

Charles Schwab

Distribution of Alternative Products Is a Big Revenue Opportunity for Schwab — A Big Distribution Opportunity for Alternative Managers

We see the distribution of alternative products as potentially one of the biggest new revenue opportunities for Schwab. Because access to alternative products has been limited for wealth management investors and because the alternatives brand is for better returns often with lower volatility than available in public markets investing, we see substantial demand amongst Schwab's \$10tr of customer assets. Because alternatives are higher fee products, we see greater potential for Schwab to monetize its platform through the distribution of alternative products than it has been able to do with ETFs or institutional share class mutual funds. While Schwab seems poised to launch a curated alternatives product platform for its ultra-high net worth clients (likely within its Wealth Advisory platform) for customers with more than \$5mn of assets at Schwab, we expect over time minimums would fall to \$1mn and eventually lower. We expect over time alternatives will comprise 20% of HNW assets. If 8.75% of Schwab client assets were to migrate to alternatives within 10 years, assuming Schwab assets to continue to grow with the market and organically at a 9% annual pace, at a 40bps fee rate, Schwab would generate \$8bn of annual alternative asset management fees annually within 10 years.

- **Investor focus is NII, NIM and the shrinking balance sheet** — However, Schwab is also looking to monetize its platform. Investors are focused on NII, NIM, the balance sheet and how a changing forward curve could impact earnings. Given management's duration extension a few year back, recovery is a matter of time with management decisions likely having more limited impact at this point. However, we see management being able to better monetize the Schwab platform in coming years by building a platform for its clients to better access alternatives.
- **We expect a supermarket type platform at some point.** Brokerage and Advisory firms, including the US wirehouses are offering alternative products. This distribution is costly, but the opportunities for the alternative asset managers has been meaningful and rewarding. We see Schwab participating, but possibly in a different way. We understand that the brokerage model is generally charging upfront fees with some trailing charges. We would expect Schwab to charge asset based fees paid to Schwab monthly or quarterly. Schwab's OneSource product comes to mind, with its one-stop-shop for retail and advisory customers to invest in mutual funds commission free. This was revolutionary when Schwab launched it 30ish years ago. Something similar for alternative products could be equally as revolutionary.
- **\$10tr x 10% penetration x 40bps fees = \$4bn of high value fee revenue.** The revenue implication could be meaningful to Schwab under the right scenarios. Schwab starts with a lot of customer assets — ~\$10tr of which ~70% of Investor assets are in accounts with greater than \$1mn. We assume the number is far greater on the Advisor side, where typically account minimums are \$1mn.

See page 16 for analyst certification and important disclosures, including non-US analyst disclosures.

J.P. Morgan does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Overweight

SCHW, SCHW US
Price (11 Oct 24):\$67.68



Brokers, Asset Managers & Exchanges

Kenneth B. Worthington, CFA^{AC}

(1-212) 622-6613
kenneth.b.worthington@jpmorgan.com

Michael Cho

(1-212) 622-3619
michael.cho@jpmchase.com

Alexander Bernstein

(1-212) 622 0369
alexander.x.bernstein@jpmorgan.com

Madeline Daleiden

(1-212) 622-4911
madeline.daleiden@jpmchase.com
J.P. Morgan Securities LLC

J.P. Morgan

While different sources cite different estimates, McKinsey suggest institutional investors had a 30% allocation to alternative products in 2023 and wealth management client allocations to alternative products is just 1-2% in data cited by Apollo in its recent Investor Day. At a 10% allocation for Schwab's current \$10tr of assets at 40bps of annual fees, Schwab would generate an incremental \$4bn of high margin and we believe high value revenue.

- **Schwab alternatives could be a big deal for the alternative asset management industry.** With \$10tr in customer assets and with such a substantial portion in accounts with more than \$1mn, we see an alternative platform as meaningful not just for Schwab, but for the alternative asset management industry. Hamilton Lane and StepStone are bringing in ~\$1bn of wealth management assets per quarter and a relationship with Schwab could have a substantial positive impact on the growth of these firms. However, such a relationship could also move the needle for firms like Blackstone, Apollo, Blue Owl and Carlyle which also has invested in their wealth management operations. However, with existing Schwab relationships with the likes of T. Rowe Price, Janus and Franklin, there may be less obvious beneficiaries here too.
- **Risk to our thesis is penetration — does suitability work for alternative products and Schwab's client base.** With so much in client assets, we see great potential for Schwab in offering an alternative distribution platform. Where we could be wrong is penetration. With 70% of retail assets in accounts with more than \$1mn and with what we estimate is nearly all of its advisory assets in accounts with more than \$1mn, we see Schwab as having a target rich customer base for alternative assets. But maybe there are more suitability issues than we see. If so, penetration could fall short of expectations.

Introduction — Schwab to Launch Alternatives Platform Is Big Profit Opportunity for Schwab

We believe that Schwab has a meaningful revenue opportunity in leveraging its platform through the offering of alternative products to its client base. We are particularly intrigued by the alternatives opportunity for Schwab because the numbers are big. Allocations to alternatives by institutional investors are large, which suggests over time that wealth management allocations to alternatives are going to be substantially larger than they are currently. Fees are high for alternative asset management products relative to the ETFs and Mutual Funds businesses, so more can be charged by firms like Schwab for their distribution. We see this currently at the wirehouses and independent/regional brokers. Schwab has a large percentage of its assets that are eligible for alternative products, given the average size of the Schwab account. We see alternative asset management distribution as being substantial for Schwab, but potentially transformational for a number of the alternative asset managers. We remind investors that Schwab custodies ~\$10tr of assets for its clients, and it is setting up a distribution platform for alternative asset management products, an in-favor product with high fees and a substantial ability to pay for distribution. While Schwab and its new CEO/new CFO can't control the rate environment and seem positioned to be reactive to changes in the yield curve, we do feel like Schwab has a substantial opportunity to monetize its platform through the distribution of alternative asset management product.

What Monetization of the Schwab Platform Could Look Like for Alternatives

We expect Schwab will try to create a curated platform for alternative asset management products, that looks like or evolves into something more akin to its mutual fund supermarket. While we see Schwab implementing its offering with a more curated offering focused on its largest customers initially, we see this evolving over time to service more of its mainstream customers as product innovation evolves to include products that are available with smaller minimums and thus open to accounts of a smaller size.

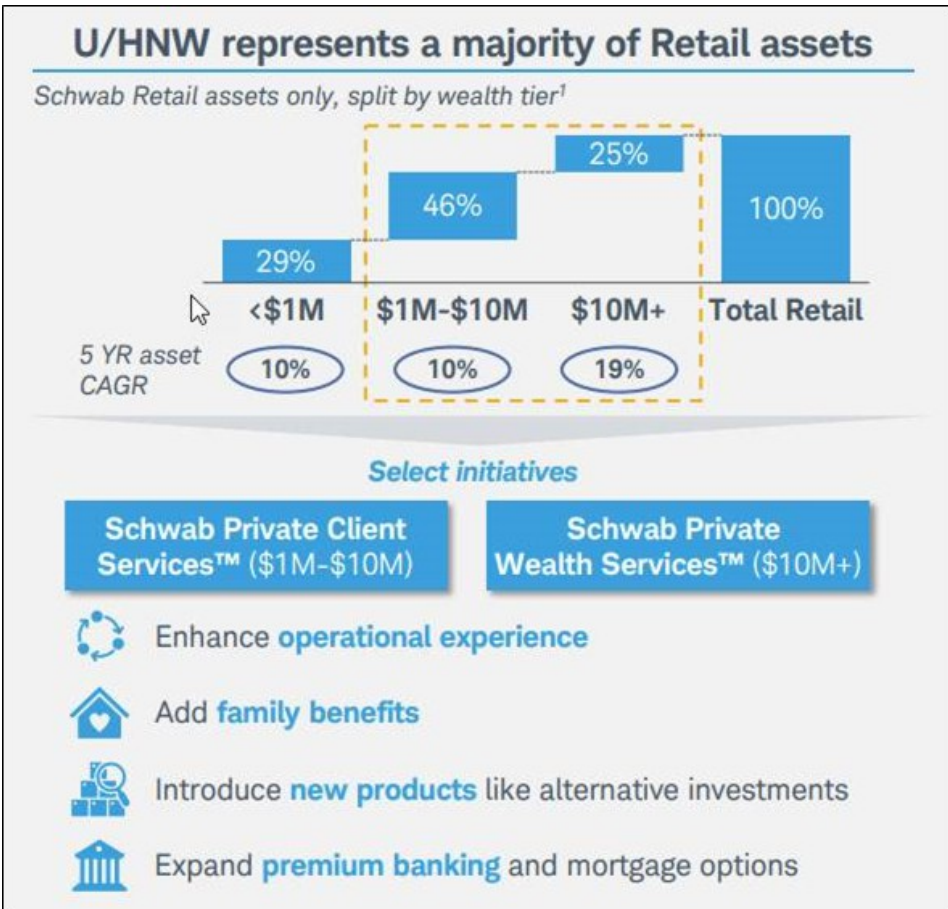
An Alternatives Fund Supermarket?

