



Europe

Banks
Banks

Industry
**Global Wealth
Management**

Date
20 July 2016

Special Report

Deutsche Bank Research
Global Banks Team

Kinner Lakhani

Research Analyst
(+44) 20 754-14140
kinner.lakhani@db.com

Stephen Andrews, CFA

Research Analyst
(+852) - 2203 6191
stephen-a.andrews@db.com

Omar Keenan

Research Analyst
(+44) 20 754-14647
omar.keenan@db.com

Matt O'Connor, CFA

Research Analyst
(+1) 212 250-8489
matthew.o-connor@db.com

Amandeep-A Singh

Research Analyst
(+91) 22 6181-2293
amandeep-a.singh@db.com



 OLIVER WYMAN

Christian Edelmann

Partner
(+44) 20 7852 7557
christian.edelmann@oliverwyman.com

Inderpreet Batra

Partner
(+1) 646 364 8789
inderpreet.batra@oliverwyman.com

Emily Niemann

Principal
(+41) 44 5533 587
emily.niemann@oliverwyman.com

Kai Upadek

Partner
(+41) 44 553 32 76
kai.upadek@oliverwyman.com

Toby Pittaway

Partner
(+65) 6510 9745
toby.pittaway@oliverwyman.com

Running faster to stand still

Wealth management valuations are at record highs since the global financial crisis, primarily driven by recent growth in lending products. But we now expect asset growth to slow, costs to rise and fee pressures to accelerate. Competition is increasing. One-third of industry profitability could be at risk over the next five years. Wealth managers must consider a range of strategic and tactical levers to address this challenge – they have to run faster to stand still. As the relative wealth wallet shifts away from managed assets, winners will tap into unbanked assets as a new source of value creation.

Deutsche Bank AG/London

Deutsche Bank does and seeks to do business with companies covered in its research reports. Thus, 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. DISCLOSURES AND ANALYST CERTIFICATIONS ARE LOCATED IN APPENDIX 1. MCI (P) 057/04/2016.

Oliver Wyman is a global leader in management consulting. For more information, visit www.oliverwyman.com.

Oliver Wyman is not authorized or regulated by the PRA or the FCA and is not providing investment advice. Oliver Wyman authors are not research analysts and are neither FCA nor FINRA registered. Oliver Wyman authors have only contributed their expertise on business strategy within the report. Oliver Wyman's views are clearly delineated. The securities and valuation sections of report are the work of Deutsche Bank only and not Oliver Wyman.

For disclosures specifically pertaining to Oliver Wyman, please see the Disclosure Section located at the end of this report.

Table Of Contents

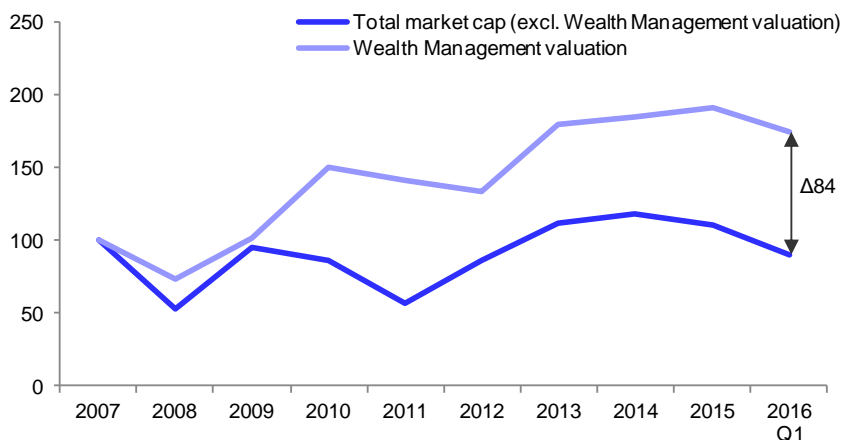
Joint Executive Summary.....	3
<hr/>	
1. Wealth Management units driving bank valuations but industry earnings capacity overestimated	13
1.1. AuM growth to disappoint	15
1.2. Margin erosion	17
1.3. Challenge to tackle high levels of operational gearing.....	21
<hr/>	
2. Bridging the profitability gap	25
2.1. Tactical levers	25
2.2. Strategic levers	37

Joint Executive Summary

Lower earnings volatility, capital efficiency and strong “core” revenue growth have created the highest Wealth Management valuations we have seen post the global financial crisis

Wealth Management units – defined here as those servicing High Net Worth (HNW) individuals with >US\$ 1MM in investible assets – now account for 37% of the sum of parts bank valuation for the leading Wealth Managers, more than double the 16% share observed in 2007. This compares to a 28% share of revenues.

