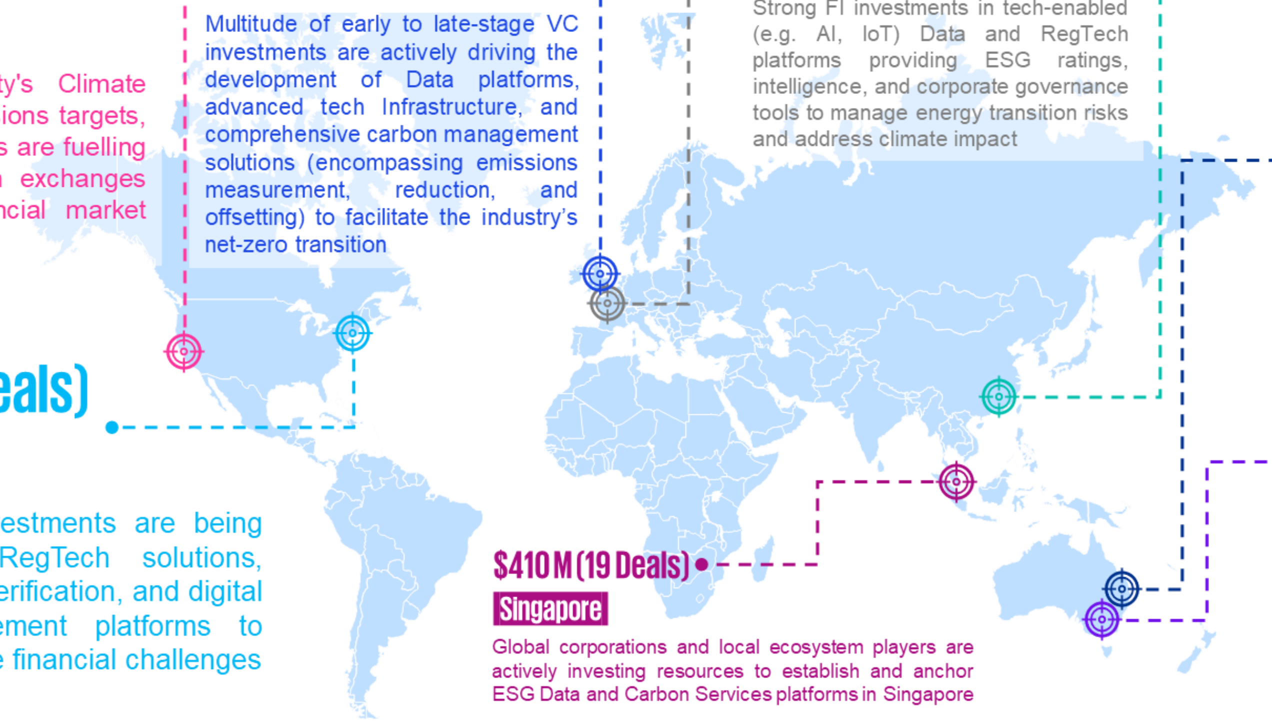
ESG FinTech Hub Qualification Methodology

1. Scan markets to identify relevant ESG FinTech deals across cities
2. Deal count and deal value provide a measurable proxy for ESG FinTech activity
3. For cities with high activity levels, review local Policy, Talent, Capital, and Demand characteristics
4. Derive environment growth drivers from observations

Source: KPMG Research

Global Map of ESG FinTech Hubs

ESG FinTech Hotspots – Americas, Europe and APAC cities lead in deal activity (2022 - H1'23)



$1.49 B (35 Deals)

San Francisco

Aligned with the city's Climate Action Plan and emissions targets, substantial investments are fuelling the growth of carbon exchanges and sustainable financial market infrastructure

$1.12 B (68 Deals)

London

Multitude of early to late-stage VC investments are actively driving the development of Data platforms, advanced tech Infrastructure, and comprehensive carbon management solutions (encompassing emissions measurement, reduction, and offsetting) to facilitate the industry's net-zero transition

$938 M (24 Deals)

Paris

Strong FI investments in tech-enabled (e.g. AI, IoT) Data and RegTech platforms providing ESG ratings, intelligence, and corporate governance tools to manage energy transition risks and address climate impact

$1.03 B (3 Deals)

Shenzhen

Concentrated late-stage VC investments in InsurTech services for the Renewable Energy sector and platforms for Green Mobility

$2.19 B (47 Deals)

New York

Numerous large investments are being directed towards RegTech solutions, specifically identity verification, and digital Investment Management platforms to address and alleviate financial challenges effectively

$410 M (19 Deals)

Singapore

Global corporations and local ecosystem players are actively investing resources to establish and anchor ESG Data and Carbon Services platforms in Singapore

$1.09 B (11 Deals)

Sydney

Major corporate acquisition of an Investment Management platform and several early-stage VC fundings for solutions that facilitate carbon management and regulatory compliance

$1.21 B (6 Deals)

Melbourne

Large FI acquisition of a lending platform expanding credit access to underserved segments as well as several late-stage VC investments in KYC/ AML solutions and ESG Data platforms

Growth Drivers of ESG FinTech Ecosystems

The strength of an ESG FinTech ecosystem depends on several fundamental components that comprise the building blocks for the ecosystem to thrive. Four key factors are needed to nurture a thriving ESG FinTech hub in any city:

1. Policy & Regulations

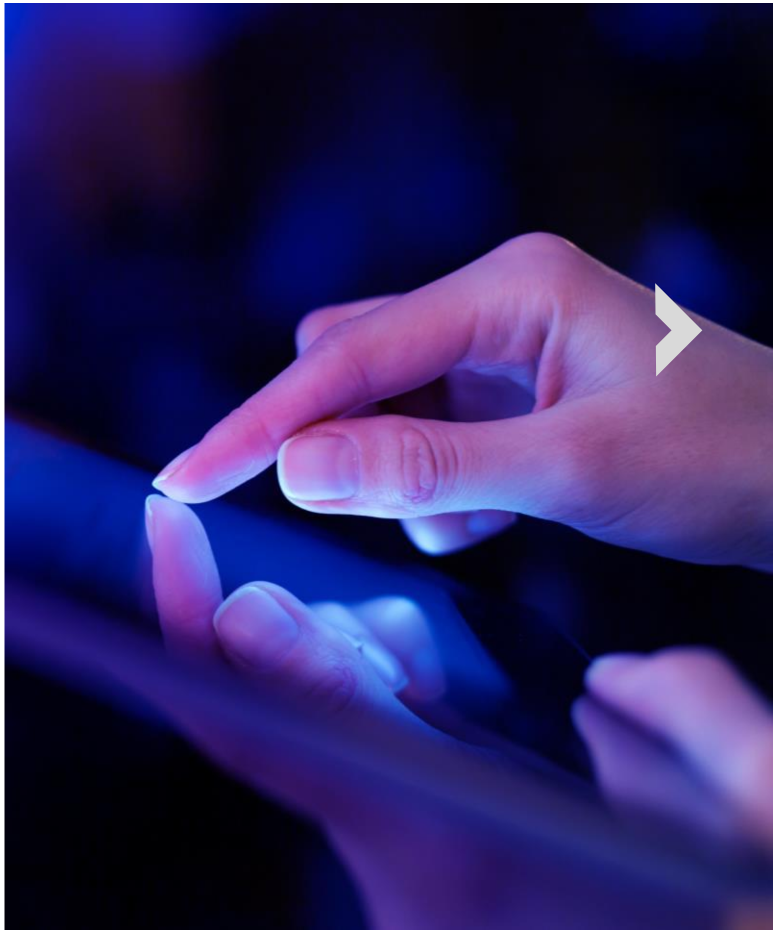
Policies and regulations wield significant influence over the trajectory of ESG FinTech development within ecosystems. Regulators and governments face the crucial task of striking a delicate balance — fostering effective competition and innovation on one hand, while safeguarding the interests of investors and consumers on the other.

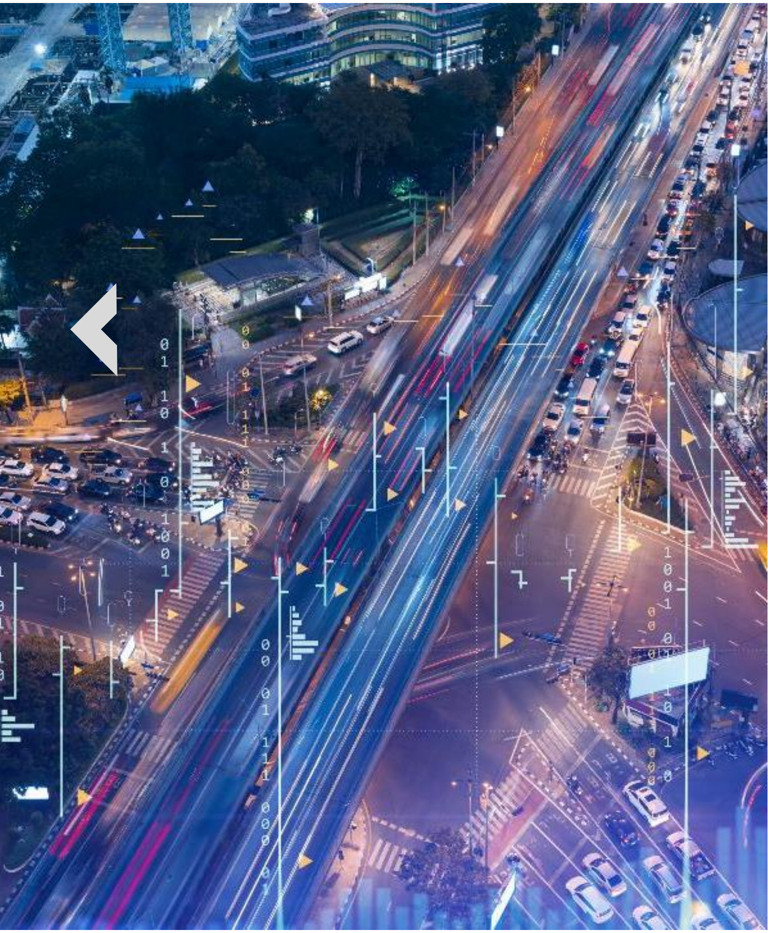
2. Talent

The ability to cultivate, attract, and retain talent across 4 critical domains is paramount to the global success of the ESG FinTech ecosystem. These domains encompass:

- ESG Expertise: Proficiency in ESG principles to seamlessly integrate and implement them into FinTech products and services.
- Financial Acumen: A deep understanding of financial services, encompassing not only products and services but also a keen awareness of existing process pain-points and opportunities.
- Technological Capabilities: Technical expertise to develop the requisite software and hardware to translate innovative ideas into practical solutions.
- Entrepreneurial Skills: Entrepreneurial talent capable of identifying commercial opportunities and mobilizing the necessary resources to bring concepts to fruition.

Additionally, peripheral talent pools, including legal, marketing, and business development skillsets, play an important role in enriching the talent landscape within a hub. This diverse talent mix fosters a culture of innovation, serving as a compelling magnet for talent attraction and retention on a global scale.





3. Capital

Start-ups require access to both seed and scale capital to nurture and expand their ideas. They gravitate toward locations where investment opportunities are abundant, making access to capital — whether from public entities like governments or private sources like angel investors, VC/PE firms, and corporations — a pivotal driver of ESG FinTech activity throughout the ecosystem. Greater values and volumes of VC investments play a crucial role in elevating ESG FinTech activity levels.