We see the potential for Schwab to launch an alternatives supermarket. The characteristics we see for a Schwab model would be more likely to be based on annual recurring asset based fees, rather than fees based on commitments, transactions or sales. The industry (as we discuss further below) has evolved more into a distribution fee structure that charges an upfront fee on sales, although some also have a platform fee and/or some sort of trailing fees charged by intermediaries to the alternative managers. We see Schwab (and shareholders) likely more attracted to an asset-fee based model. This was Schwab's approach when revolutionizing the mutual fund business and we would expect similar in alternatives. While we think Schwab could also charge a fee to the clients (except for Erisa based assets), we again think Schwab follows the fund supermarket model with fees only changed to the product managers.

Schwab's Client Base — Lots of Assets in the Bigger Accounts

It looks like a disproportional large percentage of Schwab accounts will be eligible / appropriate for alternatives exposure. Schwab operates two divisions, Investor and Advisor services. Investor Services providing retail broker, banking and retirement plan services and some corporate brokerage with ~\$5.1tr under custody as of 2Q24. Advisor Services provides trading, banking, retirement business and trust services to RIAs and recordkeepers with \$4.4tr under custody. Our understanding is that advisors often have account minimums of \$1mn. As such, we expect the majority of Schwab's advisor assets to be eligible and appropriate for alternative products. As seen in the below Figure 1, Schwab's Investor business is comprised of assets in larger accounts. Here, 25% of Investor Segment assets are in accounts with more than \$10mn, and another ~50% are in accounts with \$1mn-\$10mn of assets. While Schwab has indicated a more curated offering for clients with more than \$5mn, we see it evolving over time to clients with more than \$1mn, and eventually we see account minimums falling further.

Figure 1: Sizable opportunity within Schwab's current client base



Source: Company reports.

Schwab Emphasis on Win/Win Monetizations

We see Schwab having focused its strategy on monetizing the platform, enabling the firm to drive profitability even while driving \$0 commissions. As part of this win/win monetization, Schwab has focused more on delivering advice solutions, but also on

better monetizing access to its platform through such offerings as the Institutional No Transaction-Fee Fund (INTF) platform. We wrote extensively about the INTF Platform and acknowledge that it has fallen short of its potential. However, we see the potential for Schwab to monetize alternatives having much more potential. See our past research [here](#) and [here](#) on the Schwab Institutional No Transaction Fee program.

Monetizing Schwab's Platform Through Alternatives — The Right Combination of Demand for Product, Demand for Access and High Product Fees

We see the potential for Schwab to monetize an alternatives initiative as being much greater than for the fund business over time. In alternatives, wealth management client allocations to alternative products are low. But with product innovation bringing more retail/high net worth friendly structures, we see much greater demand and much higher allocations over time. Furthermore, access has been limited and demand has not been met. We think a Schwab platform would be met with great demand.

Product Structure Makes Alternative Products More Attractive. We see alternative product structure having improved materially for retail and high-net-worth investors. Historic products requiring a minimum investment of \$1mn made them out of reach for most retail investors and even many high net worth investors. In addition, many intermediaries didn't have the capabilities to manage the capital calls required for drawdown funds. But product innovation has lead to funds that have lower minimums (as low as \$2,500) and many report 1099s rather than K-1s. New products also offer limited liquidity, often quarterly.

Higher Fees Enable a Greater Opportunity to Pay for Distribution. Alternative products have a higher fee level, a combination of higher management fees and often performance fees. These allow for greater profitability for the managers of alternative assets, particularly compared to the mutual fund industry that has been under pressure with outflows and falling fee rates. As an example, LPL charges marketing support of up to 25bps for mutual fund assets, but up to 150bps on alternative product sales and/or up to 35bps on assets for alternative products.

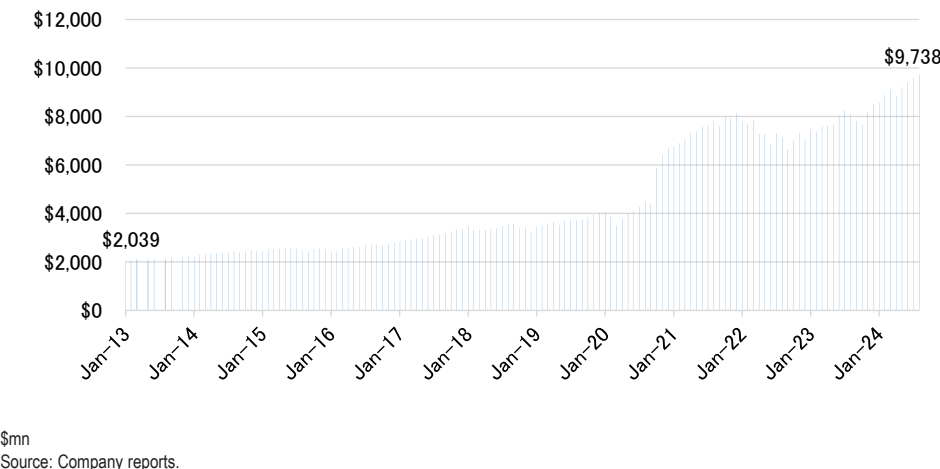
Schwab Starts from Scratch on Alternative Distribution. One of the key differences we see in terms of Schwab monetizing its alternatives platform is that it is starting from scratch and is introducing a fee structure as it introduces access to its platform. The challenge we think Schwab has had with its INTF platform is that it had given access for free and was trying to go in after the fact and charge the asset managers. While Schwab has given preferred data, access and ultimately shelf space, Schwab really couldn't kick managers off the platform whose funds were widely owned by Schwab clients. The alternatives platform is different in that Schwab is offering access for the first time and has the opportunity to charge concurrently for that access.

Schwab's Platform Potential from Alternative Asset Investment Distribution

Schwab's current distribution platform

Schwab operates the largest retail distribution platform today with \$10tn of client assets on its platform. Moreover, Schwab is also the largest RIA custodian in the US reaching ~15k independent investment advisors. It has been no secret that Schwab has been (and continues to be) a key partner for any asset manager looking penetrate retail distribution in the US.

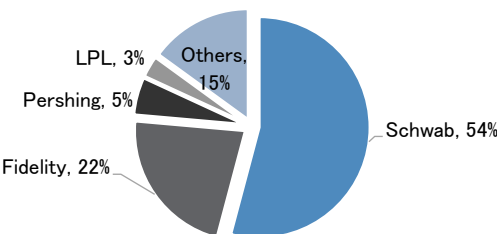
Figure 2: Schwab's client assets are nearing \$10tn



Clearly, there are notable peers in the industry such as Fidelity, Pershing, eTrade, LPL Financial among others. But we think Schwab's scaled platform drives the monetization (and innovation) opportunity. Today, Schwab's mutual fund marketplace oversees \$1.8tn of assets with OneSource and no-transaction fee mutual funds accounting for \$345bn. In the advisor/RIA segment, Schwab custodies \$4.3tn of assets and we estimate that Schwab holds over 50% market share in that business.

Figure 3: Schwab maintains leading market share in the RIA custodian market

Estimated RIA custodian market share, 2022



Source: Company reports, Cerulli, and J.P. Morgan estimates.

Schwab has been taking advantage of its scale for years with the mutual fund industry, then the ETF industry, and now we think Schwab sets sights on alternatives.

Schwab's continues to seek ways to monetize platform - INTF was most recent example but not a game-changer

We think Schwab's industry-leading distribution platform delivers considerable value across the asset management value chain. Schwab has always been a pioneer in monetizing scale and we think this instance will be no different. We do not have to look far back for the most recent example in the INTF platform (Institutional No Transaction Fee) where mutual funds ultimately had to give up economics to Schwab to access certain services.

