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Corporate & Investment Banks

Climate, Crypto, and Competing in This Cycle

Wholesale banks face new uncertainties in 2022, but six market shifts will support revenue and returns over the next three years. Banks must take advantage and purposely face two major disruptions on the horizon: Climate Transition and Digital Assets. The franchise hangs in the balance.

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Executive Summary

Wholesale banks face great uncertainty as 2022 unfolds. Management teams must navigate rising geopolitical tensions and deglobalization. But we see more reasons for optimism than concern in the coming three to five years. Six powerful market shifts should support revenues above 2019 levels, while disruptions from the Climate Transition and Digital Assets offer more upside than downside for banks that are prepared. This environment will place a high premium on execution.

The wholesale banking industry has passed through two distinct cycles over the past decade: Reform & Restructuring from 2012 to 2019 and Volatility-Fueled Growth from 2020 to 2021.

Reform & Restructuring fundamentally transformed the business model, improving resilience by shifting key revenue drivers from risk warehousing to client activity. We estimate that revenues generated by risk warehousing (changes in the value of inventory and risk positions held by banks) declined from 20% of industry-wide revenues in 2012 to 6% in 2019.

Volatility-Fueled Growth generated an industry-wide windfall, pushing revenues to nearly $600BN (vs. $524BN in 2019) and restoring healthy returns to 13.5% (vs. 9.5% in 2019). The primary drivers of growth were unprecedented levels of sustained volatility (and thus regained pricing power) and coordinated fiscal and monetary stimulus from governments across the world to support the economic recovery.

The industry now faces several fundamental questions that will determine the outlook, including:

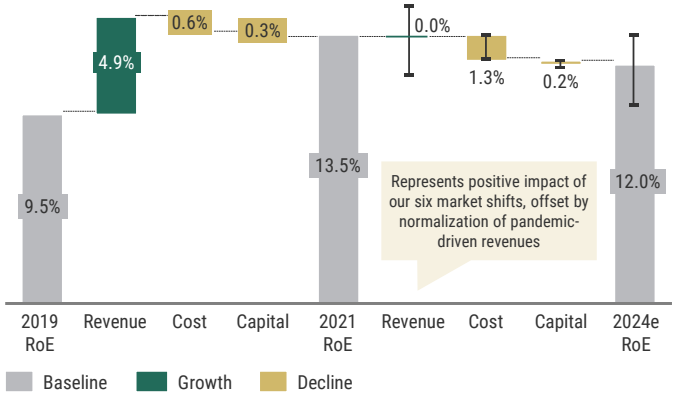
- Will industry revenues revert to 2012-2019 levels in the next cycle or remain elevated?
- Which market shifts will drive growth in the next cycle? Which are resilient to geopolitical and economic pressures?
- Will banks capitalize on or be disrupted by the Climate Transition and Digital Assets adoption?
- Have banks adapted to perform in a broader set of market conditions, including escalating geopolitical pressures?
- What will define the leaders and laggards in the next cycle: business model or execution?

Near-term risks require a focus on resiliency. The world has changed over the last several weeks, as the war in Ukraine has significantly increased geopolitical risks. A focus on operational resilience should guide banks to a safe landing in a deglobalization shift, while opportunities to finance new supply chains and rising interest rates may provide near-term upside potential. Resiliency will require accelerating cybersecurity infrastructure, diversifying geographic operation centers, and managing a complex set of new risks introduced by evolving sanctions regimes.

We see more reasons for optimism than concern in the coming years despite the very real economic risks we have already seen gathering on the horizon.

- **Six active and emerging market shifts support a robust revenue outlook that should comfortably exceed 2019 levels in all our scenarios:** corporate demand, rates normalization, private markets demand, macro volatility, commodities volatility, and the China onshore opportunity. We estimate the cumulative revenue impact is $70BN over the 2019 baseline.
- **More resilient businesses are less exposed to market shocks and are better adapted to the emerging market conditions.** The industry is now far more resilient to market shocks following the Reform & Restructuring cycle, as we saw during the Covid-19 pandemic. What has not been tested is the success of wholesale banks' efforts to build more agile, scalable, and efficient technology and operating models that can drive performance in all market conditions.

Exhibit 1: Economic outlook, 2019-24e, Return on Equity[1]



Note: e = estimate, RoE = Return on Equity. 1. RoE is post-tax, based on equity committed and adjusted costs. Source: Coalition Greenwich Competitor Analytics, Oliver Wyman analysis.

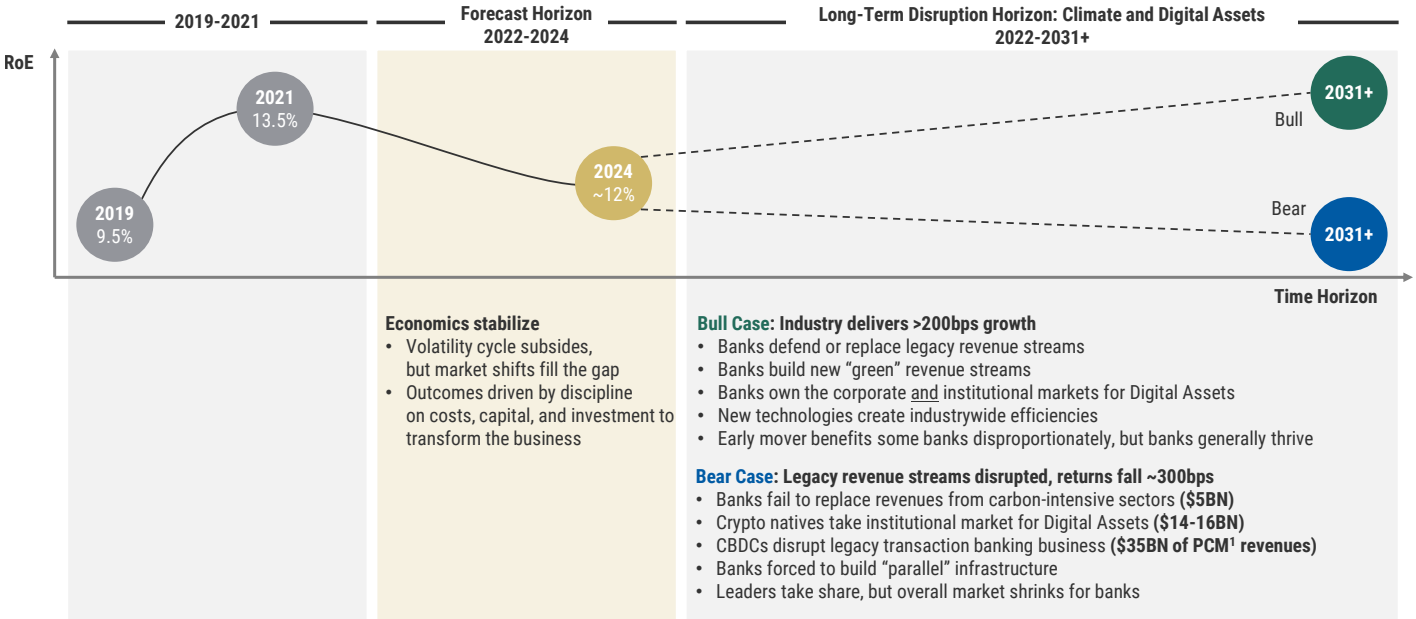
We also see reasons to believe that wholesale banks are positioned to manage and potentially benefit from two major disruptions on the next horizon: Climate Transition and Digital Assets.

- **Wholesale banks have the expertise and client franchise required to guide the transition of established industries to Net Zero and build new "green" revenue streams.** We estimate that $80-90BN of industry revenues are generated from clients in high-emission sectors. Banks need to be proactive with clients to accelerate their green transition, or risk losing this revenue stream to competitors. We see credible signs that wholesale banks are repositioning the business model to defend existing revenue pools and build new revenue streams in decarbonization finance and carbon trading. The direct economic impact is meaningful - we estimate that the Climate Transition could add $15-20BN to industry revenue pools over the next 3-5 years. The strategic impact of getting the Climate Transition right may be even greater, creating stronger client relationships, a more attractive value proposition for new talent, and valuation uplift for investors.
- **Wholesale banks have the expertise and business model required to thrive in a more regulated institutional market for Digital Assets.** We estimate that the corporate and institutional market for Digital Assets reached $4-5BN in 2021. The market has been dominated by firms outside the traditional banking industry to date. There is risk that wholesale banks remain on the sidelines as new policy and regulation drive greater participation from institutional clients. However, banks have several advantages over "crypto natives" that may offer a window to catch up as regulation transforms the market: experience operating in a regulated environment, business models designed to deliver returns as margins compress and capital requirements increase, and trusted counterparty status for institutional clients. We believe this is the most likely path forward for the market. It will take time to unfold, but we estimate the direct revenue opportunity over the next 3-5 years will be significant – potentially reaching $14-16BN, with even greater opportunities for efficiency benefits from streamlining the infrastructure for several wholesale banking businesses.

The next few years will place an even greater premium on execution. Conditions over the next few years are likely to be conducive to wholesale banks of every stripe growing revenues and sustaining returns well above the 2012-2019 lows. However, there is more at stake than returns alone - wholesale banks that successfully reshape their business around new opportunities (and new realities) will have a powerful narrative for investors, clients, and employees. Execution, even more than business model, will increasingly define the leaders and laggards:

- Defending the client franchise
- Deploying resources rapidly to new opportunities
- Sustaining investment in efficient technology & operations
- Delivering a powerful narrative for clients and investors
- Winning the competition for talent

Exhibit 2: Economic outlook over two planning horizons



Note: not to scale. 1. PCM (Payments & Cash Management). Source: Oliver Wyman analysis.

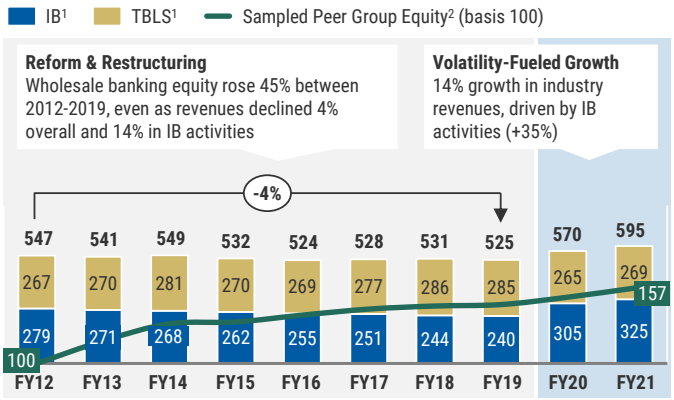
The Outlook for Wholesale Banks

Wholesale banks performed well in 2021[1]. Industry-wide revenues rose 4% to $595BN and returns improved to 13.5% as the global economy recovered from the worst impacts of the pandemic. However, storm clouds are on the horizon. There is considerable risk that inflation will disrupt economic growth and the war in Ukraine raises the prospect of a new era of heightened geopolitical tensions and deglobalization. The big question confronting the industry is whether the healthy revenues and returns delivered in 2020-2021 can be sustained. We see reasons for hope.