In addition to funding start-ups and scaling ESG FinTech institutions, investment is also required for supporting initiatives such as sandboxes and non-profit accelerators. These initiatives foster collaboration within the ESG FinTech ecosystem, further enhancing its vibrancy and potential for positive impact.

4. Demand

As in many other industries, demand plays a pivotal role in shaping the ESG FinTech landscape. This demand for ESG FinTech products arises from two primary sources: consumers (B2C) and businesses (B2B).

The strength of the ESG FinTech market in a particular hub often correlates with the maturity of the financial services industry therein. Well-established financial markets tend to breed more financially savvy consumers who are open to exploring new financial products and services. Moreover, established financial institutions in these hubs, seeking to enhance their own offerings, can become valuable sources of investment for B2B ESG FinTech companies. This synergy between knowledgeable consumers and financially robust institutions further fuels the growth and innovation in the ESG FinTech sector.

Comparative Analysis of Leading ESG FinTech Hubs

Strong Moderate Limited

Region	Peer group	Policy & Regulations	Talent	Capital	Demand
	Singapore	▶ Multi-agency approach in developing the digital economy ▶ Forward-looking regulations (IP laws, Regulatory Sandbox etc.)	▶ Tech skills shortage, but public-private initiatives (e.g. SGFC) aimed at nurturing a skilled tech workforce are being developed	▶ Range of funding programmes (e.g. FSTI, Startup SG) to aid start-ups in scaling up	▶ Growing Interest in ESG Data and Carbon Services platforms
Americas	**New York**	▶ Numerous supportive structures set up to foster ESG FinTech collaboration (e.g. New York FinTech Innovation Lab)	▶ Good access to skilled talent, with ongoing investments in building up Green Finance expertise	▶ Home to global financial institutions offering robust capital support for businesses	▶ Mature ecosystem and business environment with high demand for RegTech and Investment Management solutions
Americas	**San Francisco**	▶ Progressive regulatory regime to help advance ESG impact (e.g. the Climate Action Plan)	▶ Diverse talent pool with continued capability and capacity building efforts in ESG domain	▶ Epicentre for venture investors providing growth capital for prospective start-ups	▶ Expanding market for carbon exchanges and sustainable financial market infrastructure
Europe	**London**	▶ Growing policy directives for sustainability disclosures and a strong emphasis on developing a Carbon Services hub	▶ Deep talent pool specialized in ESG	▶ Leading financial centre with extensive access to capital	▶ Vibrant ESG market generating strong demand for Data, Infrastructure, and Carbon Services offerings
Europe	**Paris**	▶ Leading Sustainability policies and regulations, driven by the EU's SFDR framework	▶ Specialized research institutes and IHLs help cultivate a talent pool highly proficient in emerging technologies	▶ Ample access to capital	▶ Expanding market for Data platforms and RegTech solutions
APAC	**Shenzhen**	▶ Multiple government initiatives, business associations, and cross-border agreements set up to foster ecosystem growth	▶ Good access to a highly skilled workforce	▶ Strong financial backing, especially by the government	▶ Growing interest in InsurTech services for Renewable Energy
APAC	**Sydney**	▶ Progressive climate and energy policy frameworks implemented to support advancements in ESG objectives	▶ Large pool of professionals skilled in traditional FinTech domains but ESG skillsets/ expertise are limited	▶ Prominent financial hub with high concentration of domestic and global financial institutions ensuring strong capital support	▶ Increasing focus on carbon management and regulatory compliance solutions
APAC	**Melbourne**	▶ Enabling environment for ESG FinTech innovation	▶ High concentration of talent proficient in technology and finance disciplines	▶ Established financial services sector with the presence of the sovereign wealth fund, providing substantial capital support	▶ Rising demand for Payments, RegTech, and ESG Data platforms

Source: KPMG Research

Deep Dive on the Global ESG FinTech Landscape

Top ESG FinTech Cities – Americas Region

New York, United States

New York City stands out as a vibrant ESG FinTech hub, recognized for its dynamic business environment fostering innovation in ESG FinTech. Committed to achieving emissions-free electricity by 2040, the city is fostering a tech-driven green economy powered by clean energy solutions.

Start-ups in New York benefit from extensive access to a global financial powerhouse, with prominent banks, insurance firms, and hedge funds available to support their growth. Coupled with a pool of highly skilled talent, this ecosystem serves as an advantageous launchpad for ESG FinTech ventures.

The city features a varied range of entities, including accelerators, incubators, business groups, innovation labs, and government initiatives, providing support from seed funding to exit. Noteworthy is the historical support from the VC industry for early-stage FinTech companies in New York. Presently, major US banks and global players are establishing in-house VC funds, directly investing in technology firms, reinforcing the city's standing as a leader in green finance.

San Francisco, United States

San Francisco has risen as a leading ESG FinTech hub. The city's 2021 Climate Action Plan has positioned it as a global leader in sustainability, setting a precedent for other cities worldwide. A significant facet of this plan focuses on nurturing a growing job sector in ESG FinTech and attracting climate-focused start-ups and companies to the Bay Area.

Additionally, California's history of supporting climate action and clean energy initiatives has cultivated a regulatory environment that supports ESG FinTech start-ups. The state's ambitious climate goals, including achieving carbon neutrality by 2040 and maintaining negative emissions thereafter, reflect its commitment to environmental sustainability.

San Francisco's thriving start-up ecosystem, coupled with its ambitious carbon-neutral objectives and diverse talent pool, has solidified its status as a frontrunner in the global green transition.

Top ESG FinTech Cities – Europe Region

London, United Kingdom

The UK, with London at its core, has cemented its status as a ESG FinTech hub for several reasons. Notably, the UK took pioneering steps by becoming the first G20 country to mandate TCFD-aligned disclosures across its economy, reinforcing its commitment to transparency and sustainability. The nation actively fosters innovations for addressing climate challenges, exemplified by the development of a credible voluntary carbon market, supported by the City of London Corporation's involvement in the Integrity Council for the Voluntary Carbon Market.