Figure 1: Equity market value development of overall bank vs. Wealth Management unit - Indexed to 2007, sample of leading Wealth Managers, sum of parts analysis



Source: Oliver Wyman analysis

Our proprietary Wealth Management valuation index shows the valuations gap between Wealth Management and other bank businesses opening up significantly post crisis and further widening over the last two years.

However, when we adjust revenue growth for lower rates and market performance, we observe that the majority of value creation has been driven by balance sheet growth. In Europe and North America, our analysis shows that nearly two-thirds of value creation was driven by lending products. The balance came from increased mandate penetration as well as relationship-based pricing.

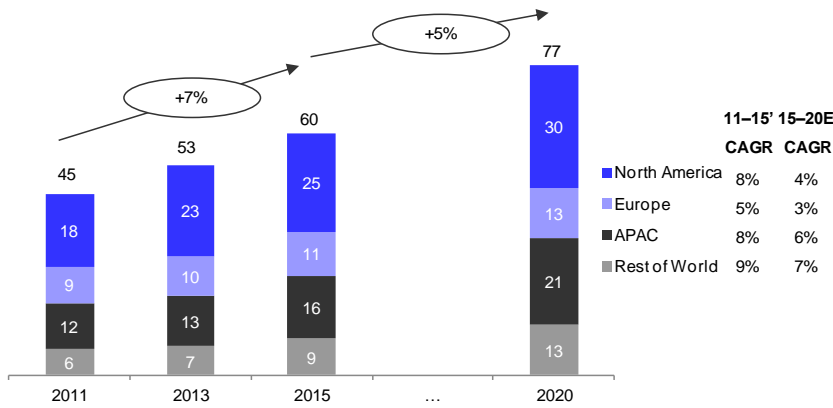
We believe the market overestimates the earnings capacity of the industry going forward along three dimensions.

AuM growth will slow, fee pressure will accelerate, and the industry has not strategically addressed a growing concern on costs, particularly in case of a severe market correction.

AuM growth is likely to fall behind what Wealth Managers collectively assume in their business plans

We expect AuM growth in our base case of 5% p.a., down from 7% p.a. over the last 5 years.

Figure 2: Global HNW wealth by major region - 2011–2020, US\$ TN

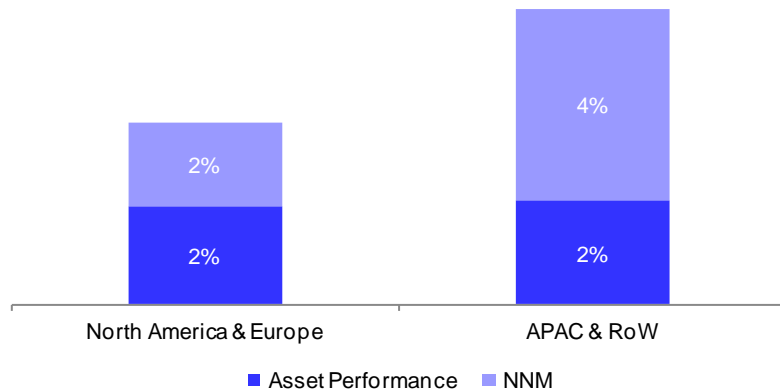


Source: Oliver Wyman analysis
 Note: HNW wealth is measured across households with financial assets greater or equal to US\$ 1 million. Financial assets include investable assets (deposits, Equities, Fixed Income, mutual funds and Alternatives), excluding assets held in insurance policies, pensions and direct Real Estate or any other real assets. Numbers exclude the effect of currency fluctuations.

Looking more closely at the drivers behind expected growth, Emerging Markets (EM), which account for 31% of global AuM today, are expected to contribute 58% of Net New Money (NNM) by 2020. EM therefore represents the most sizeable growth opportunity, but remains difficult to access for many global players outside the main offshore markets.

In our base case weaker asset performance contribution, expected to be ~2% through 2020 vs ~4% p.a. over 2011-15, is the primary driver for the expected slow-down in overall AuM growth.

Figure 3: AuM growth projections by region and source - 2015–2020, % p.a.