The Transformation of Wholesale Banking

The wholesale banking industry has undergone a fundamental transformation since 2012, when global regulators began to enforce a slate of new rules intended to limit the scope of activities and increase the levels of capital held by banks. Wholesale banks were forced to change the way they generated revenue and returns. The transition was difficult and investment banking revenues declined nearly $40BN to $240BN between 2012 and 2019, even as capital held against the business steadily rose.

Exhibit 3: Industry revenues & capital, $BN, 2012-21

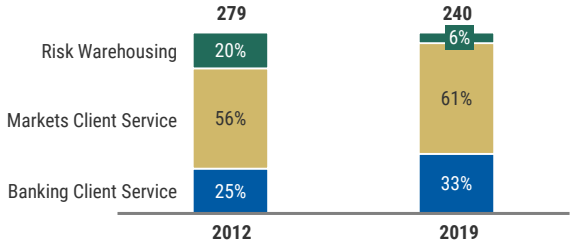


1. IB (Investment Banking), TBLS (Transaction Banking, Lending, Security Services). 2. Basis 100 industry equity with growth modeled on an index consisting of publicly reported figures from the following peer group: J.P. Morgan, Goldman Sachs, Bank of America, Morgan Stanley, Barclays, UBS, Societe Generale, BNP Paribas, Deutsche, CACIB, HSBC and Credit Suisse. Source: Coalition Greenwich Competitor Analytics, Banks' disclosures, Oliver Wyman analysis.

Banks responded in various ways to the challenge, but three fundamental shifts took place: (1) a recognition of the value of more stable, recurring revenue streams; (2) a reorientation of the business model toward client service vs. capital-intensive warehousing of risk; and (3) a narrowing of participation choices to businesses with viable economics and areas of competitive strength.

The result of this transformation has been a wholesale banking industry with a more focused, but more stable, revenue model that is more closely linked to client activity than to changes in the value of assets or market risk positions. We estimate that revenue generated by changes in the value of inventory and risk positions fell from 20% of industry-wide revenue in 2012 to just 6% in 2019[2].

Exhibit 4: Composition of industry Investment Banking revenues, $BN, 2012 vs. 2019



	2012	2019
Global Equity Market Cap, Year-end, $TN	62.9	89.9
Global Market Volatility, Peak VIX	26.7	25.5

Notes: Markets Client Service proxied based on industry-wide sales credits, with residual revenues considered Risk Warehousing (i.e. changes in the value of inventory or market risk positions held by Investment Banking businesses). There are methodological challenges in this analysis, given changes to sales credit calculation methodologies, but our analysis controls for these changes (to the extent possible) and compares years with similar market conditions (i.e. rising asset values with limited market shocks). Source: World Federation of Exchanges, Refinitiv Datastream, Coalition Greenwich Competitor Analytics, Oliver Wyman analysis.

This transformation was evident in the performance of the industry during the onset of the Covid-19 pandemic, when revenue growth from client activity more than offset the impact of falling asset prices. Revenues from Global Equities (+10%) and FICC (+35%) in Q1 2020 tracked the rise in volatility and volumes much more closely than the sharp drawdown in asset prices – over this period of revenue growth, equity indices declined as much as 35% and high yield credit spreads widened by 3x.

1 We define wholesale banking to include the full scope of corporate & investment banking activities conducted by traditional financial institutions (i.e. bank holding companies). Institutions outside the wholesale banking industry compete in these activities, but their business and economic models vary considerably from traditional financial institutions, so we exclude their revenues and economics from our market sizing and projections unless otherwise noted.

2 Striving to Sustain Returns

There is now concern that the business will return to 2012-2019 revenue levels and face structurally higher costs driven by the competition for talent, regulatory compliance, and under-investment (or at least unrealized investment) in more efficient operating models. These concerns are justified, especially given the rising risks to political and economic stability.

But while there are challenges on the horizon, we see more reasons to believe (than doubt) that the revenue potential of the wholesale banking industry is higher now than at any point in the 2012-2019 period and that the industry will be able to sustain revenue growth and >10% returns moving forward.

The Challenge Ahead

There was an expectation that the global economic outlook would become easier to forecast (and more stable) as the Covid-19 pandemic eased. But Russia's invasion of Ukraine has changed that equation. An already inflationary environment has been super-charged by disruptions in commodities markets, and the response from central banks is now far more difficult to predict.

Against this backdrop, we have built three broad economic scenarios to frame our outlook: a rising tide for all banks, a safe landing for some banks, and a brewing storm for the industry. These outlook scenarios are necessarily simplified and uncertain, but they stress the key drivers of industry revenues and returns in different ways and help to answer the fundamental questions we pose in this outlook:

- Will industry revenues revert to 2012-2019 levels in the next cycle or remain elevated?
- Which market shifts will drive growth in the next cycle? Which are resilient to geopolitical and economic pressures?
- Will banks capitalize on or be disrupted by the Climate Transition and Digital Assets adoption?
- Have banks adapted to perform in a broader set of market conditions, including escalating geopolitical pressures?
- What will define the leaders and laggards in the next cycle: business model or execution?

A rising tide for all banks: The least likely scenario, in our view, is a swift resolution of geopolitical tensions and inflationary pressure worldwide, supporting a healthy economic recovery in all markets. This is the only backdrop where we would expect to see 2022-2024 revenues consistently around $600BN and nearly all wholesale banks (and banking models) performing well.

A safe landing for some banks: Our base case scenario is a slower resolution of geopolitical tensions and inflationary pressures, holding back the economic recovery in many economies and levels of corporate and investor activity in the market. This scenario may limit - but not derail - the "market shifts" that will allow wholesale banks to continue to generate revenues and returns above 2012-2019 levels. This scenario will drive divergent outcomes for individual banks, favoring those that have delivered more efficient operating models (that can adapt to changing market conditions) and positioned the business to capture new sources of growth.

Exhibit 5: Summary of outlook scenarios, 2022-24e

Scenario	Features	Outcomes
Rising Tide for all players	• Rapid resolution (containment) of geopolitical shocks • Return to robust economic growth worldwide • Robust monetary action controls inflation • Asset value appreciation resumes • All 6 market shifts reach full potential • Disciplined control of costs and risk	Sustainable industrywide revenues and returns comparable to 2020-21 performance levels
Safe Landing for the leaders	• Slow resolution (containment) of geopolitical shocks • Slower economic growth than projected in 2021 • Conservative rate hikes, sustained inflation • Isolated asset value shocks • Majority of market shifts reach full potential • Inconsistent control of costs and risk	Sustainable revenues and returns for players positioned to capture the new drivers of growth - major challenges for the rest
Storm Brewing	• Geopolitical shocks trigger deglobalization • Significant economic disruptions • Runaway inflation, economic stagnation • Persistent asset value shocks, credit losses • Widespread revenue erosion • Limited ability to manage costs and risk	Major challenges industrywide, after period of elevated volatility propping up revenues in some areas of the business

Source: Oliver Wyman analysis.

A brewing storm for the industry: An increasingly plausible scenario is a more prolonged period of geopolitical uncertainty and severe economic disruptions, leading to sharp declines in asset prices, deterioration of credit conditions, and inflationary conditions that could present funding and operating cost challenges. A spike in market volatility supports revenues in the first year of the outlook period, but client demand declines sharply in 2023-2024 following the initial shocks. This scenario would stall or partially offset the "market shifts" driving revenue growth and reduce the revenue potential for banks that have placed significant bets on these opportunities. Only the strongest banks with well diversified business models and efficient operating models weather the storm without major restructuring.

Reasons for Hope

We see six major forces supporting the revenue of the wholesale banking industry over the next three years. We refer to these as "market shifts" because they represent multi-year shifts in the revenue potential of the industry, resembling the development of new sources of demand in the past, such as leveraged finance (structural shift) or macro volatility trading (cyclical shift). These "market shifts" are embedded in our revenue outlook assumptions and provide reason to believe that the industry will come out of the pandemic in better shape than it entered:

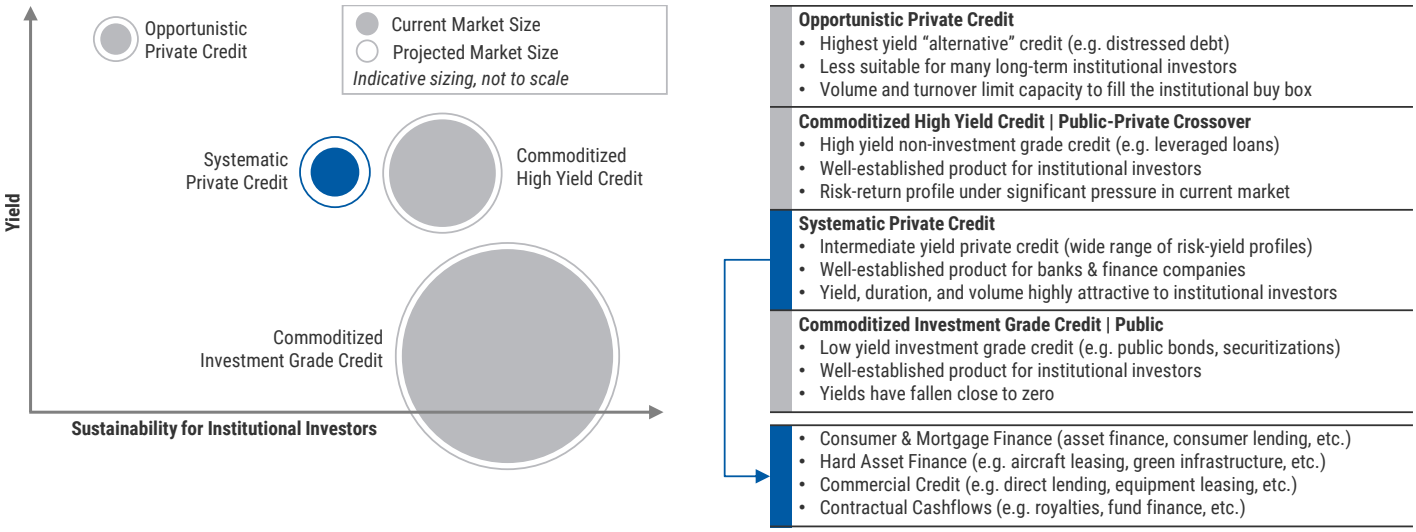
- **Corporate Demand:** We are in the advanced stages of a structural shift in demand for wholesale banking services from corporate clients (of all sizes) that began after the Global Financial Crisis. This is most visible in the growth of IBD revenues (+$54BN) since 2012, as well as the expanding universe of clients with demand for Transaction Banking and Markets services (risk management, treasury management, and financing). We estimate the total corporate wallet in 2021 was $302BN, up from $281BN in 2019. Looking forward, we project corporate demand to consistently exceed $300BN across wholesale banking, representing a $25BN+ shift from the 2019 baseline. We have written about these forces in detail in our previous Blue Papers – see Steering Through the Next Cycle [3] and Striving to Sustain Returns [4] .
- **Rates Normalization:** We expect a return to normal interest rate levels across geographies, as central banks remove the extraordinary levels of monetary stimulus present in the markets since the global financial crisis. Rates could rise to elevated levels if inflation continues to accelerate and early efforts to bring inflation under control are unsuccessful. Either scenario will radically shift the market dynamics for rates-sensitive businesses in wholesale banking – boosting revenues for Transaction Banking, Securities Services, and Corporate Lending for years to come. We project a $25BN+ shift in revenues over the 2019 baseline. This shift is most at risk from global economic disruptions, with the potential for sharply rising rates (or runaway inflation) to constrain economic growth and erode credit conditions.
- **Private Markets Demand:** There is still a long road ahead in the structural shift in demand for wholesale banking services in the private markets, with the largest growth potential in systematic private credit. There is a clear role (and a clear opportunity) for wholesale banks in private credit, matching new or existing credit issuers (including credit origination platforms) with investors. We project a net $5BN+ opportunity in private credit alone, driven by increased allocations from pensions and insurers over the next three years.
- **Macro Volatility:** Macro trading revenues have advanced in early 2022, as inflationary pressures mount and monetary policy shifts across the world. We do not anticipate a return to the extraordinary revenues the business generated in 2009 ($135BN)[5] due to the reduced levels of risk warehousing across the business, combined with strategic exits by many dealers. However, the business delivered $25BN+ in revenue growth in the last period of macro volatility (2020) and we conservatively project at least one $5BN+ spike in revenues in the 2022-2024 window.
- **Commodities Volatility:** The commodities trading business has staged a remarkable recovery over the past two years – among the banks that have maintained the business at scale over this period. Revenues for banks rose from $6BN in 2019 to $12BN in each of 2020 and 2021. With the continued volatility in the market, we project that this cyclical shift has at least 1-2 more years to run, representing a $5BN+ shift from the 2019 baseline. We explore the structural shift in commodities trading associated with carbon trading in the Climate Transition section of this report.