London's prominence as a mainstream financial centre is underpinned by a deep talent pool specializing in sustainability, a vibrant ESG rating market, and a robust community of investors and non-governmental organizations (NGOs). Furthermore, the introduction of new UK government initiatives focused on sustainability and climate risk reporting for corporates further solidifies the nation's position as a global leader in green finance, poised for continued growth and innovation.

Paris, France

Paris has positioned itself as a burgeoning ESG FinTech hub within Europe, propelled by progressive government policies like the EU's Sustainable Finance Disclosure Regulations (SFDR). The city's growth as an innovation centre is bolstered by its well-regarded universities and research institutes specializing in emerging technologies. Moreover, the central government's commitment to fostering start-up growth and technology commercialization contributes to Paris's emergence as a dynamic innovation ecosystem.

Accelerators, incubators, and informal entrepreneur communities further nurture emerging tech start-ups in the city. These firms benefit from the rich talent pool and applied research resources offered by renowned universities, creating a supportive environment for sustainable finance and ESG FinTech endeavours in Paris.

Top ESG FinTech Cities – APAC Region

Singapore
Singapore's ascent as an ESG FinTech hub is underpinned by a multifaceted approach to green investments. Initiatives such as the Singapore Green Plan 2030 and the Finance for Net Zero Action Plan provide comprehensive frameworks that mobilize public and private sector efforts to develop the Green FinTech economy in Singapore. The Monetary Authority of Singapore (MAS) plays a pivotal role in enhancing the regulatory landscape through forward-looking regulations like Regulatory Sandboxes and Innovation Grants, attracting start-ups, investors, and venture capitalists to the city-state. Additionally, MAS initiatives such as Project Greenprint and ESG Impact Hub further support the growth of sustainable businesses.

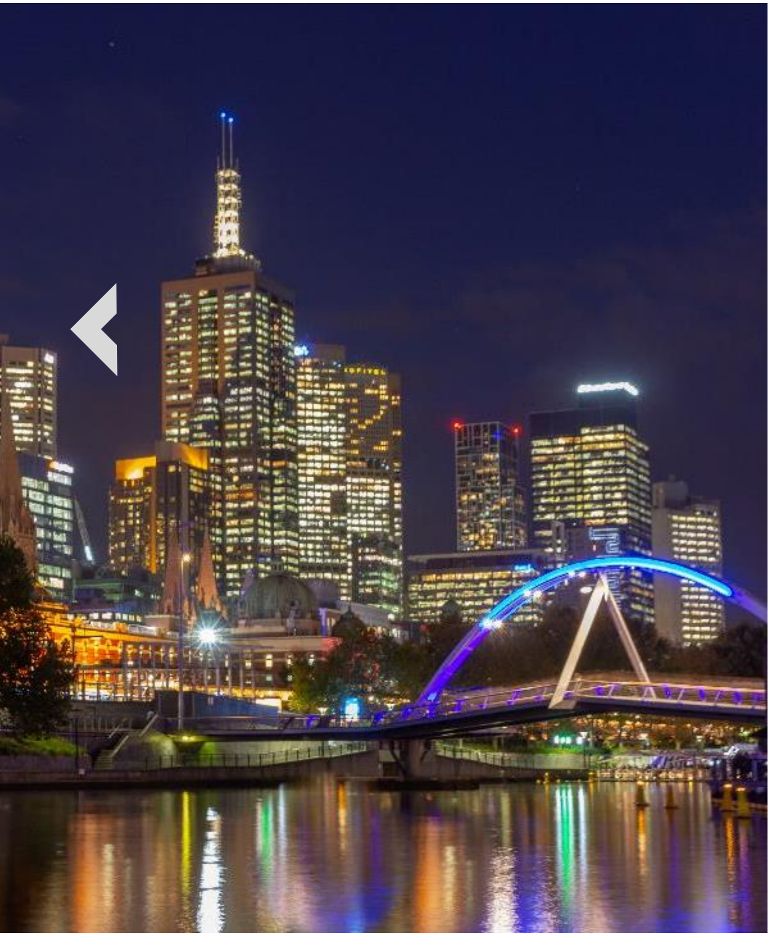
In terms of talent development, Singapore has made significant investments in education, research, and market regulations related to green finance. Institutions like the Singapore Green Finance Centre (SGFC) at SMU and the Sustainable and Green Finance Institute (SGFIN) at NUS have been established under MAS's guidance. Additionally, the Singapore Exchange (SGX) conducts workshops, seminars, and educational programs to enhance awareness and understanding of green finance.

Singapore's robust regulatory framework, infrastructure, and expertise in sustainable finance make it an attractive destination for investors, companies, and professionals worldwide, cementing its status as a global ESG FinTech hub.

Shenzhen, China
Shenzhen has established itself as a leading ESG FinTech hub, marked by significant milestones in its sustainable finance journey. In 2018, Shenzhen introduced an extensive framework to nurture a green finance ecosystem, incentivizing local financial institutions to develop and offer green financial products and services.

In 2021, the city legislature enacted pioneering local legislation on green finance, setting a precedent in China. This legislation delineated Shenzhen's roadmap for disclosing environmental information, evaluating sustainable investments, and bolstering institutional capabilities. The formation of the Shenzhen Green Finance Association further strengthened the city's presence on national and global stages.

Furthermore, Shenzhen actively seeks collaboration with neighbouring cities, exemplified by initiatives like the Real Economy Lab, a collaborative effort with the Financial Centers for Sustainability (FC4S), and participation in the Alliance of Greater Bay Area in green finance, alongside Guangzhou, Hong Kong, and Macao. These initiatives underscore Shenzhen's dedication to regional cooperation and its ambitions in the realm of sustainable finance.