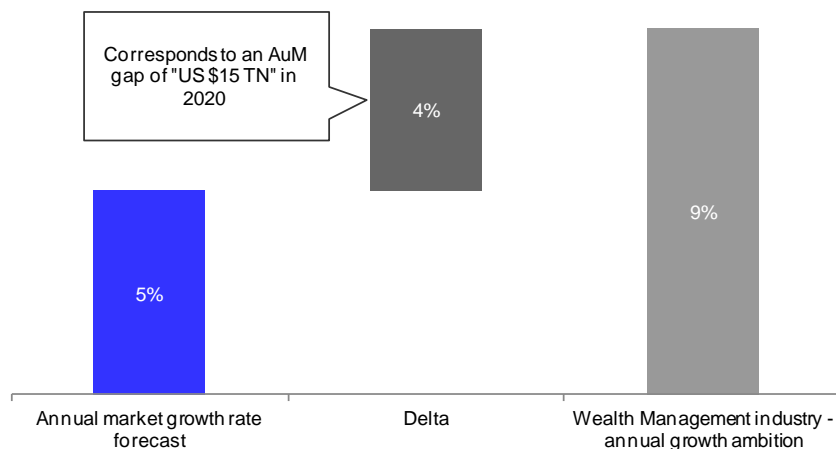


Source: Oliver Wyman Wealth Management model

With CAPE¹ multiples of 26, compared to the previous cycle's peak of 27, Equities look richly priced on an event neutral basis. It will be difficult to see significant further multiple expansion while earnings growth is challenged. In Fixed Income, a rising rates and widening credit spread environment (in the US) could bring the decade-long bull market to a halt. At the same time we expect more Quantitative Easing in Europe, mitigating the overall impact on Fixed Income assets. Despite recent performance concerns in Hedge Funds, Alternatives are likely to offer the most attractive performance outlook. However, even if clients doubled their portfolio allocation to Alternatives by 2020, overall AuM growth would only increase by up to 0.3% per year.

Our discussions with a number of Wealth Managers, who collectively manage US\$ 11TN in assets, suggest that they still assume 8–10% p.a. AuM growth in their business plans. On an industry-wide basis this translates into an AuM gap of US\$ 15TN emerging by 2020. We are concerned that this growth gap will translate into more aggressive client acquisition strategies with the potential risk of onboarding a new wave of compliance risks.

Figure 4: Market growth forecast vs. industry growth projections 2015–2020 - % p.a.



Source: Company publications, press research, Oliver Wyman analysis

A bear case scenario would see materially slower global AuM growth of 2-3% p.a., dragged down by stagnation in Europe over the next 5 years

In our bear case, which we modelled against prior significant market corrections, we see AuM growth materially lower at only 2-3% p.a. through 2020. Macro-shocks may lead to overall flat asset performance in Europe, skewing overall growth even further to Net New Money. In our bear scenario NNM accounts for 88% of overall AuM growth.

We expect continued downward pressure on fees, in particular in Europe and North America

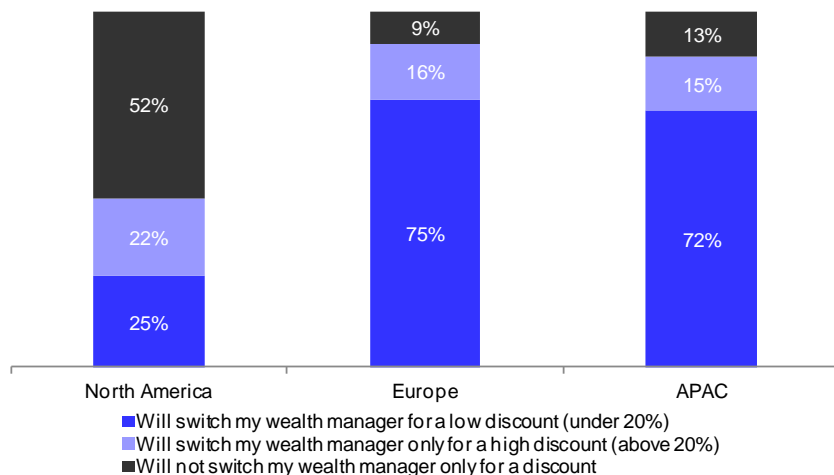
Brokerage fees are already being eroded in both of these jurisdictions as cheap beta products become readily available and increasingly accepted. In North America robo-advisory models and greater competition amongst providers are

¹ CAPE = Cyclically Adjusted Price-to-Earnings multiple

pushing fees down further, particularly in the 'core' HNW segment (client segment of \$US 1-5MM in investible assets). In Europe regulations mandating greater pricing transparency are starting to have a similar effect.

In a world with greater fee transparency, we expect to see more clients starting to question pricing levels. Particularly as the standard moves from advisory to fiduciary, Wealth Managers will need to prove "value for money" or face further fee pressures. For example, we expect the Department of Labor's (DOL) fiduciary standard to put sustained pressure on fees in the US. While there is less regulatory pressure in APAC, clients are particularly price sensitive, translating into continued margin pressure. This is illustrated by our survey of 2,000 global HNW clients². The vast majority of clients in Asia - and also Europe - are willing to switch their Wealth Manager if offered lower prices.