3 Steering Through the Next Cycle

4 Striving to Sustain Returns

5 Macro revenues, excluding Commodities

Exhibit 6: Private credit ecosystem

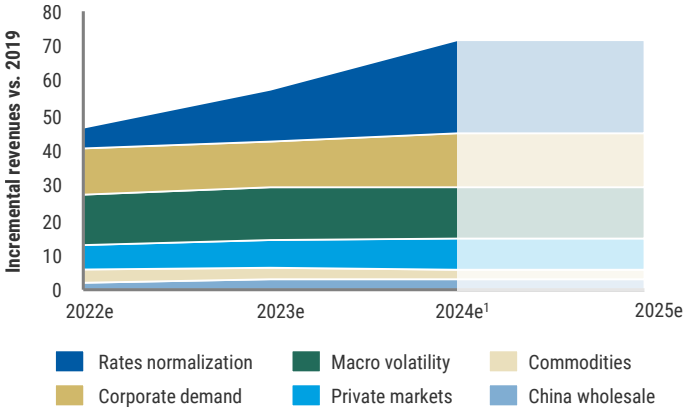


Source: Oliver Wyman analysis.

- **China Wholesale Opportunity:** The onshore wholesale banking opportunity remains elusive for major global financial institutions, but the ongoing liberalization of the financial sector has opened the door. Most global players have responded by establishing fully owned onshore businesses, which will provide access to opportunities in the world's largest economy (in purchasing power parity terms) as they emerge. We conservatively project the China shift at $5BN+ revenues over the next 3 years, although the timing of this shift is most at risk from geopolitical, public health, and economic policy disruptions.

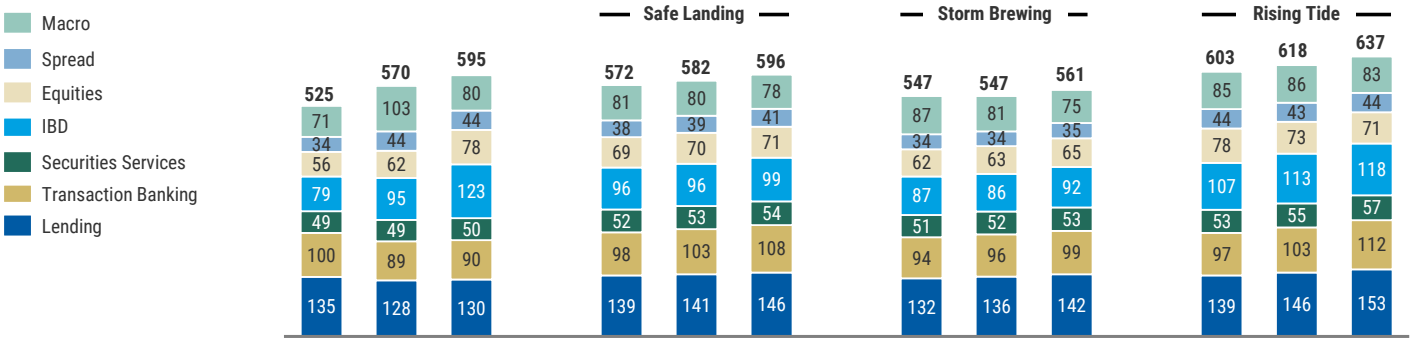
We see a cumulative baseline revenue impact of $70BN for the industry across these market shifts over the next three years. The market shifts are a critical input to our core projections across the three scenarios, and are the primary reason we believe that the industry can sustain revenues and returns above 2019 levels, even in our 'Storm Brewing' scenario.

Exhibit 7: Evolutionary paths of market shifts, $BN, 2022-25e



1. End of forecasting period. Source: Oliver Wyman analysis.

Exhibit 8: Industry revenues, profitability & returns, $BN, 2019-21, 2022-24e



	2019	2020	2021	2022e	2023e	2024e	2022e	2023e	2024e	2022e	2023e	2024e
Delta YoY	-	9%	4%	-4%	2%	2%	-8%	0%	3%	1%	3%	3%
Cost / Income	66%	60%	60%	62%	62%	62%	65%	65%	65%	60%	60%	59%
RoE[1]	9.5%	11.8%	13.5%	11.8%	11.9%	12.0%	9.8%	9.7%	10.1%	13.1%	13.4%	13.7%

1. RoE is post-tax, based on equity committed and adjusted costs. Source: Coalition Greenwich Competitor Analytics, Oliver Wyman analysis.

Beyond our core projections and looking out over a longer-term horizon, there are two disruptive forces – the Climate Transition and Digital Assets – that may transform the way the business operates today and create even greater opportunities for growth (and potential risks of disruption to existing revenue models). While impacts from these disruptive forces are not included in our core outlook projections, we explore the potential impact of each force in the subsequent sections of this report.

Execution will separate the leaders and laggards

There will be a high premium placed on execution in the next few years, regardless of the scenario that unfolds. The revenue environment during the pandemic provided welcome cover for an industry with significant economic challenges.

However, some of these challenges have grown more acute over that time. For example, cost growth, particularly in front office and technology roles which have proved more difficult to ratchet down in previous cycles when revenues softened, outstripped revenue growth in 2021. And this further magnifies challenges with the ongoing competition for talent.

Investment in more efficient technology and operating models has been inconsistent across the industry. Banks have allocated very large "change-the-bank" budgets, but this investment has often been directed to critical fixes required by regulators (or risk and operational failures). However, the ROI on change-the-bank investment is a far cry from what the industry would like to see.

The good news is that the next cycle should create opportunity for wholesale banks of every stripe to grow revenues and sustain returns well above the 2012-2019 lows. Execution, as opposed to legacy business models or home markets, will increasingly define the leaders and laggards.

We see five critical areas of focus and opportunity for leadership teams:

- **Defending the client franchise.** The client franchise will be the most important differentiator for wholesale banks in the next cycle. The business model is more dependent than ever on client activity, with the decline of risk warehousing and the rapidly expanding universe of capital markets participants. Non-bank competitors can attack different parts of the value chain, but they cannot replicate the holistic client relationship. Banks that invest to defend the client franchise and build a better client experience across all services (notably in guiding clients through the Climate Transition) will be the biggest winners.
- **Deploying resources rapidly to new opportunities.** Wholesale banks still have a generally rigid and slow process for (a) freeing up resources and (b) rapidly deploying those resources to new areas of opportunity. A real-time, dynamic capital allocation capability remains the holy grail for the industry but even incremental progress toward that goal (across capital, funding, or costs) could yield substantial benefits in a rapidly shifting market.

- **Sustaining investment in efficient technology and operations.** The success of investment programs to build more agile, scalable, and efficient operating models has been mixed to date. No one is all the way there, but all banks need to deliver on this goal and there is significant risk that banks take their eye off the ball during windfall years like 2020-2021 or exhaust change-the-bank budgets on remediation efforts (at the expense of transformation). Transforming the IT stack over the next 5-10 years to offer core products and services and expand into new frontiers, like Digital Assets, will be critical. We see the profitability gap between leaders and laggards widening in the next cycle if this trend continues.
- **Crafting a powerful narrative for clients and investors.** Wholesale banks continue to face a valuation gap with investors and a perception gap with talent in the market. This is partly a failure to shape a clear and compelling narrative on the future of the business and the attractiveness of the model the business will build – across a range of dimensions that include economic, environmental, social, and cultural priorities. Shaping the right strategy and executing against it is as important as ever, but the story matters more than ever.
- **Winning the competition for talent.** Wholesale banking remains a talent business, but it requires a more diverse set of talents now than it did in the past. Compensation is no longer sufficient on its own to attract the best (and it runs the risk of creating an arms race with other banks). Wholesale banking remains a remarkably rich and effective training ground for top talent, but banks may have to stretch themselves in new ways to ensure that the value proposition and culture of the business keep pace with what the next generation of talent is looking for.

The Climate Transition

Wholesale banks have positioned themselves at the forefront of the effort to mobilize the capital required to transition (and transform) the economy to Net Zero. This is a monumental shift that will require a 50% reduction of global emissions in just 10 years. However, the Net Zero effort is colliding with rising concerns about energy affordability and security, which will drive greater investment in all forms of energy and power production as well as volatility in commodities markets for years to come.

The Climate Transition presents an opportunity for structural growth in wholesale banking revenue pools, but capturing this opportunity will require banks to carve out new roles, enter new markets, and carefully navigate their Net Zero commitments. We estimate that the Climate Transition could add $15-20BN to industry fee pools over the next three years as investment in Oil & Gas recovers to pre-pandemic levels, while investment in grid infrastructure, renewable energy, and other de-carbonization initiatives significantly accelerates, buoyed by government support and private sector enthusiasm. Continued volatility in energy markets and expansion of carbon trading offer new opportunities to help corporate and institutional clients access these markets and manage the associated risks. Banks could pivot to these growth areas, increasing revenues at the same time as the carbon intensity of their financing falls, allowing them to progress toward their Net Zero targets.

There is, however, a downside risk for the industry. If investment in low carbon technologies is too low, banks will face trade-offs as their Net Zero targets constrain their business. Revenues from some high carbon industries could migrate outside the banking system or to regional banks with less robust commitments to climate transition and Net Zero.

In any of our scenarios we expect a wide skew between leaders and laggards – we estimate this could be worth as much as 2 points of RoE. The leaders will be those who position as partners to help corporate and institutional clients navigate these shifts, bringing creative financing solutions to bear, and skewing aggressively to growth areas while managing the risks. Lagging banks that move more slowly to pivot the business could face constraints on revenues and potentially also rising capital costs given the profile of their remaining financing activities.