Top ESG FinTech Cities – APAC Region

Sydney, Australia

Sydney, as Australia's financial capital, is positioned at the forefront of the global push for ESG FinTech, supported by several key advantages. Its strategic location within the Indo-Pacific region positions it as a significant financial hub, encouraging collaboration on sustainable finance initiatives.

Sydney has also implemented progressive climate and energy policy frameworks, setting the stage for sustainable investments. Its diverse and highly skilled workforce contributes to the city's innovation ecosystem. Sydney is home to half of all Australian start-up founders and boasts the highest business expenditure on research and development among Australian states and territories.

With major domestic and international financial institutions, pension funds, and fund managers, Sydney drives Australia's dynamic capital markets and FinTech sector. Drawing on its financial prominence within the Indo-Pacific region, Sydney is steadily establishing itself as a foremost ESG FinTech hub, bolstered by extensive expertise in sectors essential to the ESG FinTech landscape.

Melbourne, Australia

Melbourne boasts a sophisticated financial services sector, playing host to international banks, major insurance companies, superannuation funds, and even the Australian sovereign wealth fund. This development prowess has created an ideal ecosystem for ESG FinTech start-ups to nurture and expand their ventures.

Furthermore, Victoria leads Australia with the largest pool of professionals skilled in programming languages. The talent base extends to expertise in compliance, regulation, data analysis, engineering, information technology, and banking and finance.

Melbourne provides an enabling environment for innovation, housing a plethora of co-working spaces, accelerators, and access to capital support. The strong commitment and support from the Victorian government, including funding for innovation programs and initiatives aimed at upskilling the tech workforce, firmly position Melbourne as a leading destination for ESG FinTech innovation and growth.

Singapore Spotlight

Singapore's ESG FinTech Landscape

Singapore is supporting its ecosystem with various initiatives

Whole-of-government approach to green economy development
In February 2021, the Singapore government introduced the Singapore Green Plan 2030, which outlines goals and actions to support sustainable development and address climate change. The plan, led by five ministries, focuses on five key pillars: City in Nature, Sustainable Living, Energy Reset, Green Economy, and Resilient Future. It includes various initiatives and support measures across different sectors, with the aim of achieving Singapore's long-term net-zero emissions target.

Singapore's ESG FinTech ecosystem benefits from a wide inter-agency collaboration, uniting agencies such as the MAS, the Economic Development Board (EDB), Enterprise Singapore, and the Infocomm Media Development Authority (IMDA). Their collaborative initiatives help to bolster the regulatory framework, stimulate innovation, and offer essential support to companies seeking growth in Singapore, ultimately contributing to the expansion of the ESG FinTech sector.

Support from industry association to encourage industry engagement
The Singapore FinTech Association (SFA) actively engages the FinTech community through events, membership programs, and knowledge exchange. Its Green and Sustainable Subcommittee plays an important role in directing capital toward an inclusive, net-zero carbon, and resilient economy in Singapore. This subcommittee collaborates with the SFA Academy, which offers specialized ESG courses for FinTech professionals to navigate the evolving landscape of sustainable finance.

SFA also helps to showcase ESG FinTech solutions to diverse industries, enterprises, SMEs, and relevant agencies. This is achieved through industry events and periodic publications like the Green and Sustainable Pitchbook. Together, these initiatives promote the growth of Singapore's ESG FinTech ecosystem.

Progressive regulations to nurture innovation
The MAS has established the FinTech Regulatory Sandbox, which enables financial institutions and FinTech entities to test innovative financial products or services in a controlled environment. During sandbox experiments, MAS can offer tailored regulatory support by temporarily relaxing specific legal and regulatory requirements. This initiative includes safeguards to prevent potential failures and maintain financial system stability and security, encouraging innovation while ensuring prudent oversight.

Additionally, the Sustainability Reporting Advisory Committee (SRAC), established by the Accounting and Corporate Regulatory Authority (ACRA) and Singapore Exchange Regulation (SGX RegCo), has proposed mandatory climate reporting for listed companies by FY2025 and for large non-listed companies with revenue exceeding S$1 billion from FY2027. This strategic move seeks to enhance Singapore's status as a global business hub and aligns with the goals of the Singapore Green Plan 2030, promoting climate action, transparent reporting, and stakeholder engagement.

Availability of capital for financial assistance

The MAS actively promotes financial assistance to fuel innovation in the ESG FinTech sector. One such initiative is the ESG FinTech grant, launched as part of the Financial Sector Technology and Innovation (FSTI 3.0) programme. This grant is designed to drive the adoption of ESG technology solutions in the financial industry. Companies have the opportunity to secure funding that supports the deployment of solutions in collaboration with industry partners, thereby strengthening their business capabilities through industry-wide cooperation. The ESG FinTech grant offers support of up to 50% for qualifying expenses.

Additionally, Enterprise Singapore also established the Startup SG program, a resource for aspiring entrepreneurs. Through mentorship and financial support, this program encompasses several sub-schemes to address the diverse needs of start-ups at different stages of development, further nurturing the ESG FinTech ecosystem.

Market platforms to develop, pilot, and scale ESG FinTech innovations

The MAS actively fosters innovation within the ESG FinTech sector by establishing collaborative market utilities and infrastructure. One of its notable initiatives is Project Greenprint, which serves as a pioneering effort to streamline the flow of reliable ESG data. This initiative supports financial institutions and businesses in allocating capital for sustainable projects and effectively monitoring their commitments and impact. Developed in conjunction with industry stakeholders, Project Greenprint simplifies ESG reporting and enhances accessibility to vital sustainability data.

In addition, NovA!, another MAS-backed innovation, guides financial institutions in ESG risk assessment, covering loan origination, underwriting, and servicing for sustainability-linked loans.