Figure 5: Price sensitivity of Wealth Management clients by region



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

Clients in North America are not as price sensitive, to a large extent driven by a more personalized and trusted advisor / RM relationship. Yet new entrants with narrow business models are leading to greater unbundling of pricing across the value chain and will push down prices regardless. In particular Wealth Managers with an integrated value chain are likely to be attacked by new players operating in select parts of the value chain with leaner operating models, mainly through digital propositions.

² Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA.

Figure 6: Fee margin impact forecasting by region and product

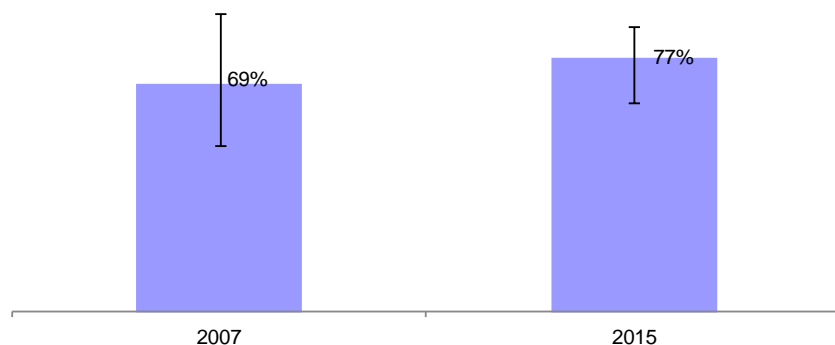
Investment product fee pressure			
	Market access/transaction (Equities, Fixed Income, Alternatives, Asset Managers retrocessions)	Advice (Discretionary, Advisory)	Financing (Deposit & lending)
North America	<ul style="list-style-type: none"> Downward pressure on brokerage fees as cheap beta products continue to proliferate and integrated value chain becomes increasingly unbundled More pressure as competition among broker/dealer community intensifies 	<ul style="list-style-type: none"> Some downward pressure driven by greater transparency and increasing client awareness of price (e.g. ability to compare Wealth Manager offerings vs. robo-advisors), as well as heightened fiduciary standards (DOL) 	<ul style="list-style-type: none"> Base: NIM has potential to rebound as Fed Funds rate could further increase Bear: NIM likely to remain close to current levels as Fed maintains low rate policy on lower GDP growth
Europe	<ul style="list-style-type: none"> Downward pressure on brokerage fees as cheap beta becomes readily available (e.g. ETF) More pressure if additional European countries restrict inducement fees (post Retail Distribution Review (RDR)) 	<ul style="list-style-type: none"> Downward pressure as regulatory initiatives (e.g. Markets in Financial Instruments Directive II (MiFID II)) pose stricter requirements on fee transparency 	<ul style="list-style-type: none"> Base: NIM could rebound in the longer term as rate environment unlikely to deteriorate further yet expected to stay low in the short/medium term Bear: NIM remains low with rates close to zero across EU
APAC	<ul style="list-style-type: none"> Some downward pressure on fees from heightened price sensitivity of Asian investors and increasing competition Comparatively less fee pressure from regulatory initiatives 	<ul style="list-style-type: none"> Some downward pressure on fees from heightened price sensitivity of Asian investors and increasing competition Comparatively less fee pressure from regulatory initiatives 	<ul style="list-style-type: none"> NIM to stay relatively constant

Source: Oliver Wyman analysis

The market also overestimates the industry's ability to adjust the operational gearing in case of a significant market downturn

Wealth Managers globally operate at Cost Income ratios (CIRs) in the high 70s, almost 10%-points higher than pre-crisis levels. The increase has primarily been driven by Europe and then Asia, whereas in the US CIRs have slowly returned towards their pre-crisis levels.