Defending the Business through the Transition

At COP26 in 2021, financial institutions took a central role in the global climate agenda under the banner of the Glasgow Financial Alliance for Net Zero. Wholesale banks were at the vanguard, with the top 15 largest global banks joining the Net Zero Banking Alliance and committing to significantly reduce emissions associated with their banking activities to reach Net Zero global emissions by 2050. Most immediately, those banks committed to setting targets for reducing financed emissions in a set of priority high-emission sectors.

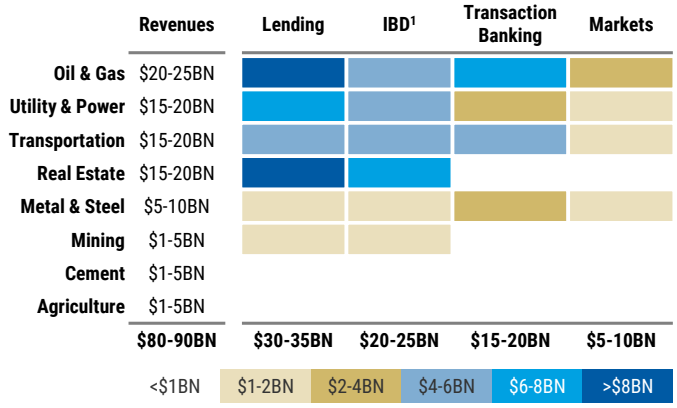
Hitting these targets will not be easy for wholesale banks. High-emission sectors are important clients for wholesale banks, accounting for $80-90BN of industry revenues annually today across lending, investment banking, transaction banking, and markets. This equates to 13-15% of total CIB revenues across the industry.

Exhibit 9: Transition impact on Banks revenue pools

Bank transition scenario	3-5 year revenue uplift for banks	Description of transition scenario
Step-change in growth	**$15-20BN**	• Structural growth in the fee pool driven by a step-change in investment levels across the energy sector • Accelerated investment in the Net Zero transition allows banks to grow while demonstrating progress towards their Net Zero targets • Banks play an important role in helping clients manage volatility in energy and carbon prices
Mix shift	**Neutral**	• Aggregate fee pools remain stable as low-carbon investments substitute other fee-generating activity • Sources of value shift, forcing banks to carefully manage within Net Zero targets • Banks capture only a small share of commodities and carbon trading markets growth
Constrained	**($5BN)**	• Decline in fee pool as banks lose share to shadow banks and energy traders • Limited investment in Net Zero transition forces Banks to limit exposure to high-carbon intensity business without finding alternative sources of growth • Banks struggle to capture commodities and carbon trading markets opportunity vs. physical traders

Source: Oliver Wyman analysis.

Exhibit 10: Banks' revenue streams at risk in the Climate transition, $BN, 2021 baseline



1. IBD (Investment Banking Division). Source: Dealogic, Coalition Greenwich Competitor Analytics, Banks' disclosures, Oliver Wyman analysis.

Reaching Net Zero targets will require major changes in these sectors. While an increasing number of companies globally are committing to take action to reduce emissions, a recent report by Oliver Wyman and CDP[6] found that only 11% of companies globally have targets aligned with the Paris Agreement's goal to limit global warming to 1.5°C (2.7°F) above pre-industrial levels. After adjusting for the declines in activity related to Covid-19, the report found little evidence of the kind of step-change in actual emissions reductions to date that would be required to meet these targets.

Banks must take action across several fronts. To meet Net Zero objectives (and the Net Zero objectives of their clients) wholesale banks will need to:

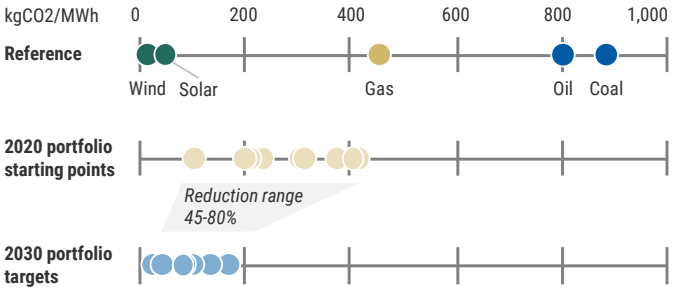
- Support clients in their decarbonization efforts, by advising, incentivizing, and financing them to take steps to transition their businesses
- Skew the business towards greener projects and initiatives, or to clients with effective decarbonization plans
- Manage down exposure to GHG-intensive sectors, or to specific sub-sectors that are seen as particularly harmful to the environment (e.g. Arctic Oil or Oil Sands)

Aligning the portfolio with Net Zero targets will present some win-win opportunities, but it may also require painful commercial trade-offs that need to be carefully managed. The growth of green financing creates new opportunities for wholesale banks that pivot towards those areas. For example, the rapid growth of the electric vehicle (EV) supply chain should present commercial opportunities for financing low carbon growth. However, this has created a dynamic where increasing capital flows into these "green" assets have compressed margins, while at the same time the reduced supply of capital to "brown" assets has led to widening margins in those markets. Wholesale banks must carefully navigate and balance their Net Zero trajectories, participation choices, and appetite for risk (of all forms) in these decisions.

Banks' ability to pivot their portfolios to meet Net Zero goals will depend most heavily on the composition of their portfolios and their clients' ability and willingness to transition to Net Zero pathways, with some regional differences. Corporate readiness for the transition varies widely within sectors, and the starting point for banks also varies widely due to different client mixes within bank portfolios. For example, recent bank Net Zero disclosures have suggested that the baseline of emission intensity (CO2 emitted per unit of power generated) among their clients in the power sector can vary by as much as a factor of two. A bank with a high-emission intensity client mix could be faced with delivering double the reduction in emissions to stay on a Net Zero pathway. This dynamic will also vary by region – for example, pressure in energy markets will drive faster decarbonization of the energy system in Europe, accelerating the transition of bank portfolios towards targets versus other regions.

Exhibit 11: Bank targets to reduce power sector physical intensity

Physical intensity of power generation, industry benchmarks (indicative) by energy source and bank lending portfolio mix, in kg CO2 per MWh generated



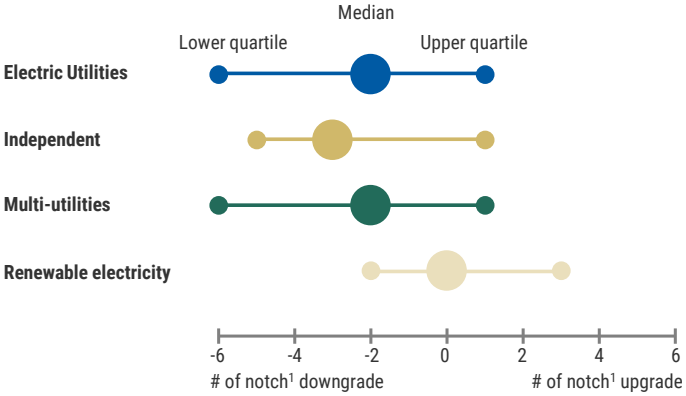
Source: Banks' disclosures, NREL – National Renewable Energy Laboratory and Oliver Wyman analysis.

6 CDP and Oliver Wyman report 2022 – Now for nature: the decade of delivery

Success for wholesale banks will require important shifts in product shelf, coverage model, and credit risk evaluation across sectors. Some activities (e.g. capital markets origination and advisory) will be relatively easier to shift than others, particularly with the rapid evolution of demand for green and sustainable financing from investors. More challenging will be shifting traditional models of lending and project finance, which tend to cover a broad range of activities and/or involve long-dated exposures that cannot be quickly replaced. In addition, newer lending projects may not fit banks' risk/return parameters, going instead to less constrained non-bank lenders. In all cases, active engagement and education of clients will be essential - especially as the industry struggles to converge on standards for emissions accounting and data to monitor progress. In the meantime, each bank's ability to communicate its climate goals, and then provide transparency on its progress toward those goals, will be critical.

There are also rising concerns about the impact on corporate credit ratings. Companies that do not take steps to align their business to transition objectives risk being hit by new policies, or overtaken by new technologies, meaning brown assets may be left stranded – resulting in write-offs and an erosion in credit quality. Analysis from Oliver Wyman and S&P Global finds that under a "divergent Net Zero" scenario,[7] the power sector could see average credit rating downgrades of 2-3 notches, raising reserve and capital requirements for the banks that finance them. The capacity to absorb these shocks varies widely – with some companies facing downgrades of up to 5-6 notches based on a 2030 horizon, in this analysis. These risks could materialize earlier if companies deemed to face material transition risks start to struggle to refinance on favorable terms. Yet the current geopolitical situation may slow the process – recent changes to the European Commission's power mix strategy in Europe may mean more significant government bridge funding for the power sector, as the European Union seeks to wean itself off its reliance on Russia for gas and oil.

Exhibit 12: Power sector credit score projections, under divergent Net Zero scenario, 2020-30



Explanatory Note: The median change in credit score for companies from the Electric Utilities sector is -2 notches (downgrade), the lower quartile is -6 notches (downgrade) and the upper quartile is 1 notch (upgrade). 1. S&P Global Ratings does not contribute to or participate in the creation of credit scores generated by S&P Global Market Intelligence. Lowercase nomenclature is used to differentiate S&P Global Market Intelligence PD credit model scores from the credit ratings issued by S&P Global Ratings, and notches are calculated accordingly. Source: Climate Credit Analytics from S&P Global Market Intelligence, Oliver Wyman analysis.

7 The Network for Greening the Financial System (NGFS)

Financing the Transition

Exhibit 13: Inflection point for transition investment

Area	Example investment areas	2021 Global investment $TN, (3-year CAGR)	2022-2025 expected market growth	IEA modeled 2026-2030 annual investment required under '2050 Net Zero' scenario, $TN	3-year market dynamics
Fossil fuels	• Continued capacity expansion • Refinery re-tooling to support shifts in fossil fuel uses • LNG infrastructure	**0.8** (-6%)	↗	**0.5**	• Increased investment supported by high energy prices and geopolitical developments
Clean / renewable energy generation	• Solar, Wind, Hydro • Nuclear • Biofuels	**0.4** (+6%)	↗	**1.5**	• Continued growth in renewable capacity supported by government energy policies and infrastructure investment
Electricity distribution & Storage	• Grid infrastructure • Battery storage	**0.3** (+0%)	↗	**0.9**	• Rising infrastructure investment supported by COVID recovery plans
Fuels substitution & energy efficiency improvements	• Building / retrofitting for energy efficiency • Efficient improvements and electrification of transport • Retooling and electrification of industry	**0.3** (+3%)	→	**1.5**	• Policy/regulation will be the key driver of investment in the medium term, and higher energy prices will support some investment • Far larger investment will be required in currently nascent technologies for fuel substitution in emissions intensive sectors (e.g., aluminum, cement)
Carbon Capture	• Industry carbon capture • CO2 transport and storage infrastructure	**<0.01** (+3%)	→	**0.05**	• Technology remains nascent and investment levels remain fairly low • Large portion of early investment expected from non-commercial sources (Innovation funds / grants)
Total		**$1.9TN**		**$4.5TN**	

↗ $100BN + → $10BN-100BN

Source: Oliver Wyman analysis based on IEA data from the IEA (2021) World Energy Investment, www.iea.org/statistics, All rights reserved.