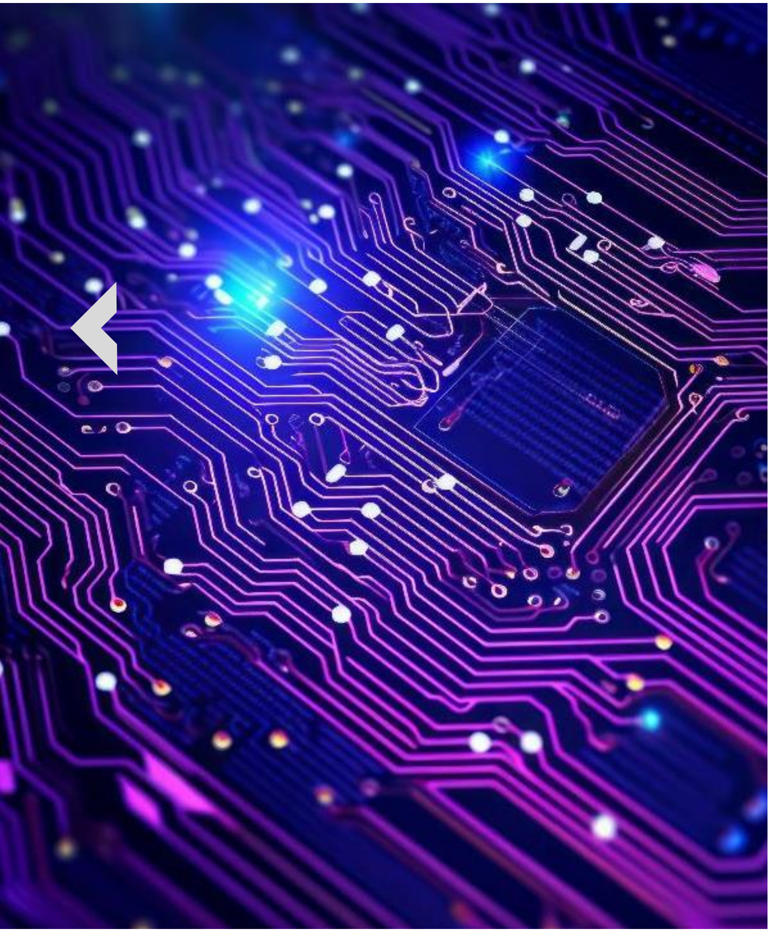
To further nurture the sustainability ecosystem, the MAS has also started the ESG Impact Hub, a co-located cluster of ESG FinTechs and organisations, to encourage collaboration within the sector.

Training and educational programmes to develop ESG FinTech expertise and talent pipeline

Singapore's commitment to nurturing a skilled tech workforce and advancing green finance is evident through government-driven initiatives and educational institutions. The nationwide Tech Skills Accelerator (TeSA) program, a collaborative effort between the government and industry, provides the ESG FinTech sector with access to a locally-trained workforce of practitioners, supporting innovation and growth.

In addition to TeSA, educational centres like the Singapore Green Finance Centre (SGFC) at SMU and the Sustainable and Green Finance Institute (SGFIN) at NUS, guided by the MAS, contribute to the development of expertise in green finance, further enriching the country’s ESG FinTech talent pool.

MAS also promotes educational initiatives through the Singapore Exchange (SGX). SGX conducts a range of workshops, seminars, and educational programs which raise awareness and knowledge of green finance, playing a vital role in nurturing and expanding the ESG FinTech sector in Singapore.



Collaborative partnerships within the industry to advance the ESG FinTech sector

Partnerships are catalysts for transformation and optimization within the ESG FinTech landscape, fostering an environment of mutual understanding and driving industry advancement. They enable stakeholders to efficiently monitor regulatory updates and rapidly disseminate critical information, thereby enhancing the growth of the ESG FinTech sector. These collaborations benefit financial institutions with access to cutting-edge solutions, while regulators can tailor policies in response to industry needs.

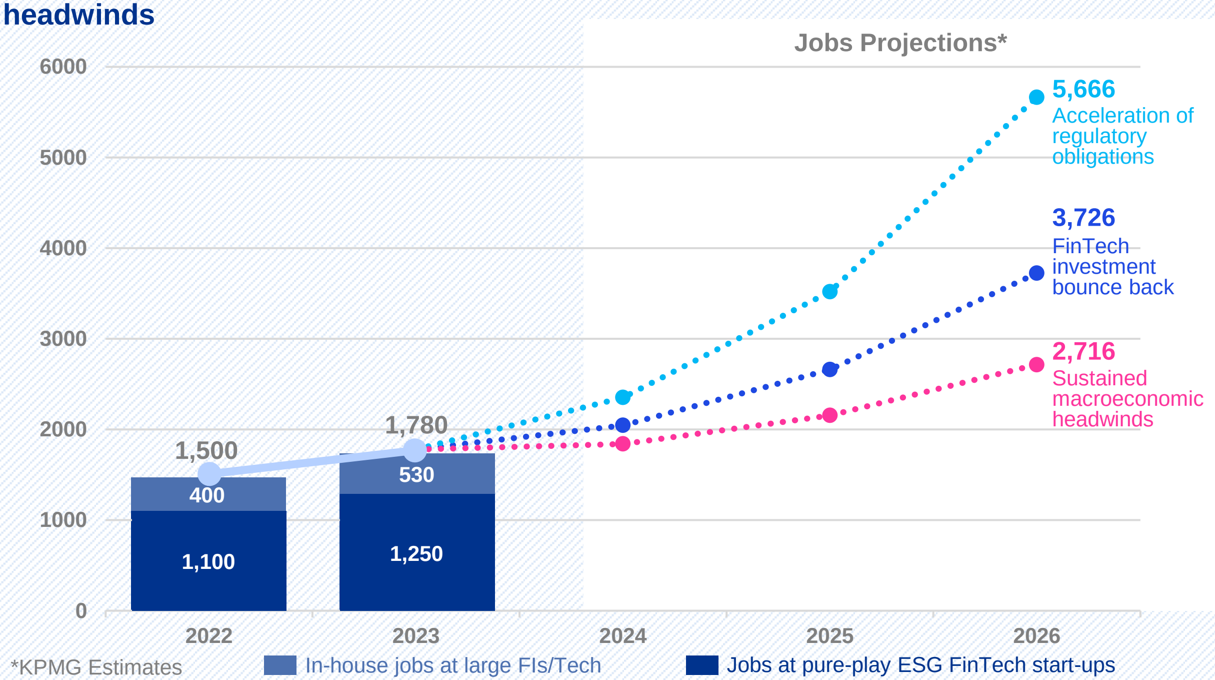
The MAS is helping to shape the financial landscape through the establishment of a sustainable finance framework. Under the purview of the Green Finance Industry Taskforce (GFIT), guidelines for climate-related disclosures have been provided to financial institutions, allowing them to evaluate eligible green trade finance transactions effectively.