Figure 7: Cost Income ratios 2007 vs. 2015 - Sample of leading Wealth Managers

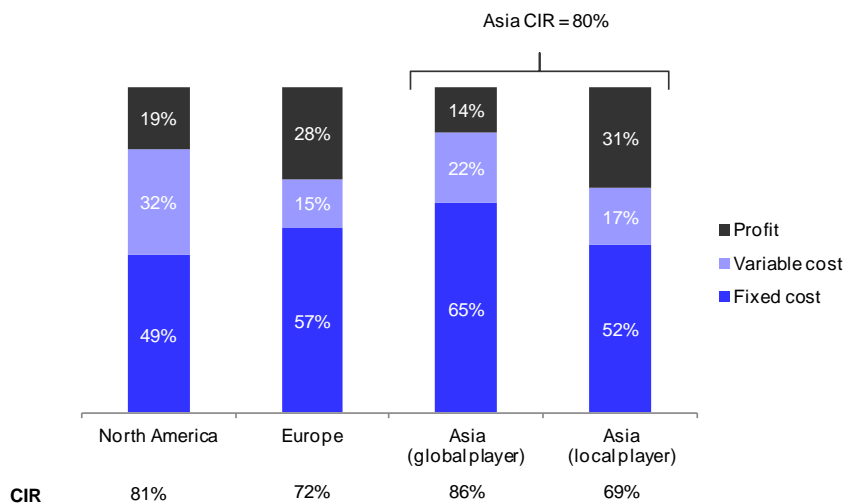


Source: Bloomberg Finance LP, Deutsche Bank database, Oliver Wyman analysis

Yet in the US CIRs are still highest at >80%. In Europe CIRs range from 60-80% depending primarily on the onshore/offshore split and the client segment focus. In Asia, while local leaders operate in the 60-80% range, many global players in the region have CIRs above 90%.

The US model comes with higher operational gearing, but the cost structure is more flexible. We estimate that up to 40% of costs largely fluctuate with revenues. In contrast, variable costs in Europe and Asia are much lower, in the range of 15–25% respectively.

Figure 8: Cost Income ratios split by cost type by region



Source: Bloomberg Finance LP, Deutsche Bank database, Oliver Wyman analysis

What concerns us is that the industry still operates on legacy infrastructure, in many cases duplicated across geographies, booking centres and legal entities.

Operating models also differ across geographies with limited standardization being achieved to date. Moreover, many Wealth Managers have yet to invest significantly in terms of risk/compliance resources and many have allocated further budgets to adjust to the regulatory challenge which – to put things in perspective - has cost the Wholesale Banking industry US\$ 8BN to date. Examples for this regulatory challenge would include the DOL’s fiduciary standard in the US or MiFID II in Europe. In particular all requirements that are cross-border, such as tax reporting, will drive operating model complexity and add further costs.

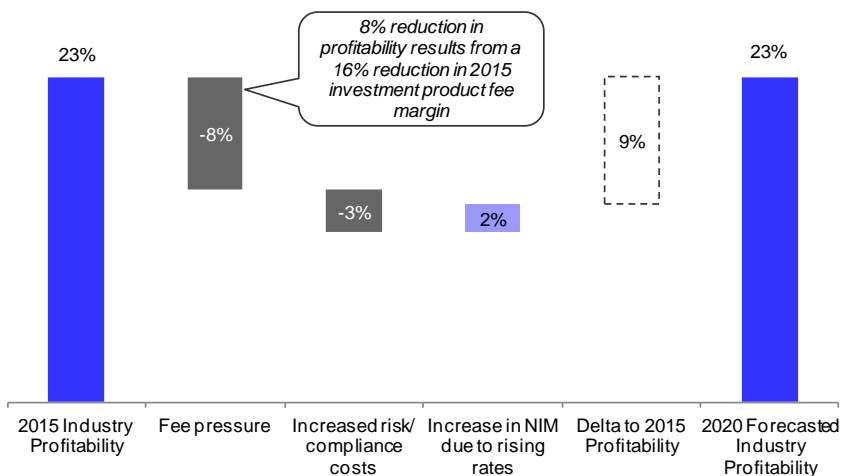
One-third of industry profitability at risk pre-mitigation; Wealth Managers need to act on operating model reform and identify new sources of value creation if they want to emerge as winners

Integrated players are likely to experience a twofold challenge to their business models. First, from new, mainly digital competitors looking to unbundle the integrated value chain by offering specific Wealth products cheaper and better. Second, particularly in Europe and Asia, from independent advisors who will reform their business models post RDR (Retail Distribution Review in the UK) and similar regulatory initiatives towards being the ‘trusted advisor’ of their clients. We expect family office type approaches to gain traction, far beyond their traditional remit of Ultra-HNW (UHNW) clients.

Overall, we estimate a 9%-point pre-mitigation drag on industry profitability over the next 5 years, more than one-third of current profitability. Breaking this down, North America and Europe will see a roughly equal squeeze on profitability from downward fee pressure and increasing risk and compliance costs. Asia will likely see marginally less drag due to lower fee pressure,

though regulatory and infrastructure costs will still have a material impact. Expected AuM growth may help individual players to close some of the gap, however, the past has shown that on an industry-wide basis the logic of improved profitability as a result of AuM growth does not hold.