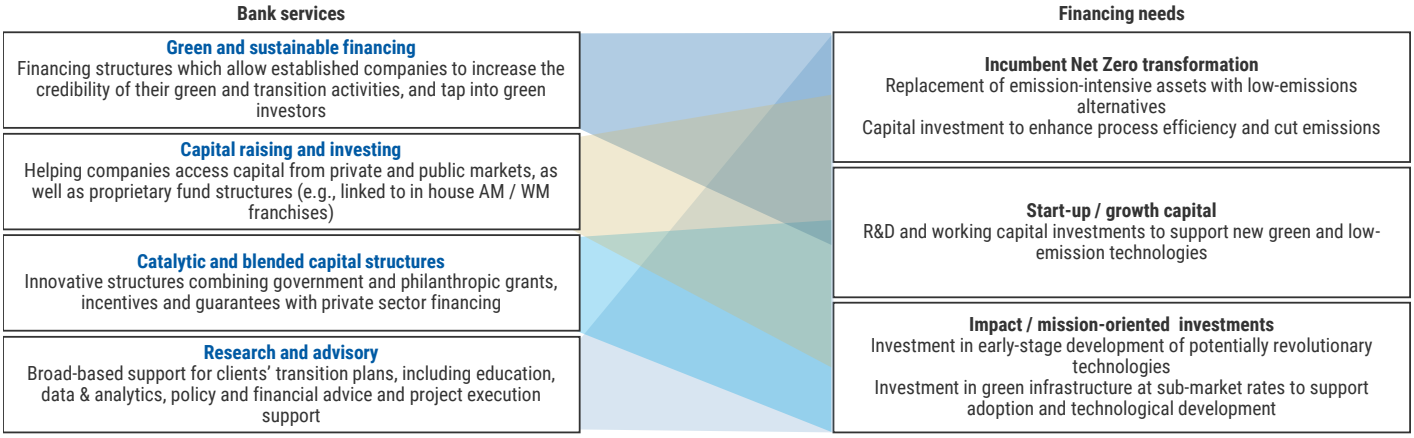
The financing opportunity arising from the transition to Net Zero is enormous. According to the World Economic Forum, more than $50TN in incremental global investment will be required by 2050, with $5TN of annual capital investment required by 2030. Yet investment in recent years has lagged these levels, and in many sectors there are important policy and technology barriers that need to be overcome to catalyze investment at that scale.

One area where a step-change in investment now seems more likely is Energy and Power. Following several years of low energy prices and a multi-year decline in investment, governments are revisiting their energy strategies to balance climate, security, and affordability concerns in the wake of the war in Ukraine. In the short-to-medium term, energy prices are likely to remain high and volatile, focusing urgent attention on the question of how to replace lost supply. This could drive action on multiple fronts – accelerating the push to renewable power, revisiting nuclear and the mix of gas versus Liquid Natural Gas (LNG) and storage within the mix. These projects will need to be fast tracked and funded.

This surge in investment will present opportunities for banks with major franchises in this space, but harnessing them will require careful management of Net Zero impacts. In Power, where most banks have set targets based on intensity metrics, it should be possible to both grow the business and demonstrate progress towards targets, skewing growth towards renewable power and lower carbon energy sources. Oil and Gas – where many banks have set targets for absolute emissions and where there is growing pressure for more restrictive policies – may present tougher trade-offs.

Beyond Energy and Power, the potential for a step-change in growth is more mixed. In some areas change is being driven by incumbents, meaning a rebalancing of priorities that will influence how the wallet is distributed across wholesale banks vs. growing the wallet. In other areas, new growth companies are positioning around the new value chains that are being built. In yet other areas there is a need for major new investment to fund shifts to electrify industrial processes, or to move to new fuels (such as hydrogen, sustainable aviation fuel or ammonia), but these are yet to take off at scale.

Exhibit 14: Range of Banking services required to meet Net Zero targets



Source: Oliver Wyman analysis.

There is a range of financing structures that can serve this growing demand for funding. For example, the area of green and sustainable financing has grown rapidly in recent years and accounted for 6% of all debt issuance in 2021, but remains small in absolute terms (~$500BN). Additionally, venture and private capital dedicated to "climate technology" has been significant, reaching $70BN in H1 2021.

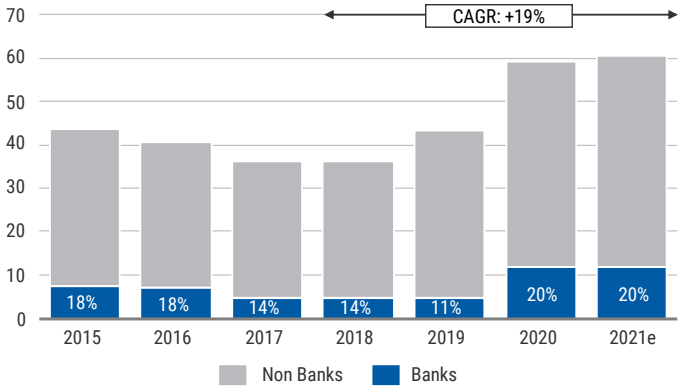
Some of the most attractive opportunities, however, are likely to come in the less mature areas of investment need, where banks can play an important role in bringing together innovative financial struc-tures, policy advice and risk intermediation. Some key emerging tech-nologies that are necessary for climate transition are large scale, high risk, and long term in nature, and face significant competitive disad-vantages vs. existing alternatives. These will require solutions that knit together financing and capital from multiple sources such as governments and philanthropic grants, multi-lateral development bank financing, venture and private capital investments, as well as bank balance sheets.

Trading through the Transition

Net Zero will lead to major structural shifts in supply and demand for essential commodities, creating trading opportunities across commodities markets. The transition has already started to upend global commodity markets. Global demand for fossil fuels is expected to plateau and fall over time, while demand for materials used in electricity grids, batteries, and low-carbon industrial pro-cesses is likely to rise exponentially. The combination of these antici-pated shifts with pandemic recovery and sanctions on Russia has led to sharp increases in commodity prices and price volatility.

These developments, which have brought a renewed focus on energy security and affordability by governments around the world, have provided a strong trading environment, with bank commodities trading revenues reaching their highest levels in a decade. This is despite the fact that most wholesale banks have exited commodity trading or slimmed their focus to a narrow subset of the commodities market over the last decade – in response to poor returns and regulatory pressure. The few banks that maintained broad-based businesses in commodities trading enjoyed stand-out revenues in 2020 and 2021, having successfully adjusted and adapted the business to regulatory requirements emerging from the Global Financial Crisis.

Exhibit 15: Banks' share of global commodities trading, $BN, commodities trading revenues pools



Source: Coalition Greenwich Competitor Analytics, Oliver Wyman proprietary data & analysis.

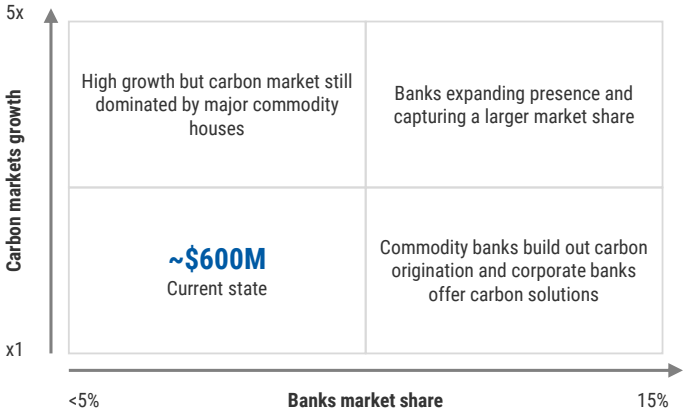
As uncertainty and price volatility in energy markets persist, opportunities for banks able to help companies and investors manage these risks will continue to emerge. Fresh memories of the painful process of winding down commodities trading activities could mean many banks will be reluctant to pursue these opportunities. But wholesale banks that have maintained a presence in commodities markets will have a significant opportunity to capture this upside.

A new prize may emerge in carbon trading – a new asset class that wholesale banks are well positioned to pursue. Following progress on Article 6 at COP26, there is renewed interest in the development of carbon trading markets as an important way to incentivize and finance climate action. As carbon prices have risen steeply, many banks are keen to carve out a role in the emerging ecosystem to improve the functioning of these markets and catalyze growth. This ecosystem primarily consists of two markets:

- **Compliance market:** Covering regulated schemes that issue permits to companies operating in key polluting industries, the compliance market trades ~$850BN annually, having grown ~20x since 2017. Growth in this space has been driven by the expansion of existing schemes to cover a wider set of industries, the establishment of new schemes, and rising carbon prices driving deeper secondary trading.
- **Voluntary market:** In the voluntary market, corporates (typically outside of permit schemes) or individuals seeking to "offset" their emissions, raise money to direct towards emissions-reducing projects. The voluntary market currently trades only ~$1BN annually, but there is a wide range of products available, and efforts are under way to improve the transparency and integrity of this market with an ambition to grow exponentially in the next 10+ years.

The fee pool for banks in emissions trading is material and has potential to grow significantly. We estimate today's emissions trading fee pool for wholesale banks to be ~$600M or ~10% of overall energy trading revenues. We see potential for this to grow several times over, depending on the success of ongoing efforts to expand and standardize the market, and on the ability of banks to build their way into the ecosystem, which requires significant talent acquisition, risk management and capital.

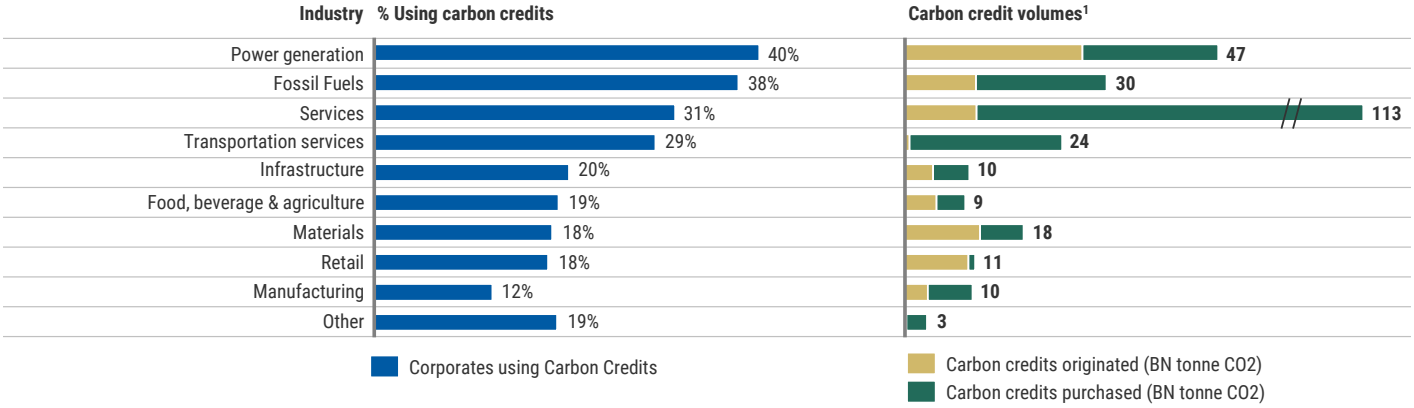
Exhibit 16: Future growth scenarios of Banks carbon trading revenues, 2025 horizon



Source: Coalition Greenwich Competitor Analytics, Oliver Wyman analysis.