Recall, Schwab announced the launch of its Institutional No Transaction Fee platform in October 2022 with 15 managers (today at 25 managers). This is somewhat on the heels of Schwab's mutual fund supermarket, OneSource, where the INTF platform would provide lower fee institutional share class funds geared toward Schwab's RIA and advisor customers.

It is still early days for Schwab's INTF platform but managers featured on INTF platform pay 17-19bps of asset based fees, ultimately providing an incremental, high margin revenue stream for Schwab. We think Schwab takes a similar approach in offering its scaled platform for alternative asset managers looking to access retail distribution.

Figure 4: Current managers on Schwab's INTF platform

Allspring	Cohen & Steers	First Eagle	Invesco	Nuveen
American Funds	Columbia	Franklin Templeton	Janus	PIMCO
BlackRock	Delaware Funds	Glenmede	Lord Abbett	Principal
BNY Mellon Funds	Diamond Hill	Goldman Sachs	MFS	Putnam
Calamos	DWS	Guggenheim	Neuberger Berman	T. Rowe Price

Source: Company reports.

Schwab well-positioned as alternative asset managers look to expand into retail assets

Since Blackstone's successful launch of BREIT into the retail channel in 2017, there has been a growing interest among alternative asset managers in accessing the large retail opportunity. We think this interest has been accelerating in recent years as we see new managers and new fund structures continue to be launched into the retail channel. With retail penetration levels close to 1% (vs. 15-20% for institutions), the AUM opportunity for alternative managers could be sizable. More recently, we have observed quarterly retail flows into alternatives reach into the double-digit \$ billions.

Figure 5: Estimated retail flows into alternatives are becoming sizable

<i>\$000s, unless otherwise stated</i>	APO	ARES	BAM	BX	CG	HLNE	KKR	OWL	STEP	Total	Total (ex-BREIT)
Total PWM dedicated AUM (\$bn)	\$33.8	\$16.9	\$9.4	\$131.1	\$3.4	\$7.6	\$12.4	\$20.0	\$4.3	\$238.9	\$182.2
1Q22	\$1,549	\$1,060	\$114	\$12,252	\$305	\$423	\$369	\$1,216	\$135	\$17,422	\$10,285
2Q22	\$651	\$1,205	\$182	\$8,229	\$214	\$171	\$357	\$1,270	\$128	\$12,408	\$8,062
3Q22	\$1,193	\$1,167	\$278	\$3,057	\$90	\$43	\$274	\$795	\$179	\$7,075	\$5,580
4Q22	\$158	\$463	\$135	(\$258)	\$86	\$131	\$159	\$763	\$138	\$1,775	\$2,345
1Q23	\$1,103	\$111	\$363	\$2,619	\$285	\$140	\$14	\$749	\$163	\$5,548	\$3,185
2Q23	\$793	\$920	\$404	(\$1,868)	\$196	\$351	\$1,280	\$985	\$165	\$3,226	\$5,665
3Q23	\$979	\$406	\$404	(\$435)	\$335	\$539	\$1,396	\$1,635	\$297	\$5,556	\$7,944
4Q23	\$1,165	\$753	\$2,013	\$543	\$395	\$583	\$1,219	\$1,819	\$299	\$8,788	\$10,874
1Q24	\$2,060	\$1,727	\$1,312	\$1,312	\$330	\$679	\$1,312	\$2,099	\$586	\$11,418	\$13,277
2Q24	\$1,946	\$2,465	\$697	\$2,606	\$338	\$868	\$2,266	\$2,794	\$624	\$14,604	\$16,825

Source: Company reports and J.P. Morgan estimates.

Moreover, we think the industry, particularly as it related to retail, moves toward more interval funds (vs. drawdown), which likely increases the pace of adoption ahead. While

retail penetrations are still very low today, ultimately, we think the supply (more coming) and demand (increasing) dynamics will drive a clear secular trend for years to come. With the largest retail distribution platform in the market today, we think Schwab is well-positioned.

Platform economics

We think Schwab will begin to introduce a platform for alternative assets similar to OneSource, ultimately creating an alternative asset supermarket over time. Here, we think Schwab will implement a fee for alternative asset managers to participate on Schwab’s platform. The fee structure can come in the form of an upfront sales fee or annual asset based fee, both of which are utilized by different retail platforms today.

We observe that retail distribution platforms today (e.g., wirehouses, independent brokers, RIA, etc.) typically utilize either an upfront and/or annual asset based fee for alternative managers accessing their respective platforms. We appreciate that the fee ranges vary widely and each relationship comes with its own service levels and nuances. But we estimate that an upfront fee might look something close to ~100bps on new sales and an annual asset based fee might look like ~40-50bps for Schwab.

Figure 6: Estimated platform fees for alternative asset managers in today’s current market

Firm	Upfront on Sales	Asset Based
Wells Fargo	Unknown	0 - 30bps
LPL	0 - 150bps	0 - 35bps
Ameriprise	0 - 250bps	0 - 80bps
Cetera	0 - 150bps	0 - 25bps
Merrill	Unknown	0 - 100bps

Source: Company reports and J.P. Morgan estimates.

Moreover, many of the platforms also charge a one-time placement fee for end clients (0-200bps). While this would be another revenue stream, we do not think Schwab approaches its monetization strategy with an eye toward maximizing fee revenue from its end clients and advisors.

The additional economic nuance for Schwab (and others in the industry) revolves around the involvement of firms such as iCapital, CAIS, etc. We think firms like iCapital provide a considerable solution when it comes to managing capital calls, end client flows, and client management/dashboards. We do not think Schwab is equipped to handle this level of service today and find it appropriate if they partner with another firm to deliver its alternatives platform.

Looking ahead, we recognize that the development and penetration of the client asset base for alternatives will take years to realize but the economics of the ecosystem point to sizable upside for Schwab’s revenue profile.

Penetration and the Pace of Adoption for Schwab in Alternatives

We expect the rollout and penetration of alternative asset management product will take plenty of time, but that the pace of adoption will be far faster than what we have seen in other financial products over time. Here, we see demand as particularly robust for alternative product and we see alternative managers particularly focused on product development and innovation to attract more assets here. Our base case for Schwab is 15% penetration in 15 years, with the pace of adoption accelerating over time.

Institutional Allocation to Alternative Assets Today

Data varies by provider, but McKinsey estimates in 2023 that institutional investors have ~30% allocation to alternative asset management products. This is largely private equity (~10%) and Real Estate (~8%), but private credit, infrastructure and multi-asset investments are growing quickly off the smaller base. This allocation is up from 20% a decade ago. Our view is that retail and high net worth managers chase institutional allocations, and we expect to see high-net-worth allocations rise meaningfully from current levels.

Penetration of Newer Products for Retail

We look to the ETF business to see how new products are adopted by the mutual fund industry. While Schwab currently breaks out ETF assets (currently 22% of AUM), it only began doing so in 2013 when ETFs were already 8% of assets. Thus we look to the mutual fund industry to get a picture of adoption. ETFs have been a success story in investment management, allowing the masses to get access to index funds at rock bottom fees. Adoption levels for both equity and fixed income ETFs went from ~1% to ~10% in about ten years.

In the Figure 7 below, we show ETF penetration by asset class. For equities, ETFs had a 1% market share in 2Q00, which grew to 12.9% ten years later. Fixed Income ETFs reached a 1% market share in 4Q05 and reached a penetration of fixed income funds of 9.0% ten years later. Currently, equity ETFs are ~30% of the equity fund industry, and fixed income ETFs are ~23% of fixed income fund industry assets.

Figure 7: Equity and fixed income ETF penetration have continued to grow over time



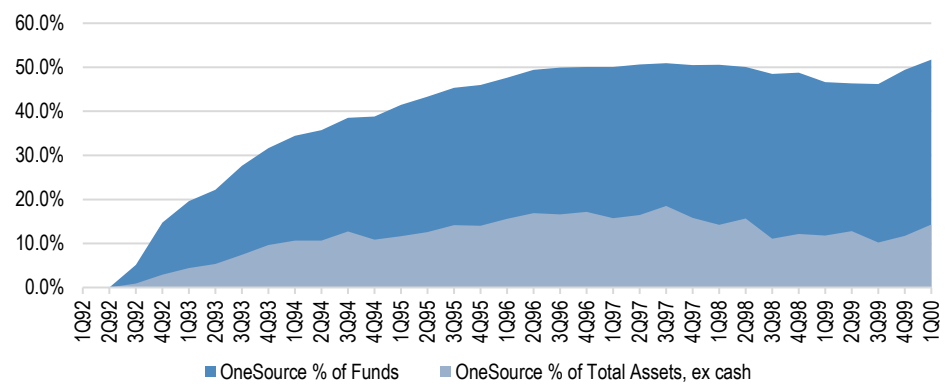
Source: Strategic Insight, J.P. Morgan estimates.