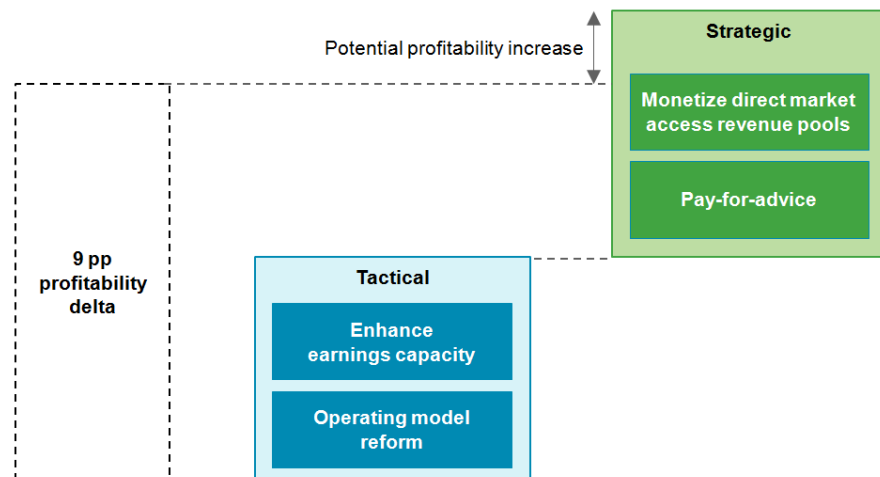
Figure 9: Industry profitability projection 2015-2020 - Profit margin, %



Source: Oliver Wyman analysis

To preserve underlying profitability levels, Wealth Managers need to consider a host of tactical and strategic levers to address the new wave of competition, comply with heightened regulation, and tackle the profitability challenge.

Figure 10: Types of initiatives to close profitability gap



Source: Oliver Wyman analysis

Earnings enhancement will be driven by renewed focus on client acquisition and attrition management, access to Alternatives, as well as alignment of regional footprint with EM growth markets / Offshore 2.0 offerings.

Renewed focus on client acquisition and attrition management

As developed markets become more saturated and an ever larger part of Net New Money will be difficult to access without a local setup, the importance and challenge of client acquisition are accelerating. Wealth Managers will need to better incentivize RMs to acquire new clients, optimize Retail / Commercial banking feeder channels, and focus on client life events as key acquisition opportunities.

Yet attrition management will be at least equally important as it has the potential to significantly improve the economics for those who get it right. Wealth Managers will have to excel in the area of inter-generational wealth transfers. We have seen emerging leaders in this space turn attrition risks into an increasing share of wallet opportunity of up to 15%. Apart from looking to address inter-generational needs early on, it requires an enforced inter-generational handover of RM relationships.

Alternatives as a major source of differentiation

Alternatives – including Hedge Funds, Private Equity, Real Estate, Structured Products and Commodities – have been the only source of material alpha generation over the past decade, and we expect this to continue going forward. Moreover, access to these products is a significant source of differentiation which Wealth Managers still hold, unlike traditional asset classes where low-cost beta offerings are growing in popularity. Winning will hinge on the ability to overcome regulatory hurdles to sell these products, in particular in Europe where AIFMD3 is starting to reduce leading players' incentives to seek distributions solutions. As a result the available product range may narrow.

Offshore banking 2.0 becoming a growth engine again while succeeding onshore is of ever greater importance in Asia (ex Japan)

After a period of cleaning up their offshore businesses, Wealth Managers will need to re-focus on their offshore strategies to capture faster growing Emerging Markets assets. Beyond a small group of global leaders and a few specialist firms, offshore offerings often lack product shelf depth and offerings corresponding to core client needs, e.g. hard currency investment products, FX and mortgage / asset-financing capabilities. The exception is Asia (ex Japan), where capturing onshore growth will be the real prize – global Wealth Managers will need to differentiate through specialization and targeting niche segments like entrepreneurs with international reach or 'digital-minded' clients if they are to compete successfully for wallet with local players.

³ Alternative Investment Fund Managers Directive

Wealth Managers will need to redesign the 'core' HNW service model, increase control infrastructure efficiencies and digitize parts of the value chain, particularly in the back office. We see potential for leaders to reduce CIR by 10%+ and further flexibilize costs by another 20%-points.

Getting the core HNW service model right is a 'make or break' for most Wealth Managers across the globe struggle to profitably serve core HNW clients. Comparatively low asset levels translate into limited earnings capacity, particularly in a 'risk off' environment with low transaction volumes. Core HNW clients are typically served using the same infrastructure / service model as for the higher tier wealth brackets. We see the primary levers of success in forceful standardization, alignment with cheaper RM resources and using digital channels to increase RM efficiency.