Banks benefit from a natural entry point through corporate relationships and are well positioned to take advantage of the opportunity in carbon trading. Banks are increasingly engaged with sustainability officers at corporate clients as they roll out new policies and Net Zero frameworks, and as they help navigate investors' ESG needs. While these are key buying points for carbon credits today, traditional bank buying points such as treasurers and CFOs are likely to play a bigger role as the carbon credit market standardizes. Faced with a complex and opaque market, banks can offer assurance over the quality of the product and the integrity of the sales process, while also easing some of the credit and settlement risks and operational challenges that come with the market.

Exhibit 17: Corporates active in carbon trading markets, % of companies using carbon credits, and total credits purchased & originated



1. Includes both compliance and voluntary volumes. Source: CDP 2021 climate change questionnaire – sample includes 3,365 companies, Oliver Wyman analysis

Building on this strong client franchise, wholesale banks are beginning to explore different strategies and operating models for carbon trading:

- Extending integrated energy financing and trading businesses into emissions markets, with a model similar to a credit vertical (finance, originate, distribute, trade)
- Carving out brokerage-like models focused on advice, market access and credit intermediation, in some cases establishing new marketplaces or acquiring independent brokers

Delivering on the Challenge

Net Zero targets will be challenging for banks to meet given the fundamental shifts in the real economy required to get there. Although banks' commitments are voluntary and on a "comply or explain" basis, we expect they will be focused not only on not missing them but also on not underperforming their peers. Many investors have made their own Net Zero commitments, through the Net Zero Asset Managers Initiative and activists are increasingly targeting banks, so banks can expect to be held to account on their commitments. Supervisors are openly considering how to embed climate risks into bank capital requirements, which could make holding on to high climate transition risk assets more costly. So although banks can expect some flexibility if their portfolios do not chart a straight line to Net Zero – and indeed it is widely understood this may be desirable if they are channeling capital into companies that are polluting today but are actively cutting emissions – it will be hard to justify significantly underperforming against peers over time.

Banks will have to strike a fine balance to achieve Net Zero targets, defend existing revenue pools and client relationships, and capture new commercial opportunities – the client franchise will be key to making it happen. Banks can (and must) engage with their clients in new ways to come through the Climate Transition in strong shape. This engagement model will evolve to include:

- **Education and advice.** Clients need advice to fully understand their emissions and the actions they can take to transition business practices.
- **Enlarging ecosystems.** Banks can use their convening power to bring together different parties needed to execute transition for specific sectors. For example, in commercial real estate, banks could join forces with building assessors to identify energy-efficiency opportunities and quantify business cases, as well as insulation and heat-pump manufacturers and engineers to provide a full-service retrofitting proposition.
- **Tapping carbon markets.** A growing number of corporations are choosing to offset their emissions as they reduce them, creating opportunities for banks to finance projects that generate carbon credits and to help clients access carbon markets.

Banks will benefit from having specialist client-facing teams with climate expertise. While most banks have established specialist teams that bring real climate expertise, these teams are often spread thin, supporting industry initiatives, regulatory exercises, and external communications. A key challenge is mobilizing the client-facing teams on climate in a structured way that builds momentum with clients and gives them confidence in the teams. Key activities for banks to pursue include:

- **Upskilling.** Fundamentally, all relationship managers must be equipped with the knowledge and tools they need to understand and talk about Climate Transition plans.
- **Redrawing the client-relationship map**. Relationship managers will need to engage with a range of stakeholders within

the client beyond the finance and treasury teams, providing an opportunity for a broader strategic dialogue and broader commercial opportunities.

- **Bringing together key new assets.** The outreach plan should include access to additional specialist capabilities, such as the climate and/or sustainable-finance team and structuring capabilities.

It is not only corporate clients that are wrestling with the transition. As institutional investor interest in the climate transition and ESG theme more broadly has grown, so have their asks of their banking providers. One important way in which banks can serve their institutional clients is through research and analytics. A recent survey by Coalition Greenwich found that ~50% of respondents believed that in the realm of ESG, research is the highest priority ask they have from banks. This will be an increasingly important source of differentiation in supporting client relationships. Beyond this, institutional clients will be an important element of many key growth areas. For example, while direct participation by institutional investors in carbon markets is very limited today, this is likely to grow as liquidity deepens. Likewise, as thematically investing funds grow across traditional and alternative investors, these investors will need not just ideas and analytics, but also assets and investment opportunities.

Wholesale banks are moving in the right direction, but rising to the many challenges of Climate Transition will require organizational and cultural shifts. The leading wholesale banks have all made public commitments to achieve Net Zero targets – this was and will continue to be a major undertaking. However, the commercial model has barely budged. Wholesale banks have hired climate experts, rolled out new products, and are working to define what the revenue mix of a wholesale banking business should look like in a Net Zero world.

Leaders will be those who can pivot the business most effectively, with consideration of success factors including:

- **Product mix:** capital markets and advisory activities are likely to pivot faster to green growth areas, and commodity trading capabilities are an advantage
- **Regional mix:** pressure in energy markets drive Europe to move further and faster to decarbonize its energy system, helping bank portfolios move towards their targets; the dynamic may be different in other regions
- **Commerciality:** some banks are approaching this topic with primarily a compliance and risk-driven mindset, but a growth-driven mindset is needed to unlock new solutions and pivot to high-opportunity areas

We believe there is more upside than downside for wholesale banks in Climate Transition, but only if banks embrace the full scope of the opportunity and change required.

The Rise of Digital Assets

Wholesale banks have been on the sidelines for the early stages of the Digital Assets revolution, missing out on >95% of the $4-5BN in revenues we estimate that corporate and institutional clients generated in 2021. The absence of a clear regulatory framework, and the potential consequences of participating in the market, have been the primary hurdle for banks. That may soon change, which will open the door for wholesale banks to enter the market with conviction.

It will take time for the market to develop, but the stakes are high. We model three potential evolutionary paths for Digital Assets that look more than five years into the future – the minimum window for the market to reach maturity, in our view. Looking this far out is, by its nature, an imprecise and speculative exercise, but is important given the stakes for wholesale banks. We estimate there is as much as $5BN in revenue and $1BN in economic value added on the table now for wholesale banks from direct participation in the Digital Assets ecosystem, with even greater potential for fundamental shifts in the operating model for several core businesses over the longer-term – most notably payments and custody.

Immediate action is required to stay in the game. Wholesale banks will have some clear advantages in a more mature and formally regulated market, but the challenge from "crypto natives", firms with a clear focus on digital asset markets, should not be underestimated. These crypto natives have first-mover advantages, deep pools of talent, and substantial investment war chests they can use to build operational advantages and close the gap with wholesale banks in regulation, compliance, and credibility.

The Four Pillars of the Future Digital Assets Market for Wholesale Banks

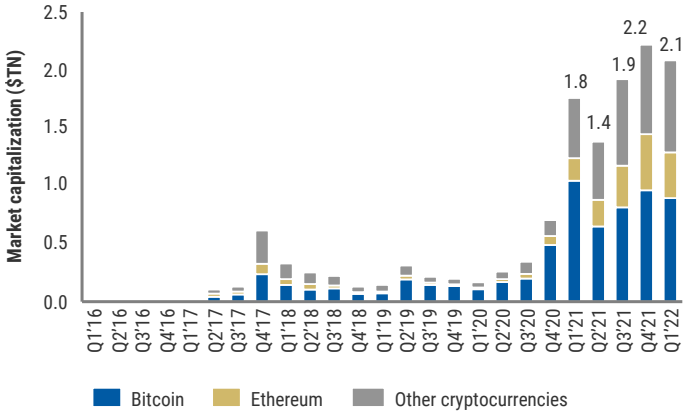
Analysis of Digital Assets has historically focused on cryptocurrencies, distributed ledger technology (DLT), and smart contracts. While these concepts remain important underpinnings of the Digital Assets market, the overall landscape has matured and broadened beyond cryptocurrencies and the underlying technologies of cryptocurrencies to include more recent conceptual innovations, including stablecoins and central bank digital currencies (CBDCs).

- **Cryptocurrencies: Cryptocurrencies or crypto assets act as a store of value and medium of exchange, such as Bitcoin and Ether. Cryptocurrency values are highly volatile, and there is considerable speculative engagement in these assets, which has fueled both interest and skepticism in this market.**
- **Stablecoins: Stablecoins are a distinct form of crypto asset with built-in stabilization mechanisms that link their value to an underlying traditional asset or pool of traditional assets. Stablecoins aim to combine the operational efficiencies of a digital asset with the benefits of a stable medium of exchange based on the value of traditional financial assets, mainly USD. Stablecoins primarily exist to facilitate transactions between different cryptocurrencies today.**
- **Central Bank Digital Currencies: CBDCs are a digital form of fiat currency with the option for direct central bank issuance to institutions and individuals. CBDCs have the potential to alter existing banking paradigms, depending on how they are structured and implemented. At this stage, central banks are largely experimenting with and studying the possibilities of CBDC design and technology.**
- **Tokenized Traditional Assets: A digital form of or claim on traditional assets. Tokenization seeks to digitally replicate the properties of assets or contractual arrangements and can be more efficient than issuing or trading these assets or contracts. It has attracted the attention of wholesale banks, which are experimenting with tokenization to transform traditional investment banking, securitization, and custody businesses.**

The Starting Line

The exponential growth of the Digital Assets market has been driven primarily by retail investor interest in cryptocurrencies (see discussion of digital asset classes in sidebar). While crypto markets are volatile, the market capitalization of cryptocurrencies continues to grow through price appreciation and the introduction of new assets.

Exhibit 18: Market capitalization of Cryptocurrencies, $TN, Q1 2016 – Q1 2022



Source: Coinmarketcap, Oliver Wyman analysis.

As of March 31, 2022, the total value of cryptocurrencies stood at $2.1TN across venues, exceeding some established stores of value such as silver ($1.4TN).

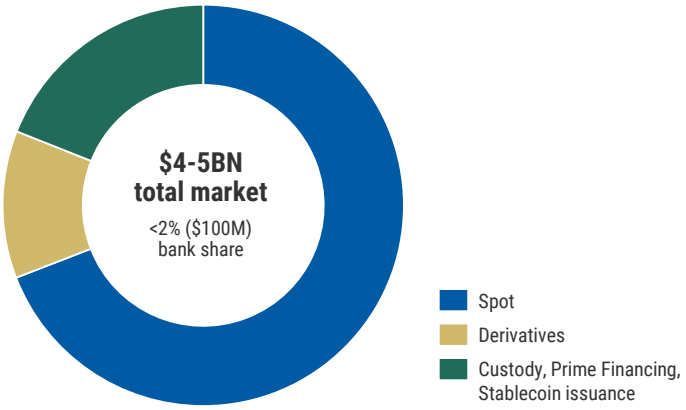
Wholesale banks have stayed on the sidelines in the Digital Assets market to date for three primary reasons:

- Limited transparency on genuine institutional trading volumes in cryptocurrencies
- Limited transparency on the economics of institutional trading and custody
- Concerns about regulatory and reputational risk

The publication of the Coinbase S-1 on February 25, 2021 was a key milestone for the industry that changed the calculus for many wholesale banks, at least on the first two hurdles. Even though Coinbase represents a modest share of the total institutional trading market in cryptocurrencies, the firm disclosed robust (and formally audited) volumes and revenues from institutional clients. Reported institutional transaction revenues (excluding custody) were $346M for 2021, up >500% from 2020.