Experience for Schwab when Introducing Newer Products

Schwab has introduced a number of innovative and differentiated products and services over the decades. When demand and supply intersect, we have seen rapid adoption. Here, we highlight the launch of Schwab mutual fund supermarket OneSource. Given we think that an alternatives supermarket could be as innovative today as the mutual fund supermarket was back in the early 1990s, we highlight adoption as a baseline to think about what could be for alternatives.

As we see in Figure 8 below, the adoption curve was pretty rapid for OneSource. OneSource went from a concept to about 50% market share of Schwab’s funds assets (excluding money market funds) within five years, when including both third-party funds and Schwab’s nascent proprietary funds business. Even as a percent of total assets, penetration of total assets (excluding cash and mutual fund clearing assets) grew and peaked at 17% within five years in 1996.

Figure 8: Schwab’s OneSource Reaches 50% of Fund Assets, 17% of Total Assets within Five Years of Launch



Source: Company reports.

Alternative Investment Distribution - A Multi-Billion Revenue Opportunity for Schwab

We see the revenue opportunity from building out an alternatives distribution platform as substantial. This potential is so significant because Schwab has so many assets eligible for alternative products and because alternative managers can pay so much for distribution because their fees are high. The ultimate revenue potential for Schwab will be based on the fee structure Schwab chooses to pursue, the ultimate quantum of assets that migrates to alternative products and the time it takes to get there. The back of the envelope is enough to warrant a further look at what Schwab can generate in terms of transactional or recurring revenue — one snapshot - \$10tr of customer assets with a 10% allocation to alternatives at a 40bps fee rate suggest \$4bn of incremental revenue.

The Right Structure — We Think a Fee-Based, Supermarket Type Structure

We start with the likely structure that Schwab will adopt over time for its alternatives platform. Here we think that the supermarket model is that one the Schwab would like to pursue. While other distributors have largely an large upfront selling charge and a lower trailer, we see Schwab gravitating towards no upfront fee, but with an asset based fee charged annually and collected monthly or quarterly. Schwab has moved away from transaction based fees over time and currently largely charges asset based, rather than transaction based fees. Also, the supermarket model has worked well for Schwab over time and we thus would expect Schwab to explore the supermarket model which has always utilized asset based fees.

The Right Fee Rate — We Think 40-50bps

We expect Schwab will look to charge something between 40-50bps. We see other brokers as referenced earlier in this research charging an upfront fee of 100-250bps AND/OR a trailing annual fee of up to 25-100bps. We would expect Schwab to target something around the average of the peers. To benchmark other fees that Schwab currently charges in aggregate ~8bps on third party mutual fund for administrative and other services. Schwab charges 19bps on the institutional share classes on mutual funds part of of the INTF platform. Mutual Fund OneSource charges a rack rate of 40bps on assets, although the average was closer to 30-32bps over time. Schwab averages 40bps on fee based advice. Given that competitors are charging 20-40bps for mutual fund distribution, we would expect Schwab to be able to charge a premium to that for alternative products. With such a large pool of assets and given that fee rates and margins are so high for alternative asset managers, we would expect fees to be in a range of 40-50bps. Could we see a fee as low as 30bps? That is possible although we see that as unlikely given that's what Schwab charges for higher fee retail share classes of mutual funds, that are meaningfully lower fee than what alternative products charge. Could it be 20bps? We find that highly unlikely given that is essentially what Schwab charges on lower fee mutual funds.

The Right Eligible Assets to Consider

We expect that, eventually, Schwab will deliver alternative products to nearly all of its customer assets. We look at the potential for Schwab both from an Advisor and an Investor vantage point. We see potential for both customer segments to hold meaningful

potential to drive distribution fees for Schwab.

- **Investor Assets** — Schwab Investor Services Segment custodies ~\$5tr of assets. Initially, Schwab has indicated a curated portfolio of alternatives products, including private equity, private credit, hedge funds and other alternative products, for those investors with \$5mn+ of assets. It's unclear whether all \$5mn has to be custodied at Schwab, but it would be an incentive to get HNW customers to migrate more assets to the Schwab platform to get access to these product. Initially, we see Schwab targeting alternatives to its Schwab Wealth Advisory business with its ~\$200bn of AUM, but we see Schwab widening alternative access to those with more than \$1mn over time. As mentioned above, ~70% of Schwab retail assets are in households with more than \$1mn at Schwab. As such, we see the addressable market in Schwab's Investor business at \$3.5tr of the \$5tr of total customer assets here.
- **Advisor Assets** — Schwab Advisor Services custodies ~\$4.4tr of customer assets. Although Schwab's advisor network likely has access to alternative assets, we see Schwab offering something similar to what it has with institutional share classes of funds. Here we would expect greater support for its advisors looking for alternative exposure to alternative, seamlessly integrated with its other custody and bank services. Here, we see near 100% of the \$4.4tr of customer assets eligible for exposure to alternative assets over time, given the majority of advisors have account minimums that exceed \$1mn/account.

The Right Cadence of Adoption

We would expect that cadence of adoption to be faster than the adoption of other new financial products. We would start out by saying that we expect the pace of product innovation to be robust and expect over time for alternative product to be accessible to smaller accounts. While Schwab seems initially to be targeting accounts with \$5mn+ of investible assets, we would expect that target to be \$1mn+ accounts in the not so distant future and then to be \$500k+ and eventually \$250k+ (which is the approximate average size of a Schwab customer account). As mentioned above, we saw equity ETFs go from a 1% penetration to a 12.2% penetration rate within 10 years. For fixed income ETFs it was to 9% within ten years. Our base model for how a Schwab alternatives platform could grow suggest an 8.5% penetration of total Schwab customer assets within 10 years and a 15% penetration rate within 15 years.

The Economics for Schwab

We think the economics for Schwab could be substantial. Again, we are only guessing at the inputs, but our best guess suggests that the economics could be significant. Here, once Schwab exits the experimental phase targeting Schwab Wealth Advisory, we see meaningful potential for incremental revenue.

Here we see that an asset based fee generates substantially higher revenue over time than a distribution based fee. Initially however, a distribution fee nets more, but as seen below, the cross over point is year-3. We note that in year 5 of the model below, we migrate from Schwab just targeting accounts with over \$1mn to targeting all clients. This assumes continued product innovation that we highlighted above.

Figure 9: Potential for significant value accrual to Schwab over time

Revenue opportunity

Upfront sales fee only	1.00%
Annual fee only	0.40%
Penetration pace yr 1-4	0.75%
Penetration pace yr 5-10	1.25%

Assumes all client capital gets recycled into new funds

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Addressable client assets (\$bn)	8,152	8,885	9,685	10,556	14,983	16,331	17,801	19,403	21,149	23,053	25,127	27,389	29,854	32,541	35,469
growth % y/y (mkt + NNA)		9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Alts penetration @ Schwab	0.25%	1.00%	1.75%	2.50%	2.50%	3.75%	5.00%	6.25%	7.50%	8.75%	10.00%	11.25%	12.50%	13.75%	15.00%
Total alternative assets (\$bn)	20	89	169	264	375	612	890	1,213	1,586	2,017	2,513	3,081	3,732	4,474	5,320
New Alts sales (\$bn), annual	20	67	73	79	87	204	223	243	264	288	314	342	373	407	443
Upfront revenue (\$bn), annual	0.2	0.7	0.7	0.8	0.9	2.0	2.2	2.4	2.6	2.9	3.1	3.4	3.7	4.1	4.4
Asset based revenue (\$bn), annual	0.1	0.4	0.7	1.1	1.5	2.4	3.6	4.9	6.3	8.1	10.1	12.3	14.9	17.9	21.3

Source: Company reports and J.P. Morgan estimates.