Realizing control infrastructure efficiencies

Leading Wealth Managers have invested heavily in their compliance and risk management infrastructure, most with a focus on increasing resources in the first Line of Defence⁴. Yet the regulatory wave is far from subsiding, requiring selective resource build out. Leaders will need to aggressively reduce overlaps between the 1st and 2nd Lines of Defence. Overlap at many institutions accounts for up to 25% of the overall staff in this space.

Digitization – in contrast to widely-held beliefs, the biggest wins are to be had behind the front line

Wealth Managers have started to invest in digital-age tools to improve the client experience and make their advisors more productive, mainly by ensuring the right people have the right data at the right time.

Yet digitizing middle and back office processes provides at least the same opportunity to improve profitability. KYC / AML, client reporting and efficiently adjusting pricing grids are core examples.

Digitization and the use of artificial intelligence (AI) will also be an important risk management feature. For example, we believe that AI will help in scrutinizing RM behaviour, e.g. allowing detection of patterns indicating potential breaches of cross-border regulations.

In Digital and beyond, we believe that the leaders will look to leverage Group level initiatives, enforcing a higher level of infrastructure and resource sharing. Joint third party provider selection, IT platforms, research, or KYC efforts come to mind. We also see growing pressure for the industry to progress with industry utilities.

⁴ 1st LOD = front line business and operations units, responsible for day-to-day risk management. 2nd LOD = oversight functions, monitoring 1st LOD activities, including design and implementation of controls, while also providing advice and facilitating risk management activities. 3rd LOD = audit functions (internal and external), as well as regulators

Transforming traditionally non-monetized direct investments into revenue-generating propositions through a new platform model and implementing “Pay for advice” models are the most relevant strategic options to tackle the shrinking wallet of traditional Wealth Management services

A significant proportion of wealth in today’s market is not accessible to Wealth Managers. This figure varies between 20-30% of investible assets in Europe and North America and 70-80% in Asia and Rest of World. Wealth Managers have mostly failed to date to leverage existing capabilities and convert the opportunity into recurring revenue streams.

Access to otherwise closed-shop private market opportunities such as growth stage financing or direct Real Estate investments are on top of clients’ needs. Key to success will be to establish a banking-style platform and identify and attract high quality providers to generate deal transparency and flow. To succeed with such a model Wealth Managers will increasingly have to shift away from an ‘obsessive’ AuM mind-set and look to capture value by pricing for advice / services offered. While limited to these ‘platform’ assets initially, we expect a broader trend towards new pricing models taking place, particularly as the relative share of traditional Wealth Management products erodes.

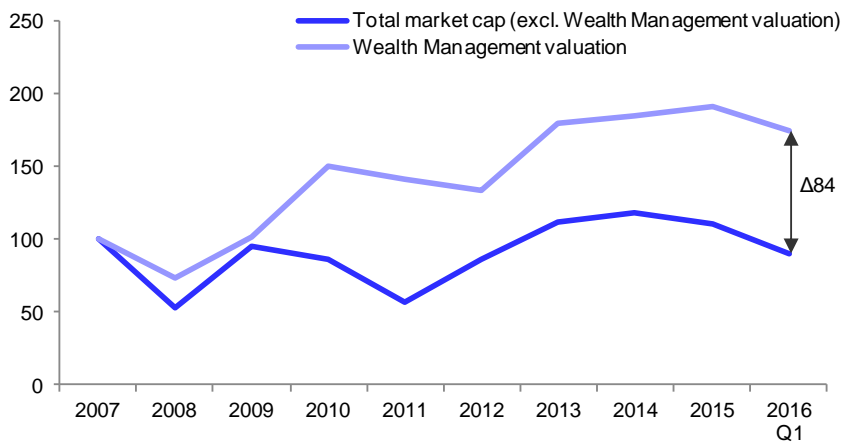
The ‘platform’ model can also include creating a closed network for clients to exchange ideas, with the Wealth Manager acting as a facilitator. While charging direct fees for participation will prove challenging, positioning the Wealth Manager to productize some of the investment ideas will create new revenue streams. It also ensures the Wealth Manager acts as the facilitator addresses the potential risk of full disintermediation.

Finally, there is a growing opportunity for Wealth Managers to expand their philanthropy offering into full charity operations support, making professional investment process and due diligence capabilities available to clients. Wealth Managers will leverage trust platforms and family office structures to build end-to-end operations/servicing platforms for charities, capitalizing on the movement to professionalize the growing trend of charitable giving.