We estimate the total 2021 revenue pool for corporate and institutional participation in the Digital Assets ecosystem was $4-5BN. These revenues were generated primarily from bid-offer spreads and commissions paid to transact in cryptocurrencies (~80%) and custody and Prime Financing services on these assets (~20%). These activities closely resemble established wholesale banking businesses, including cash and futures trading in the equities markets, prime brokerage, and custody. However, traditional wholesale banks have remained very much on the sidelines, capturing less than 2% of the revenue pools to date.

Exhibit 19: Corporate & Institutional market for Digital Assets in 2021



Source: Industry public information, Oliver Wyman analysis.

Exhibit 20: Corporate & Institutional market annual revenue market sizing methodology

Spot	**Institutional Trading Volume** in crypto-fiat pairs on legitimate venues	×	**Average round-trip institutional commission** *compressing over time*
Derivatives	**Institutional Trading Volume** in listed crypto futures	×	**Average round-trip institutional commission** *compressing over time*
Custody	**Institutional Assets under Custody**	×	**Average institutional custody fee** *compressing over time*
Lending / Prime Brokerage	**Prime Financing Balances**	×	**Average spread**
Stablecoin issuance	**Average Issuance of Stablecoins** for Institutional Clients	×	**Average margin** on stablecoin proceeds

Notes: 1. Data is focused on Corporate and Institutional market sizing and estimated to show directionality. 2. Due to the historic volatility of the price and time horizon of this report, this market sizing methodology does not consider the potential impact of cryptocurrency price changes. We note that price changes, particularly of BTC, could have a significant impact on the potential volumes and revenues for Digital Assets. 3. This market sizing methodology does not consider changes in the USD interest rates. Any significant USD interest rate changes could affect stablecoin margins, however, we assume in a competitive market any significant upside will be passed onto stablecoin users. Source: Oliver Wyman analysis.

Regulation Holds the Key

The major hurdle for wholesale banks is regulation. It is now clear that corporate and institutional clients are actively participating in the Digital Assets ecosystem – primarily through trading and custody of cryptocurrencies. However, wholesale banks face an uncertain regulatory environment, which creates significant execution risk for the business (see Exhibit 21 on Direction of Regulations). This uncertainty casts doubt on further development of Digital Assets use cases (e.g. stablecoins and central bank digital currencies or "CBDCs") that could create opportunities for genuine business model transformation.

Direction of Regulations

Regulation across G5 countries is expected to accelerate in upcoming years. While some emerging markets (most notably China) have taken measures to ban cryptocurrencies, G5 countries have been looking to safely harness cryptocurrencies in addition to launching their own CBDCs.

Exhibit 21: Direction of regulations for G5 countries

USA

Recent Executive Order may help point to legislative action needed to resolve fragmented environment

- The US has no broad federal statutory frameworks, but in Mar '22, President Biden signed an "**Executive Order on Ensuring Responsible Development of Digital Assets**" which (1) sets forth policy objectives (2) directs coordinated action across agencies to produce a series of reports and evaluations, reviewing key policy issues to culminate in legislative proposals (3) calls for US leadership internationally in CBDC development. There is a **need for new legislation**, and uncertainty as to when such new legislation may pass.
- The SEC has been **pushing for more regulation**, and announced guidance in Mar '22 that crypto exchanges record customer digital assets on balance sheets as liability
- The President's Working Group report from Nov '21 on stablecoins **called for legislative action** to regulate stablecoins as a bank product
- Some states have been making moves: pro-crypto (e.g., Wyoming) vs. more cautious regulation (e.g., NY)

UNITED KINGDOM

Aims to be a global hub for cryptocurrencies, while ensuring appropriate regulation

- In Apr '22, HM Treasury announced a package of measures aimed at making the **UK a global hub** for cryptoasset technology and investment. It (1) introduces "financial market infrastructure sandbox" and crypto sprints (2) regulates stablecoins using existing payments regulatory framework.
- The government issued Jan '22 rules to **strengthen consumer protection** focused on crypto advertisements, building on Jan '21 ban of crypto derivatives products to retail users.
- In Jul '19, the FCA released the final PS19/22 Guidance on Cryptoassets, but **regulatory gaps remained**, as utility and exchange coins (e.g., BTC, ETH) were classified as "unregulated".
- In Apr '21, the BoE and HM Treasury announced a CBDC taskforce, but the digital pound has its detractors; a House of Lords report in Jan '22 called it a "solution in search of a problem".

EUROPEAN UNION

A European framework aims to provide a single licensing regime across member states by 2024

- Some **integration expected through MiCA** (Markets in Crypto Assets), introduced in Sep '20. The proposal covers cryptocurrencies, utility tokens and stablecoins, part of broader the EC Digital Finance strategy to provide legal certainty and uniform rules across the EU. However, gaps remain: it does not address lending/borrowing of crypto-assets. A new draft was introduced in Nov '21, passed in European Parliament in Mar '22, and will next be subject to "trilogue" discussion among the three EU branches of government.
- In Mar '22, the EU parliament voted for more **stringent KYC for non-custodial wallets**, as part of "Transfer of Funds Regulation".
- In Nov '21, the EU parliament agreed to a pilot regime for **DLT trading and settlement**, building a regulatory sandbox to allow experimentation.
- The EU is exploring retail CBDC through its Digital Euro project, which is currently in investigation phase with potential pilot phase in 2024.

FRANCE

- The country is generally supportive of the development of cryptocurrency, provided that it is regulated.
- France published the PACTE Law in May '19, which provided a legal framework for digital assets and token issuance.
- The Pacte Law was expanded in Jun '21, requiring mandatory registration of all crypto firms and more stringent KYC requirements.

GERMANY

- The country was early in passing regulation, enacting legislation at end-2019 requiring BaFin licensing for crypto custody.
- In Dec '20, Germany passed a law that enabled bonds to be held on the blockchain, with German authorities announcing in Mar '21 a successful proof of concept bridge between blockchain and central bank accounts.
- Germany has been atthe forefront of removing undue hurdles for institutional investment: the Fund Location Act allowed in Jul '22 domestic-specific funds to allocate up to 20% of their assets under management in crypto assets.

JAPAN

Early in offering regulatory clarity, with new stricter regulation potentially on the horizon

- Japan was among the **first countries to clarify regulation**, introducing a legal definition of "virtual currency" in its Payment Services Act that went into force in 2017 (with a revision enacted in 2019).
- The Financial Services Agency (FSA) is the primary supervisor, working closely with two self-regulation entities.
- **Regulation has increased over time** (1) the FSA revised laws in 2019 to increase safeguards for users, after a Japan-based exchange was hacked (2) in Aug '21, the FSA established a panel of experts and began discussions to increase protection to investors.
- The FSA's Digital and Decentralized Finance planning office (established in Jul '21) submitted regulation on **stablecoins** to the Diet in Mar '22, which could be enacted in 2022, introducing a regulatory framework for issuers and intermediaries.
- In Mar '22, the Bank of Japan completed its one-year study of the technical feasibility of a **retail CBDC**, and entered the next phase focused on additional functionality.

Notes: (1) Tax treatments are not part of this analysis. (2) This is a summary of elements of the relevant regulations and government activity that we think are significant. The summary is provided for informational purpose only. Please see the underlying regulations or official statements for additional information and context. Source: Oliver Wyman analysis.

We model three future paths for wholesale bank participation in the Digital Assets market – all three hinge on the regulation and broader public sector initiatives on the horizon. We have modelled three evolutionary paths for the future of the Digital Assets market for wholesale banks, based on the pace of technical advancement, adoption across classes of investors, and developments in public policy and regulation.

Below, we describe scenarios for the Digital Assets market five years into the future (the minimum window we expect for the market to reach a material level of maturity) and the impact on wholesale banking revenue pools, operating models, and economics. Looking this far out into the future is an imprecise and speculative exercise, especially given how sensitive projections are to crypto asset prices and market pricing models, which remain highly volatile. As such, all analysis should be treated as approximate and directional.

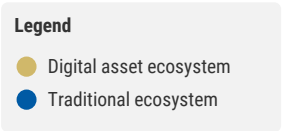
- **Status Quo:** Limited progress on policy and regulation precludes wholesale bank participation. The path of least upside for wholesale banks is a future with little to no change in the policy and regulatory framework for Digital Assets. We believe this would constrain the development of the market and limit the role of wholesale banks, as they would be reluctant to absorb significant regulatory risk or prohibitive capital charges for making markets in Digital Assets.

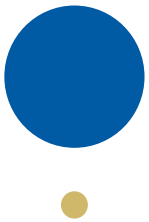
  In this scenario, the market in five years largely resembles the market today – with some growth in institutional volumes and still elevated margins for trading and custody. The revenue pool grows to $6-7BN but remains dominated by non-bank competitors. The revenue opportunity and economic impact on banks is negligible.

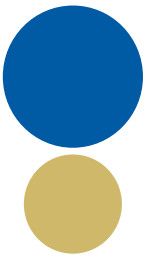
- **Parallel Ecosystems:** Policy and regulation open the door to wholesale bank participation in a new asset class. Our central case for wholesale banks is a future where a viable Digital Assets business model emerges – providing incremental revenues and economic value to the wholesale banking business model without transforming the legacy business. New regulation brings Digital Assets under the umbrella of the regulated financial system, which is better equipped to control financial crime and other risks. The new market is oriented primarily around the trading ecosystem, along with the emergence of a regulatory framework for stablecoins and limited use cases for tokenization. Policymakers stop short of full, live use of CBDCs, allowing wholesale banks to defend corporate and transaction banking revenue streams.

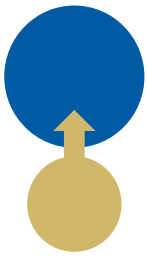
  In this scenario, the Digital Assets market follows an evolutionary path similar to other trading markets – proliferation of new products and services, strong growth in institutional volumes, and rapidly declining margins as pricing models and risk controls mature. The revenue pool grows to $11-13BN and wholesale banks have the opportunity to capture market share and economics comparable with cash, futures, custody, and prime services today. The downside is that banks must build parallel infrastructure to support the new market, with limited efficiency gains for core wholesale banking businesses. The key to winning in this scenario is competing effectively with crypto natives in their home markets.

Exhibit 22: Future evolutionary paths for Wholesale Banks in Digital Assets, 5-year horizon









	Status Quo	Parallel Ecosystem	Paradigm Shift
Institutional Wallet	**$6-7BN**	**$11-13BN**	**$14-16BN**
Wholesale Bank Share	Negligible	$4-5BN	$5-6BN
Key Developments	• Regulatory Stalemate	• Regulatory Shift • Volume Growth • Margin Compression	• Regulatory Shift • Volume Growth • Margin Compression • Bank Operating Model Efficiencies

Note: not to scale. Source: Industry public information, Oliver Wyman analysis.