FinTech accelerators and financial institutions are also playing an important role in nurturing ESG FinTech start-ups. For instance, UOB, a leading Singaporean bank, has launched a GreenTech accelerator via UOB Finlab. This accelerator facilitates partnerships between businesses facing real-world challenges, encourages collaboration between SMEs and corporates, and offers funding of up to S$150,000 for innovative and implementable solutions.

In addition, Google Cloud, in collaboration with the MAS and KPMG, has introduced a climate finance accelerator. This initiative channels capital towards companies with market-ready Climate FinTech solutions and focuses on uniting a network of ESG FinTech firms to address ESG challenges. Together, they create sustainable revenue models and drive capital flows into green FinTech solutions. Financial institutions, such as DBS, HSBC, and OCBC, are playing a role by presenting ESG challenges to participants within the climate finance accelerator and collaborating to find solutions. These partnerships contribute to sustainable growth within the ESG FinTech ecosystem.

ESG FinTech Jobs in Singapore

Singapore's ESG FinTech job market is poised for sustained growth amidst economic headwinds



*KPMG Estimates

Key	Jobs Projections	2024	2025	2026	CAGR
	▶ Best Case Scenario	2,354	3,519	5,666	47.10%
	▶ Competitive Scenario	2,047	2,661	3,726	27.92%
	▶ Economic Headwinds Scenario	1,842	2,155	2,716	15.13%

Key findings

- Singapore is currently home to ≈ 1,780 ESG FinTech professionals, and the workforce is anticipated to expand at a CAGR of 27.92% (competitive scenario). This growth trajectory would result in an overall increase of ≈ 1,950 professionals over the next three years.
- The growth of the ESG FinTech sector is expected to persist as demand for a specialized workforce in ESG FinTech roles continues to rise. Singapore's favourable policy and regulatory regime, coupled with a high concentration of local ESG FinTech start-ups and the presence of large overseas-originating ESG FinTech companies, position the city-state as a hub for abundant job opportunities in this sector.
- Nevertheless, economic headwinds such as inflation, the looming threat of recession, and job reductions within the broader tech industry have collectively applied pressure to the ESG FinTech job market. Prolonged economic downturn may hamper ESG FinTech investment, potentially reducing job opportunities. Additionally, talent and skill shortages are also challenging this sector alongside economic concerns.

Sources: KPMG in Singapore (data provided by PitchBook), KPMG Research

Singapore ESG FinTech Directory

The following is a non-exhaustive list of ESG FinTech companies in Singapore, encompassing both pure-play start-ups and established FinTechs venturing into the realm of ESG:

No.	Company	Product Classification	Year Established	HQ
1	▶ **Adatos.AI**	Carbon Services	2015	Singapore
2	▶ **AirCarbon Exchange**	Carbon Services	2019	Singapore
3	▶ **Asuene Inc.**	Carbon Services	2019	Japan
4	▶ **Capture**	Carbon Services	2019	Singapore
5	▶ **Carb0n.fi**	Carbon Services	2021	Singapore
6	▶ **Carbon Balance Pte. Ltd.**	Carbon Services	2023	Singapore
7	▶ **CFEX, Inc.**	Carbon Services	2022	United States
8	▶ **Climate Action Data Trust**	Carbon Services	2022	Singapore
9	▶ **Climate Impact X**	Carbon Services	2021	Singapore
10	▶ **Climate Resources Exchange International**	Carbon Services	2014	Singapore
11	▶ **Cogo**	Carbon Services	2016	New Zealand