When we think about a sensitivity to the fees charges, we show two tables below that look at the above analysis with higher and lower fees as well as differing paces of client penetration of alternative products.

Figure 10: Schwab's annual upfront fee potential in 15 years

Schwab revs in 15 years (\$bn) - Upfront only		Penetration pace, annual Yr 1-4		
		0.50%	1.00%	1.50%
Upfront fee	0.75%	\$2.7	\$4.0	\$5.3
	1.00%	\$3.5	\$5.3	\$7.1
	1.25%	\$4.4	\$6.7	\$8.9
	1.50%	\$5.3	\$8.0	\$10.6

Source: Company reports and J.P. Morgan estimates.

Figure 11: Schwab's annual asset based fee potential in 15 years

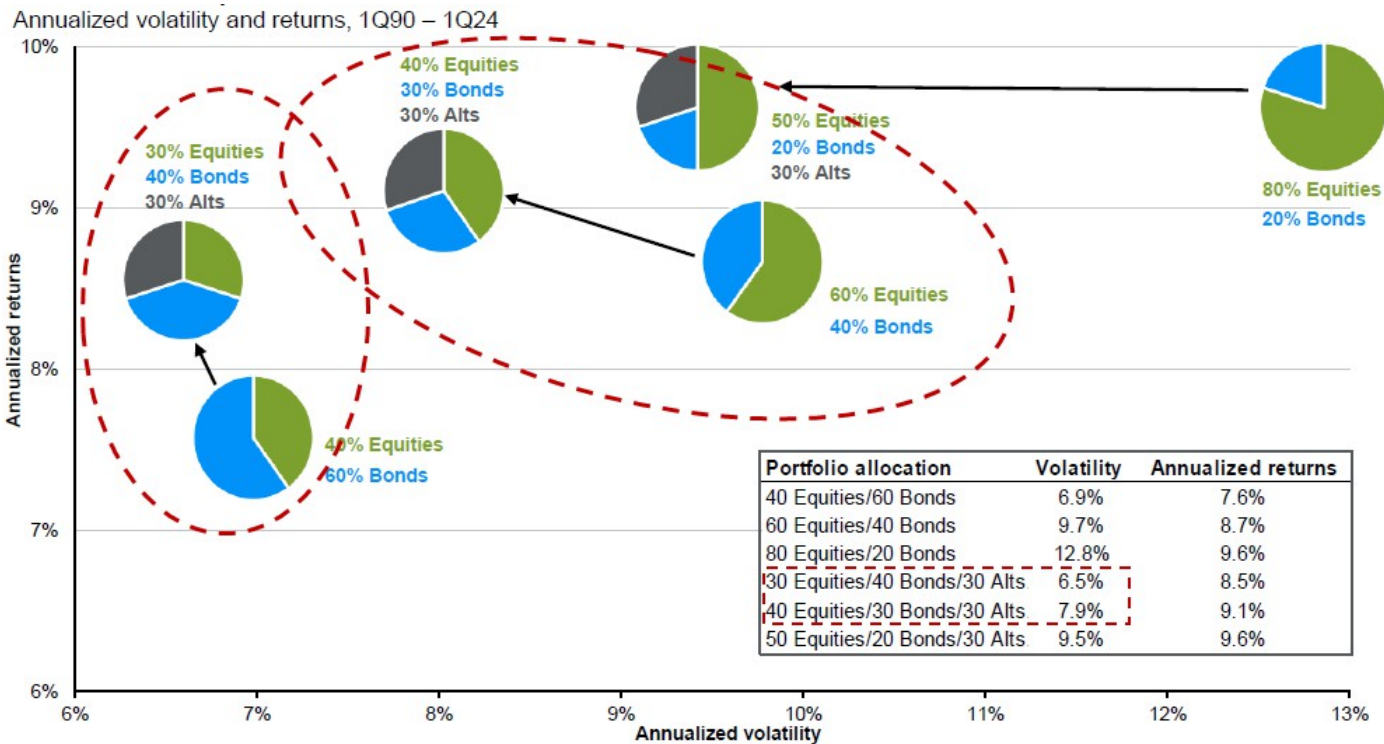
Schwab revs in 15 years (\$bn) - Asset based only		Penetration pace, annual Yr 1-4		
		0.50%	1.00%	1.50%
Annual fee	0.30%	\$12.5	\$19.4	\$26.3
	0.40%	\$16.7	\$25.9	\$35.1
	0.50%	\$20.8	\$32.4	\$43.9
	0.60%	\$25.0	\$38.8	\$52.7

Source: Company reports and J.P. Morgan estimates.

Valuating This Earnings Stream — Highly Stable, Highly Growing, Highly Valuable

We think the alternative asset platform will ultimately generate a highly valuable earnings stream for Schwab. The earnings profile will encapsulate a stable and high growth asset base with considerable economics that flow through Schwab. The revenue growth trajectory behind secular tailwinds and competitive positioning present at high value opportunity for Schwab. Unlike public markets, private assets do not get marked as frequently and price movements are typically less volatile.

Figure 12: Alternative assets introduce less volatility for investors, thus benefitting Schwab



Source: J.P. Morgan Asset Management, Bloomberg Finance L.P., Burgiss, HFRI, NCREIF, S&P, Factset. Note: alternatives include private equity, real estate, hedge funds.

Without debating the validity of private asset marks in any given time, we can appreciate that both asset managers and end clients prefer less volatile assets/ investments. Moreover, we think the lower perceived volatility in this asset base stands to benefit Schwab’s annual asset based fee structure with a much more stable asset base, and recurring revenue stream.

While revenue stream is of high value, we also like the significant earnings potential from Schwab’s platform. Clearly, there will be some start-up costs and various investments to get the platform off the ground. But Schwab’s operating leverage potential from this platform is meaningful. Here, we believe Schwab’s margins from this endeavor should be well-north of 50%, once scaled, and incremental margins could likely be 75%+ on an ongoing basis. The margin potential is not dissimilar to Schwab’s

net interest income earnings stream but with a much more stable, and recurring revenue base.

If we consider revenue growth that continues to compound at a double-digit+ rate well-after a decade, generating 50%+ margins, we do not expect this segment to be overlooked by investors. We recognize that proposing a sum of the parts for a business that has not even launched is somewhat premature. That said, when we look at the ecosystem surrounding this platform, we note that alternative asset managers have FRE valuation multiples that average 30x+ and recurring fee, wealth platforms valued at 20x + EBITDA in the private markets.

Figure 13: Alternative asset managers command notable FRE multiples given the solid business models and secular tailwinds supporting the business

	2024 DE Multiple	2025 DE Multiple	2024 FRE Multiple (incl SBC incl tax)	2025 FRE Multiple (incl SBC incl tax)
<u>Traditional Alts</u>				
Apollo	19.2x	16.0x	41.2x	34.5x
Ares Management	37.9x	25.8x	56.8x	41.3x
Blackstone	34.5x	22.7x	62.5x	53.8x
Blue Owl	26.1x	20.8x	-	-
Bridge Investment Group	12.4x	9.6x	16.3x	11.8x
Brookfield Asset Management	33.4x	28.6x	36.0x	30.4x
Brookfield Corporation	13.6x	12.2x	52.6x	43.7x
Carlyle	12.2x	11.0x	39.1x	24.1x
TPG	29.9x	21.7x	32.2x	27.9x
<u>Solutions Providers</u>				
P10	12.8x	12.6x	-	-
Hamilton Lane	33.4x	35.5x	55.9x	48.7x
Stepstone	34.0x	28.9x	37.2x	34.2x
GCM Grosvenor	16.1x	14.1x	30.7x	23.3x
Average (total)	24.3x	19.7x	41.9x	34.0x
Average (alts)	24.3x	18.2x	42.1x	33.4x
Average (solns)	24.1x	22.8x	41.3x	35.4x

As of 10/8/24

Source: Company reports, J.P. Morgan estimates, Bloomberg Finance L.P.

Keep in mind, much of the growth of FPAUM for the alternative asset managers will be coming from the retail/wealth channel, where Schwab is one of the leading distribution platforms. We think Schwab's alternative asset platform presents scarcity value in the ecosystem that Schwab will be able to monetize.