- **Paradigm Shift: Policy and regulation – coupled with rapid adoption of DLT technologies – transforms legacy business models and infrastructure across the wholesale banking market.** Our more extreme scenario is a future where viable Digital Assets business models emerge across the wholesale banking market, generating new revenue streams as the infrastructure to deliver critical and expansive service lines (e.g. payments, custody) are rebuilt using new technologies. The new ecosystem spans the trading, transaction banking, and asset origination markets. CBDCs, stablecoins, and tokenization become widely adopted in the regulated financial system, with broad wholesale banking impacts. For example, issuance of wholesale CBDCs for cross-border use, allowing direct transfer of funds between countries, would eliminate the need for correspondent banks and reduce traditional transaction banking revenues.

  In this scenario, the Digital Assets market (and parts of the traditional financial services ecosystem) look completely different to the market today – all of the same outcomes we project in Parallel Ecosystems play out, along with broader adoption across wholesale banking businesses. Wholesale banks participate in the new revenue streams of $14-16BN and shift to more efficient models in operations-intensive services – improving unit economics in new and core businesses. However, the industry also faces significant threats to existing revenue streams across trading, transaction banking, and asset origination markets. The key to winning in this scenario is adaptation – moving early and with agility to pivot away from dying business models and take share in new areas of growth.

Early indications are that policy and regulation will evolve and be supportive of our Parallel Ecosystems evolutionary path. A clear set of policy and regulatory priorities is gradually emerging and can be expected to come in waves over the next one to three years – highlighted by President Biden's March 9, 2022, Executive Order to "ensure the responsible development of digital assets in the United States." Wholesale banks will need to watch three regulatory developments closely:

- **Licensing and Supervision:** Framework(s) for trading, custody, money transfer, and stablecoin operations, including oversight and enforcement.
- **Capital, Liquidity, and Risk Management:** Framework(s) for calculation of capital, liquidity, and collateral requirements and supervisory expectations for risk management. The consultative proposals for cryptocurrency capital requirements are punitive and discourage direct participation in the market from regulated financial institutions.
- **Technology Standards:** Alignment on standards for technology development, interoperability, and security. The EU recently established a regulatory sandbox for operating DLT-based market infrastructure, other jurisdictions are likely to follow suit.

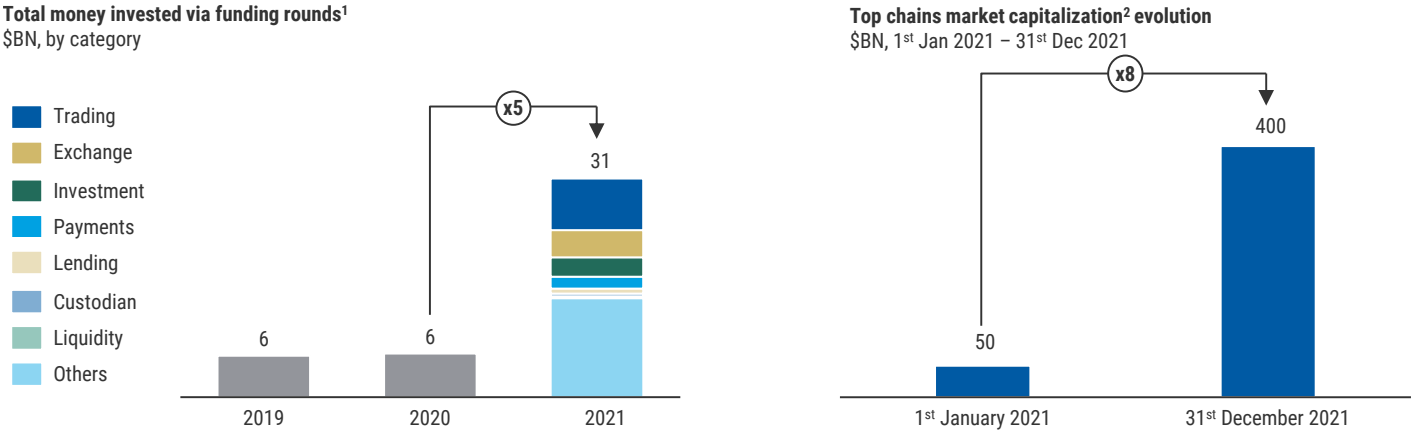
The Challenge Ahead

Regulation will set the guardrails, but the rise of powerful new competitors makes it clear that banks cannot afford to wait and see what unfolds over the next five years. The institutional Digital Assets market is evolving along strikingly similar paths to related markets in the existing wholesale banking business – just at an accelerated pace.

Wholesale banks have natural advantages in a rapidly maturing market that follows this path. Wholesale banks have built and transformed businesses to navigate complex regulatory requirements and deliver returns even as the costs of compliance and capital rise sharply. They have witnessed the evolution of client demand across asset classes and understand what corporate and institutional investors value. And they have the trust of these clients, which will be immensely valuable beyond the most transactional parts of the Digital Assets business.

Crypto natives are legitimate competitors with the capabilities and funding to sustain their early-mover advantages. The growth in market cap and crypto activity has brought strong investor appetite to create new DLT-based digital infrastructure. Venture capital and initial coin offering-based investment (VC and ICO) into the crypto market has accelerated in recent years, broadly targeting custody order management, order routing, and DLT networks and exchanges. Total money invested into crypto and blockchain startups in 2021 reached more than $31BN (more than all prior years combined) and the market cap of crypto networks stood at $400BN in 2021, which provides a large amount of innovative funding for infrastructure-oriented applications of new DLT networks.

Exhibit 23: Investment and valuation growth in Crypto native start-ups



1. The analysis include traditional VC rounds and other types of funding (e.g. secondary market, corporate rounds, product crowd funding…).2. Top chains market capitalization, based on a sample of 40 Network infrastructure chains, excluding Bitcoin and Ethereum. Source: Oliver Wyman analysis, Crunchbase, S&P Global Market Intelligence.

At the same time, crypto natives are pushing to broaden their role in the digital assets ecosystem with new product and services, e.g. prime brokerage, lending, OTC liquidity and "settlement" facilitation, targeted at institutional investors. More mature crypto natives have also begun developing stronger compliance and risk management frameworks, supporting expansion into regulated spaces, and some have acquired regulated execution venues. In parallel to these developments, we also have witnessed a migration of talent from traditional finance to crypto-native firms.

Prior experience with non-bank liquidity providers and payment services has shown the challenges banks face in competing with new operating and business models and technology infrastructure innovation supported by broad-based VC-funding.

A Future with Digital Assets

Challengers to banks have a head-start, and the stakes are high. Skepticism on the part of the traditional financial system and limited regulation of Digital Assets markets has allowed crypto natives and non-regulated institutions to move aggressively to build up infrastructure that largely mirrors that of traditional, centralized finance. These crypto natives and non-bank participants operate outside of the regulated financial services sector and have profited handsomely. They will not easily give up their pole position. And in the absence of a market destabilizing event, regulators will be challenged to strike a balance between enabling innovation and not allowing the Digital Assets market to become an unregulated financial wild west.

We believe Digital Assets markets will eventually be regulated. The central question is whether and how traditional banks will be able to capitalize on this market opportunity faster than their crypto native, unregulated counterparts. Even though developments to date have been more focused on expanding the market rather than eating into existing income streams for banks, failure to adapt may ultimately result in value migration away from the traditional wholesale banking industry.

Banks can benefit by taking immediate "no regret" actions to prepare. Banks can very effectively be fast followers and catch up to crypto natives, but the time for action is now. We see four "no regret" moves that banks can undertake immediately:

- **Evaluate participation choices and articulate risk appetite:** Banks need to more deliberately establish their internal risk appetite for participation in the Digital Assets space and decide where and how to compete in this market – with dedicated leadership and resources as applicable. While we expect greater clarity regarding the regulatory framework for digital assets in the next 18-24 months, banks should not view this as an invitation to wait. Crypto natives and other non-regulated institutions have been moving quickly to build up their capabilities, and banks may find themselves unable to keep up if they wait too long to determine how and where to participate in the market. There are many paths that banks may take, ranging from participating in markets as intermediaries to investing in new technologies. The capability and talent upgrades needed to successfully compete are substantial and will take time to embed. It is important to start now.

- **Invest in experiments (and ideally co-create with clients):** The technology paradigms underpinning digital assets (e.g. smart contracts, tokenization of physical or virtual assets, distributed ledgers) are some of the most important developments impacting financial markets that have emerged in recent years. These technologies allow banks to create broader ecosystems, where financial products can be virtualized and externalized, and privacy preserving networks and data exchange can be created beyond the bank's historical perimeter.

  The potential here is extraordinary, but requires application of the technologies to address specific client and industry problems. Development and implementation of this technology is best started through experimentation, particularly with the involvement of clients and all ecosystem players. Ensuring that clients feel comfortable with their level of control over data and assets will build trust in the technology and encourage adoption in the future.

- **Build foundational capabilities in risk, compliance, technology, and operations:** When digital assets gain acceptance in the regulated financial services industry, banks will need to make sizeable investments in their risk, compliance, technology, and operations organizations. There are unique realities related to digital assets that will require banks to adapt and evolve their support functions. These include:

  – Risk Management: Digital Assets markets operate 24/7 and present unique challenges in market and counterparty risk management, given the volatility and nature of the intermediaries. They also come with operational, technology and cyber risks that cut across the whole bank.

  – Compliance: Governments will eventually insist that anti-financial crime protection measures be put in place and require new capabilities that banks do not possess today related to KYC and transaction monitoring. New controls will need to be designed and put in place.

  – Technology: The underlying technologies underpinning digital assets are expansive and require domain knowledge and expertise that many banks do not possess in-house. The technologies are evolving so rapidly that talent is difficult to source, and investment should be made now to build out this expertise.

  – Operations: All operations including finance, accounting, treasury, audit, IT, tax and legal will need to be streamlined to bring Digital Assets on and off the balance sheet. New processes and procedures will need to be put in place.

- **Expand direct engagement with regulators:** Regulatory uncertainty has impeded the ability of traditional banks to participate and compete fully in Digital Assets markets, resulting in a parallel ecosystem dominated by crypto natives. As regulators are now intensely focused on digital assets, banks should avoid being passive observers. Banks should actively seek to engage with regulators, not only through broader industry bodies, but also directly where possible.

As key disruptive factors become clearer and options for banks to take share emerge, we see opportunity for banks to catch up and even take the lead in the rise of Digital Assets.

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(as of March 31, 2022)

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	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1438	41%	366	45%	25%	630	41%
Equal-weight/Hold	1539	44%	365	45%	24%	712	46%
Not-Rated/Hold	0	0%	0	0%	0%	0	0%
Underweight/Sell	552	16%	87	11%	16%	207	13%
Total	3,529		818			1549	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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Not-Rated (NR) - Currently the analyst does not have adequate conviction about the stock's total return relative to the relevant country MSCI Index or the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U or Under) - The stock's total return is expected to be below the total return of the relevant country MSCI Index or the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

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