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
12	▶ **Custos**	Carbon Services	2022	Singapore
13	▶ **ENGIE Impact**	Carbon Services	1996	United States
14	▶ **GAIT**	Carbon Services	2022	Singapore
15	▶ **MetaVerse Green Exchange**	Carbon Services	2018	Singapore
16	▶ **Pantas**	Carbon Services	2021	Malaysia
17	▶ **Persefoni**	Carbon Services	2020	United States
18	▶ **Poseidon Impact**	Carbon Services	2017	Singapore
19	▶ **Project Ark**	Carbon Services	2021	Singapore
20	▶ **Reclimate**	Carbon Services	2022	Singapore
21	▶ **REDEX**	Carbon Services	2018	Singapore
22	▶ **Reneum Institute**	Carbon Services	2018	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
23	▶ **South Pole**	Carbon Services	2006	Switzerland
24	▶ **Terrascope**	Carbon Services	2021	Singapore
25	▶ **Unravel Carbon**	Carbon Services	2021	Singapore
26	▶ **Ureca**	Carbon Services	2021	Singapore
27	▶ **Zuno Carbon**	Carbon Services	2020	Singapore
28	▶ **Agridence**	Data	2018	Singapore
29	▶ **Aicadium**	Data	2021	Singapore
30	▶ **Arabesque**	Data	2013	United Kingdom
31	▶ **Arcstone**	Data	2013	Singapore
32	▶ **CO2 Connect**	Data	2021	Singapore
33	▶ **Delta Capture**	Data	2022	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
34	▶ **Diginex**	Data	2017	Hong Kong
35	▶ **Doxa**	Data	2019	Singapore
36	▶ **EcoVadis**	Data	2007	France
37	▶ **ESGnie**	Data	2021	Singapore
38	▶ **ESGTech**	Data	2019	Singapore
39	▶ **Evercomm**	Data	2013	Singapore
40	▶ **Fencore**	Data	2019	Singapore
41	▶ **FiscalNote ESG Solutions**	Data	2013	United States
42	▶ **Givvable**	Data	2021	Singapore
43	▶ **GreenChain**	Data	2022	Singapore
44	▶ **GreenFi**	Data	2021	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
45	▶ **Greenstone**	Data	2007	United Kingdom
46	▶ **Handprint**	Data	2019	Singapore
47	▶ **Intensel**	Data	2019	Singapore
48	▶ **Kanini**	Data	2003	United States
49	▶ **KewMann**	Data	2014	Singapore
50	▶ **MioTech**	Data	2016	Hong Kong
51	▶ **Nexus FrontierTech**	Data	2015	United Kingdom
52	▶ **PALO IT**	Data	2009	France
53	▶ **Red Dot Analytics**	Data	2016	Singapore
54	▶ **RubiX (Financial Software)**	Data	2017	Singapore
55	▶ **Seneca ESG**	Data	2015	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
56	▶ **Solidatus**	Data	2011	United Kingdom
57	▶ **Speeki**	Data	2020	Singapore
58	▶ **STACS**	Data	2019	Singapore
59	▶ **Sustaira**	Data	2021	United States
60	▶ **TRST01 Global Ventures Pte. Ltd.**	Data	2019	Singapore
61	▶ **Trucost**	Data	2000	United Kingdom
62	▶ **Turnkey**	Data	2015	Singapore
63	▶ **Univers (formerly Envision Digital)**	Data	2017	Singapore
64	▶ **Value3**	Data	2018	Singapore
65	▶ **WeavAir**	Data	2017	Singapore
66	▶ **Bambu**	Infrastructure	2016	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
67	▶ **Banyan Infrastructure**	Infrastructure	2018	United States
68	▶ **Nature’s Vault**	Infrastructure	2021	Singapore
69	▶ **Rimm**	Infrastructure	2020	Singapore
70	▶ **SGTraDEx**	Infrastructure	2021	Singapore
71	▶ **Synectify**	Infrastructure	2019	Singapore
72	▶ **Singlife**	InsurTech	2017	Singapore
73	▶ **Zensung**	InsurTech	2017	Singapore
74	▶ **AGP Sustainable Real Assets**	Investment Management	2018	Singapore
75	▶ **Arukah**	Investment Management	2022	Singapore
76	▶ **Endowus**	Investment Management	2017	Singapore
77	▶ **GenZero**	Investment Management	2022	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
78	**InfraBlock Capital Pte. Ltd.**	Investment Management	2019	Singapore
79	**New Wealth**	Investment Management	2018	Singapore
80	**Pentagreen Capital**	Investment Management	2022	Singapore
81	**Positive Energy Ltd.**	Investment Management	2017	Singapore
82	**StashAway**	Investment Management	2016	Singapore
83	**AgriG8**	Lending	2021	Singapore
84	**Crowdo**	Lending	2012	Singapore
85	**GreenArc**	Lending	2017	Singapore
86	**RABC Group**	Lending	2018	Singapore
87	**RootAnt**	Lending	2019	Singapore
88	**2EX Technology Pte. Ltd.**	Payments / Transactions	2022	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
89	▶ **ExImPe**	Payments / Transactions	2021	Singapore
90	▶ **InvoiceNxt**	Payments / Transactions	2020	Singapore
91	▶ **Stripe**	Payments / Transactions	2010	United States
92	▶ **Treelion**	Payments / Transactions	2019	Hong Kong
93	▶ **AIZEN Asia Pacific**	RegTech	2019	Singapore
94	▶ **Artius Global**	RegTech	2014	Singapore
95	▶ **Credify**	RegTech	2019	Singapore
96	▶ **CredQuant**	RegTech	2021	Singapore
97	▶ **Deep Identity**	RegTech	2009	Singapore
98	▶ **Offsetted**	RegTech	2022	Germany
99	▶ **Portal Gate**	RegTech	2022	Singapore

Source: KPMG Research

No.	Company	Product Classification	Year Established	HQ
100	▶ **Primacy Technology**	RegTech	2020	Singapore
101	▶ **RegASK**	RegTech	2017	Singapore
102	▶ **RIPA Global**	RegTech	2014	New Zealand
103	▶ **TrinityEco**	RegTech	2019	Singapore
104	▶ **U-Reg**	RegTech	2019	Singapore
105	▶ **Xcelerate**	RegTech	2021	Singapore

Source: KPMG Research

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Henry Ng	Manager, Financial Services Advisory	**KPMG in Singapore**
Sophy Chen	Assistant Manager, Financial Services Advisory	**KPMG in Singapore**
Daniel Yi	Associate, Financial Services Advisory	**KPMG in Singapore**
Lim Shi Gang	Associate, Financial Services Advisory	**KPMG in Singapore**
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► **Martine Botha**	Senior Manager, ESG Advisory Hub	**KPMG in South Africa**
► **Alana Boltwood**	Senior Manager, ESG Solutions and Architecture	**KPMG in Canada**
► **Devesh Sharma**	Consultant, Capability Hubs	**KPMG Global Services**

Contact Us

Anton Ruddenklau
Partner and Head of Financial Services
KPMG in Singapore
E: antonyruddenklau@kpmg.com.sg

Aymeric Salley
Director, Financial Services Advisory
KPMG in Singapore
E: aymericsalley@kpmg.com.sg

Henry Ng
Manager, Financial Services Advisory
KPMG in Singapore
E: henryng@kpmg.com.sg

www.kpmg.com.sg