Companies Discussed in This Report (all prices in this report as of market close on 11 October 2024, unless otherwise indicated)

Charles Schwab(SCHW/\$67.68/OW)

Analyst Certification: The Research Analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple Research Analysts are primarily responsible for this report, the Research Analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to each security or issuer that the Research Analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect the Research Analyst’s personal views about any and all of the subject securities or issuers; and (2) no part of any of the Research Analyst’s compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the Research Analyst(s) in this report. For all Korea-based Research Analysts listed on the front cover, if applicable, they also certify, as per KOFIA requirements, that the Research Analyst’s analysis was made in good faith and that the views reflect the Research Analyst’s own opinion, without undue influence or intervention.

All authors named within this report are Research Analysts who produce independent research unless otherwise specified. In Europe, Sector Specialists (Sales and Trading) may be shown on this report as contacts but are not authors of the report or part of the Research Department.

Important Disclosures

- **Market Maker:** J.P. Morgan Securities LLC makes a market in the securities of Charles Schwab.
- **Market Maker/ Liquidity Provider:** J.P. Morgan is a market maker and/or liquidity provider in the financial instruments of/related to Charles Schwab.
- **Manager or Co-manager:** J.P. Morgan acted as manager or co-manager in a public offering of securities or financial instruments (as such term is defined in Directive 2014/65/EU) of/for Charles Schwab within the past 12 months.
- **Client:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients: Charles Schwab.
- **Client/Investment Banking:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as investment banking clients: Charles Schwab.
- **Client/Non-Investment Banking, Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-investment-banking, securities-related: Charles Schwab.
- **Client/Non-Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-securities-related: Charles Schwab.
- **Investment Banking Compensation Received:** J.P. Morgan has received in the past 12 months compensation for investment banking services from Charles Schwab.
- **Potential Investment Banking Compensation:** J.P. Morgan expects to receive, or intends to seek, compensation for investment banking services in the next three months from Charles Schwab.
- **Non-Investment Banking Compensation Received:** J.P. Morgan has received compensation in the past 12 months for products or services other than investment banking from Charles Schwab.
- **Debt Position:** J.P. Morgan may hold a position in the debt securities of Charles Schwab, if any.

An analyst listed on the front cover has personal holdings in digital or crypto assets.

Company-Specific Disclosures: Important disclosures, including price charts and credit opinion history tables, are available for compendium reports and all J.P. Morgan–covered companies, and certain non-covered companies, by visiting <https://www.jpmm.com/research/disclosures>, calling 1-800-477-0406, or e-mailing research.disclosure.inquiries@jpmorgan.com with your request.

Charles Schwab (SCHW, SCHW US) Price Chart



Source: Bloomberg Finance L.P. and J.P. Morgan; price data adjusted for stock splits and dividends.
Initiated coverage May 01, 1999. All share prices are as of market close on the previous business day.

Date	Rating	Price (\$)	Price Target (\$)
18-Oct-21	OW	80.90	88
11-Jan-22	OW	91.65	100
18-Jan-22	OW	95.53	107
14-Apr-22	OW	83.83	101
18-Apr-22	OW	82.75	99
21-Apr-22	OW	76.45	98
25-May-22	OW	63.94	97
11-Jul-22	OW	64.36	86
18-Jul-22	OW	62.18	83
28-Jul-22	OW	62.51	88
03-Oct-22	OW	71.87	93
17-Oct-22	OW	68.98	92
28-Oct-22	OW	77.33	102
10-Mar-23	OW	66.47	97
24-Mar-23	OW	52.89	92
13-Apr-23	OW	51.92	86
18-Apr-23	OW	52.77	85
17-Jul-23	OW	58.52	92
18-Jul-23	OW	58.64	95
13-Oct-23	OW	51.51	92
17-Oct-23	OW	53.72	85
17-Jan-24	OW	64.31	83
12-Apr-24	OW	70.62	86
15-Apr-24	OW	70.03	89
31-May-24	OW	71.88	81
11-Jul-24	OW	74.63	82
17-Jul-24	OW	67.43	78
07-Oct-24	OW	64.75	86

The chart(s) show J.P. Morgan's continuing coverage of the stocks; the current analysts may or may not have covered it over the entire period.
J.P. Morgan ratings or designations: OW = Overweight, N= Neutral, UW = Underweight, NR = Not Rated

Explanation of Equity Research Ratings, Designations and Analyst(s) Coverage Universe:

J.P. Morgan uses the following rating system: Overweight (over the duration of the price target indicated in this report, we expect this stock will outperform the average total return of the stocks in the Research Analyst's, or the Research Analyst's team's, coverage universe); Neutral (over the duration of the price target indicated in this report, we expect this stock will perform in line with the average total return of the stocks in the Research Analyst's, or the Research Analyst's team's, coverage universe); and Underweight (over the duration of the price target indicated in this report, we expect this stock will underperform the average total return of the stocks in the Research Analyst's, or the Research Analyst's team's, coverage universe. NR is Not Rated. In this case, J.P. Morgan has removed the rating and, if applicable, the price target, for this stock because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating and, if applicable, the price target, no longer should be relied upon. An NR designation is not a recommendation or a rating. In our Asia (ex-Australia and ex-India) and U.K. small- and mid-cap Equity Research, each stock's expected total return is compared to the expected total return of a benchmark country market index, not to those Research Analysts' coverage universe. If it does not appear in the Important Disclosures section of this report, the certifying Research Analyst's coverage universe can be found on J.P. Morgan's Research website, <https://www.jpmorganmarkets.com>.

Coverage Universe: Worthington, Kenneth B: Apollo Global Management Inc (APO), Ares Management (ARES), BlackRock (BLK), Blackstone (BX), Blue Owl (OWL), Bridge Investment Group (BRDG), Brookfield Asset Management (BAM), Brookfield Corporation (BN), CME Group Inc. (CME), Carlyle Group Inc/The (CG), Cboe Global Markets (CBOE), Charles Schwab (SCHW), Coinbase (COIN), Federated Hermes (FHI), Forge Global (FRGE), Franklin Resources (BEN), GCM Grosvenor (GCMG), Hamilton Lane (HLNE), Houlihan Lokey (HLI), Invesco Ltd. (IVZ), Janus Henderson (JHG), Moelis (MC), P10 (PX), Robinhood (HOOD), StepStone (STEP), T. Rowe Price Group, Inc (TROW), TPG Inc. (TPG), The Intercontinental Exchange (ICE), Tradeweb (TW), Victory Capital (VCTR), Virtu Financial (VIRT)

J.P. Morgan Equity Research Ratings Distribution, as of October 05, 2024

	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage*	49%	38%	13%
IB clients**	50%	46%	38%
JPMS Equity Research Coverage*	46%	41%	13%
IB clients**	71%	67%	54%

*Please note that the percentages may not add to 100% because of rounding.

**Percentage of subject companies within each of the "buy," "hold" and "sell" categories for which J.P. Morgan has provided investment banking services within the previous 12 months.

For purposes of FINRA ratings distribution rules only, our Overweight rating falls into a buy rating category; our Neutral rating falls into a hold rating category; and our Underweight rating falls into a sell rating category. Please note that stocks with an NR designation are not included in the table above. This information is current as of the end of the most recent calendar quarter.

Equity Valuation and Risks: For valuation methodology and risks associated with covered companies or price targets for covered companies, please see the most recent company-specific research report at <http://www.jpmorganmarkets.com>, contact the primary analyst or your J.P. Morgan representative, or email research.disclosure.inquiries@jpmorgan.com. For material information about the proprietary models used, please see the Summary of Financials in company-specific research reports and the Company Tearsheets, which are available to download on the company pages of our client website, <http://www.jpmorganmarkets.com>. This report also sets out within it the material underlying assumptions used.

A history of J.P. Morgan investment recommendations disseminated during the preceding 12 months can be accessed on the Research & Commentary page of <http://www.jpmorganmarkets.com> where you can also search by analyst name, sector or financial instrument.

Analysts' Compensation: The research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

Other Disclosures

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.

UK MIFID FICC research unbundling exemption: UK clients should refer to [UK MIFID Research Unbundling exemption](#) for details of J.P. Morgan's implementation of the FICC research exemption and guidance on relevant FICC research categorisation.

All research material made available to clients are simultaneously available on our client website, J.P. Morgan Markets, unless specifically permitted by relevant laws. Not all research content is redistributed, e-mailed or made available to third-party aggregators. For all research material available on a particular stock, please contact your sales representative.

Any long form nomenclature for references to China; Hong Kong; Taiwan; and Macau within this research material are Mainland China; Hong Kong SAR (China); Taiwan (China); and Macau SAR (China).

J.P. Morgan Research may, from time to time, write on issuers or securities targeted by economic or financial sanctions imposed or administered by the governmental authorities of the U.S., EU, UK or other relevant jurisdictions (Sanctioned Securities). Nothing in this report is intended to be read or construed as encouraging, facilitating, promoting or otherwise approving investment or dealing in such Sanctioned Securities. Clients should be aware of their own legal and compliance obligations when making investment decisions.

Any digital or crypto assets discussed in this research report are subject to a rapidly changing regulatory landscape. For relevant regulatory advisories on crypto assets, including bitcoin and ether, please see <https://www.jpmorgan.com/disclosures/cryptoasset-disclosure>.

The author(s) of this research report may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so.

Exchange-Traded Funds (ETFs): J.P. Morgan Securities LLC ("JPMS") acts as authorized participant for substantially all U.S.-listed ETFs. To the extent that any ETFs are mentioned in this report, JPMS may earn commissions and transaction-based compensation in connection with the distribution of those ETF shares and may earn fees for performing other trade-related services, such as securities lending to short sellers of the ETF shares. JPMS may also perform services for the ETFs themselves, including acting as a broker or dealer to the ETFs. In addition, affiliates of JPMS may perform services for the ETFs, including trust, custodial, administration, lending, index calculation and/or maintenance and other services.

Options and Futures related research: If the information contained herein regards options- or futures-related research, such information is available only to persons who have received the proper options or futures risk disclosure documents. Please contact your J.P. Morgan Representative or visit <https://www.theocc.com/components/docs/riskstoc.pdf> for a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options or http://www.finra.org/sites/default/files/Security_Futures_Risk_Disclosure_Statement_2018.pdf for a copy of the Security Futures Risk Disclosure Statement.

Changes to Interbank Offered Rates (IBORs) and other benchmark rates: Certain interest rate benchmarks are, or may in the future

become, subject to ongoing international, national and other regulatory guidance, reform and proposals for reform. For more information, please consult: https://www.jpmorgan.com/global/disclosures/interbank_offered_rates

Private Bank Clients: Where you are receiving research as a client of the private banking businesses offered by JPMorgan Chase & Co. and its subsidiaries ("J.P. Morgan Private Bank"), research is provided to you by J.P. Morgan Private Bank and not by any other division of J.P. Morgan, including, but not limited to, the J.P. Morgan Corporate and Investment Bank and its Global Research division.

Legal entity responsible for the production and distribution of research: The legal entity identified below the name of the Reg AC Research Analyst who authored this material is the legal entity responsible for the production of this research. Where multiple Reg AC Research Analysts authored this material with different legal entities identified below their names, these legal entities are jointly responsible for the production of this research. Research Analysts from various J.P. Morgan affiliates may have contributed to the production of this material but may not be licensed to carry out regulated activities in your jurisdiction (and do not hold themselves out as being able to do so). Unless otherwise stated below, this material has been distributed by the legal entity responsible for production. If you have any queries, please contact the relevant Research Analyst in your jurisdiction or the entity in your jurisdiction that has distributed this research material.

Legal Entities Disclosures and Country-/Region-Specific Disclosures:

Argentina: JPMorgan Chase Bank N.A Sucursal Buenos Aires is regulated by Banco Central de la República Argentina ("BCRA"- Central Bank of Argentina) and Comisión Nacional de Valores ("CNV"- Argentinian Securities Commission - ALYC y AN Integral N°51). **Australia:** J.P. Morgan Securities Australia Limited ("JPMSAL") (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by the Australian Securities and Investments Commission and is a Market Participant of ASX Limited, a Clearing and Settlement Participant of ASX Clear Pty Limited and a Clearing Participant of ASX Clear (Futures) Pty Limited. This material is issued and distributed in Australia by or on behalf of JPMSAL only to "wholesale clients" (as defined in section 761G of the Corporations Act 2001). A list of all financial products covered can be found by visiting <https://www.jpmm.com/research/disclosures>. J.P. Morgan seeks to cover companies of relevance to the domestic and international investor base across all Global Industry Classification Standard (GICS) sectors, as well as across a range of market capitalisation sizes. If applicable, in the course of conducting public side due diligence on the subject company(ies), the Research Analyst team may at times perform such diligence through corporate engagements such as site visits, discussions with company representatives, management presentations, etc. Research issued by JPMSAL has been prepared in accordance with J.P. Morgan Australia's Research Independence Policy which can be found at the following link: [J.P. Morgan Australia - Research Independence Policy](#). **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissão de Valores Mobiliários (CVM) and by the Central Bank of Brazil. Ombudsman J.P. Morgan: 0800-7700847 / 0800-7700810 (For Hearing Impaired) / ouvidoria.jp.morgan@jpmorgan.com. **Canada:** J.P. Morgan Securities Canada Inc. is a registered investment dealer, regulated by the Canadian Investment Regulatory Organization and the Ontario Securities Commission and is the participating member on Canadian exchanges. This material is distributed in Canada by or on behalf of J.P.Morgan Securities Canada Inc. **Chile:** Inversiones J.P. Morgan Limitada is an unregulated entity incorporated in Chile. **China:** J.P. Morgan Securities (China) Company Limited has been approved by CSRC to conduct the securities investment consultancy business. **Dubai International Financial Centre (DIFC):** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - The Gate, West Wing, Level 3 and 9 PO Box 506551, Dubai, UAE. This material has been distributed by JP Morgan Chase Bank, N.A., Dubai Branch to persons regarded as professional clients or market counterparties as defined under the DFSA rules. **European Economic Area (EEA):** Unless specified to the contrary, research is distributed in the EEA by J.P. Morgan SE ("JPM SE"), which is authorised as a credit institution by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and jointly supervised by the BaFin, the German Central Bank (Deutsche Bundesbank) and the European Central Bank (ECB). JPM SE is a company headquartered in Frankfurt with registered address at TaunusTurm, Taunustor 1, Frankfurt am Main, 60310, Germany. The material has been distributed in the EEA to persons regarded as professional investors (or equivalent) pursuant to Art. 4 para. 1 no. 10 and Annex II of MiFID II and its respective implementation in their home jurisdictions ("EEA professional investors"). This material must not be acted on or relied on by persons who are not EEA professional investors. Any investment or investment activity to which this material relates is only available to EEA relevant persons and will be engaged in only with EEA relevant persons. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong, and J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. JP Morgan Chase Bank, N.A., Hong Kong Branch (CE Number AAL996) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission, is organized under the laws of the United States with limited liability. Where the distribution of this material is a regulated activity in Hong Kong, the material is distributed in Hong Kong by or through J.P. Morgan Securities (Asia Pacific) Limited and/or J.P. Morgan Broking (Hong Kong) Limited. **India:** J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai - 400098, is registered with the Securities and Exchange Board of India (SEBI) as a 'Research Analyst' having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited and the Bombay Stock Exchange Limited (SEBI Registration Number - INZ000239730) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: <http://www.jpmipl.com>. JPMorgan Chase Bank, N.A. - Mumbai Branch is licensed by the Reserve Bank of India (RBI) (Licence No. 53/ Licence No. BY.4/94; SEBI - IN/CUS/014/ CDSL : IN-DP-CDSL-444-2008/ IN-DP-NSDL-285-2008/ INBI00000984/ INE231311239) as a Scheduled Commercial Bank in India, which is its primary license allowing it to carry on Banking business in India and other activities, which a Bank branch in India are permitted to undertake. For non-local research material, this material is not distributed in India by J.P. Morgan India Private Limited. Compliance Officer: Spurthi Gadamsetty; spurthi.gadamsetty@jpmchase.com; +912261573225. Grievance Officer: Ramprasadh K, jpmipl.research.feedback@jpmorgan.com; +912261573000.

Investment in securities market are subject to market risks. Read all the related documents carefully before investing. Registration

granted by SEBI and certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors.

Indonesia: PT J.P. Morgan Sekuritas Indonesia is a member of the Indonesia Stock Exchange and is registered and supervised by the Otoritas Jasa Keuangan (OJK). **Korea:** J.P. Morgan Securities (Far East) Limited, Seoul Branch, is a member of the Korea Exchange (KRX). JPMorgan Chase Bank, N.A., Seoul Branch, is licensed as a branch office of foreign bank (JPMorgan Chase Bank, N.A.) in Korea. Both entities are regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). For non-macro research material, the material is distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch. **Japan:** JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X), which is a Participating Organization of Bursa Malaysia Berhad and holds a Capital Markets Services License issued by the Securities Commission in Malaysia. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V. and J.P. Morgan Grupo Financiero are members of the Mexican Stock Exchange and are authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to "wholesale clients" (as defined in the Financial Markets Conduct Act 2013). JPMSAL is registered as a Financial Service Provider under the Financial Service providers (Registration and Dispute Resolution) Act of 2008. **Philippines:** J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Singapore:** This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMS) [MDDI (P) 068/08/2024 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited, and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore), both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of "accredited investors," "expert investors" or "institutional investors," as defined under Section 4A of the SFA. Recipients of this material in Singapore are to contact JPMS or JPMCB Singapore in respect of any matters arising from, or in connection with, the material. **South Africa:** J.P. Morgan Equities South Africa Proprietary Limited and JPMorgan Chase Bank, N.A., Johannesburg Branch are members of the Johannesburg Securities Exchange and are regulated by the Financial Services Conduct Authority (FSCA). **Taiwan:** J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. Material relating to equity securities is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited, subject to the license scope and the applicable laws and the regulations in Taiwan. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material that may give rise to conflicts of interests, unless otherwise disclosed in the "Important Disclosures" in this material. **Thailand:** This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission, and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500. **UK:** Unless specified to the contrary, research is distributed in the UK by J.P. Morgan Securities plc ("JPMS plc") which is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. JPMS plc is registered in England & Wales No. 2711006, Registered Office 25 Bank Street, London, E14 5JP. This material is directed in the UK only to: (a) persons having professional experience in matters relating to investments falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) (Order) 2005 ("the FPO"); (b) persons outlined in article 49 of the FPO (high net worth companies, unincorporated associations or partnerships, the trustees of high value trusts, etc.); or (c) any persons to whom this communication may otherwise lawfully be made; all such persons being referred to as "UK relevant persons". This material must not be acted on or relied on by persons who are not UK relevant persons. Any investment or investment activity to which this material relates is only available to UK relevant persons and will be engaged in only with UK relevant persons. Research issued by JPMS plc has been prepared in accordance with JPMS plc's policy for prevention and avoidance of conflicts of interest related to the production of Research which can be found at the following link: [J.P. Morgan EMEA - Research Independence Policy](#). **U.S.:** J.P. Morgan Securities LLC ("JPMS") is a member of the NYSE, FINRA, SIPC, and the NFA. JPMorgan Chase Bank, N.A. is a member of the FDIC. Material published by non-U.S. affiliates is distributed in the U.S. by JPMS who accepts responsibility for its content.

General: Additional information is available upon request. The information in this material has been obtained from sources believed to be reliable. While all reasonable care has been taken to ensure that the facts stated in this material are accurate and that the forecasts, opinions and expectations contained herein are fair and reasonable, JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) make no representations or warranties whatsoever to the completeness or accuracy of the material provided, except with respect to any disclosures relative to J.P. Morgan and the Research Analyst's involvement with the issuer that is the subject of the material. Accordingly, no reliance should be placed on the accuracy, fairness or completeness of the information contained in this material. There may be certain discrepancies with data and/or limited content in this material as a result of calculations, adjustments, translations to different languages, and/or local regulatory restrictions, as applicable. These discrepancies should not impact the overall investment analysis, views and/or recommendations of the subject company(ies) that may be discussed in the material. J.P. Morgan accepts no liability whatsoever for any loss arising from any use of this material or its contents, and neither J.P. Morgan nor any of its respective directors, officers or employees, shall be in any way responsible for the contents hereof, apart from the liabilities and responsibilities that may be imposed on them by the relevant regulatory authority in the jurisdiction in question, or the regulatory regime thereunder. Opinions, forecasts or projections contained in this material represent J.P. Morgan's current opinions or judgment as of the date of the material only and are therefore subject to change without notice. Periodic updates may be provided on companies/industries based on company-specific developments or announcements, market conditions or any other publicly available information. There can be no assurance that future results or events will be consistent with any such opinions, forecasts or projections, which

represent only one possible outcome. Furthermore, such opinions, forecasts or projections are subject to certain risks, uncertainties and assumptions that have not been verified, and future actual results or events could differ materially. The value of, or income from, any investments referred to in this material may fluctuate and/or be affected by changes in exchange rates. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Past performance is not indicative of future results. Accordingly, investors may receive back less than originally invested. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. This material may include views on structured securities, options, futures and other derivatives. These are complex instruments, may involve a high degree of risk and may be appropriate investments only for sophisticated investors who are capable of understanding and assuming the risks involved. The recipients of this material must make their own independent decisions regarding any securities or financial instruments mentioned herein and should seek advice from such independent financial, legal, tax or other adviser as they deem necessary. J.P. Morgan may trade as a principal on the basis of the Research Analysts' views and research, and it may also engage in transactions for its own account or for its clients' accounts in a manner inconsistent with the views taken in this material, and J.P. Morgan is under no obligation to ensure that such other communication is brought to the attention of any recipient of this material. Others within J.P. Morgan, including Strategists, Sales staff and other Research Analysts, may take views that are inconsistent with those taken in this material. Employees of J.P. Morgan not involved in the preparation of this material may have investments in the securities (or derivatives of such securities) mentioned in this material and may trade them in ways different from those discussed in this material. This material is not an advertisement for or marketing of any issuer, its products or services, or its securities in any jurisdiction.

Confidentiality and Security Notice: This transmission may contain information that is privileged, confidential, legally privileged, and/or exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or use of the information contained herein (including any reliance thereon) is STRICTLY PROHIBITED. Although this transmission and any attachments are believed to be free of any virus or other defect that might affect any computer system into which it is received and opened, it is the responsibility of the recipient to ensure that it is virus free and no responsibility is accepted by JPMorgan Chase & Co., its subsidiaries and affiliates, as applicable, for any loss or damage arising in any way from its use. If you received this transmission in error, please immediately contact the sender and destroy the material in its entirety, whether in electronic or hard copy format. This message is subject to electronic monitoring: <https://www.jpmorgan.com/disclosures/email>

MSCI: Certain information herein ("Information") is reproduced by permission of MSCI Inc., its affiliates and information providers ("MSCI") ©2024. No reproduction or dissemination of the Information is permitted without an appropriate license. MSCI MAKES NO EXPRESS OR IMPLIED WARRANTIES (INCLUDING MERCHANTABILITY OR FITNESS) AS TO THE INFORMATION AND DISCLAIMS ALL LIABILITY TO THE EXTENT PERMITTED BY LAW. No Information constitutes investment advice, except for any applicable Information from MSCI ESG Research. Subject also to [msci.com/disclaimer](https://www.msci.com/disclaimer)

Sustainalytics: Certain information, data, analyses and opinions contained herein are reproduced by permission of Sustainalytics and: (1) includes the proprietary information of Sustainalytics; (2) may not be copied or redistributed except as specifically authorized; (3) do not constitute investment advice nor an endorsement of any product or project; (4) are provided solely for informational purposes; and (5) are not warranted to be complete, accurate or timely. Sustainalytics is not responsible for any trading decisions, damages or other losses related to it or its use. The use of the data is subject to conditions available at <https://www.sustainalytics.com/legal-disclaimers>. ©2024 Sustainalytics. All Rights Reserved.

"Other Disclosures" last revised October 05, 2024.

Copyright 2024 JPMorgan Chase & Co. All rights reserved. This material or any portion hereof may not be reprinted, sold or redistributed without the written consent of J.P. Morgan. It is strictly prohibited to use or share without prior written consent from J.P. Morgan any research material received from J.P. Morgan or an authorized third-party ("J.P. Morgan Data") in any third-party artificial intelligence ("AI") systems or models when such J.P. Morgan Data is accessible by a third-party. It is permissible to use J.P. Morgan Data for internal business purposes only in an AI system or model that protects the confidentiality of J.P. Morgan Data so as to prevent any and all access to or use of such J.P. Morgan Data by any third-party.

Completed 14 Oct 2024 01:27 AM EDT

Disseminated 14 Oct 2024 01:27 AM EDT