1. Wealth Management units driving bank valuations but industry earnings capacity overestimated

The value of Wealth Managers in a sum of parts analysis has increased steadily since pre-crisis years, from 16% in 2007 to more than double at 37% in Q1 2016. Equity markets continue to attach high valuation multiples to Wealth Management's steady revenue streams, capital efficient earnings, and still relatively lighter touch regulation compared to Wholesale Banks. Since 2007 the gap between Wealth Management units and the rest of the bank has grown by more than 80% according to our proprietary Wealth Management valuation index.

Figure 11: Equity market value development of overall bank vs. Wealth Management unit - Indexed to 2007, sample of leading Wealth Managers, sum of the parts analysis



Source: Oliver Wyman analysis

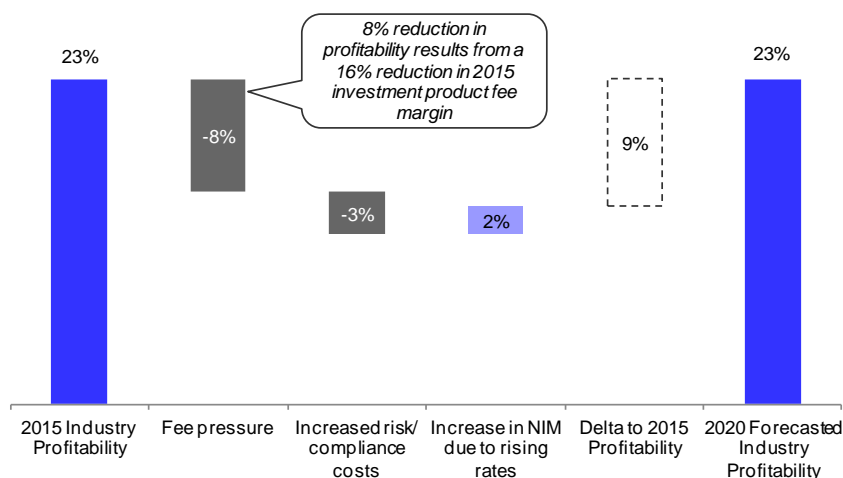
Valuations also underpinned by strong 'core' revenue growth. Wealth pools have continued to expand following the global financial crisis. Since 2011, HNWI investable assets globally have grown by 7% p.a. to reach US\$ 60TN in 2015, driven by strong growth in North America, APAC and Rest of World.

However, a closer look at underlying drivers reveals that value creation has primarily been driven by growing loan balances and hence balance sheet expansion. When we adjust revenue growth for lower rates and market performance, we observe that the majority of value creation has been driven

by balance sheet growth. In Europe and North America, our analysis shows that nearly two-thirds of value creation was driven by lending products⁵. At many institutions this also included a shift of loan balances from Wholesale books towards the Wealth business. The balance came from increased mandate penetration as well as relationship-based pricing. Fee income on the back of investment and advisory products has been much more muted than growth in interest income when normalizing for market performance.

Going forward, we believe the industry's earnings capacity will fall short of market expectations. Pre-mitigation, we expect an erosion of industry profitability levels by more than one-third; performance skews will further widen.

Figure 12: Industry profitability projection 2015-2020 - Profit margin, %



Source: Oliver Wyman analysis

The drag on profitability will be different across regions: North America and Europe will feel the biggest squeeze as heightened competition and transparency put pressure on fees. APAC will see less top-line pressure but costs for global players in the region are likely to increase due to required risk and compliance upgrades and heightened cost of doing business.

In a bear case we would see a US\$ 11BN additional reduction in industry profits. In a bear case scenario, we expect to see a further drag on profitability, increasing the total drag on profit margins to 10%-points or 43% of 2015 profitability.

While the percentage point delta in profitability vs. base case may not seem high, the reduction of the overall profit pool amounts to US\$ 11BN when lower AuM growth is taken into account. This results from both a decrease in Net New Money as GDP growth decelerates, and lower performance-based growth on weaker asset class returns. We expect the overall impact to be highest in Europe with revenue declines of -18% vs 2020 base case. North America and APAC revenues will decline less vs. base case at -12% and -11% respectively.

⁵ Our methodology: For the largest Wealth Managers, we have disaggregated the improvement in profit contribution over the past 5 years between market performance and value creation. In the former, we take into account typically positive asset performance, mixed currency effects and typically lower net interest margins, given lower-for-longer interest rates. In Europe, we also adjust for the effects of cross-border outflows, via regularisation. We attribute the remaining performance to management-driven value creation which includes Net New Money, pricing management and increase in mandate penetration as well as lending products.

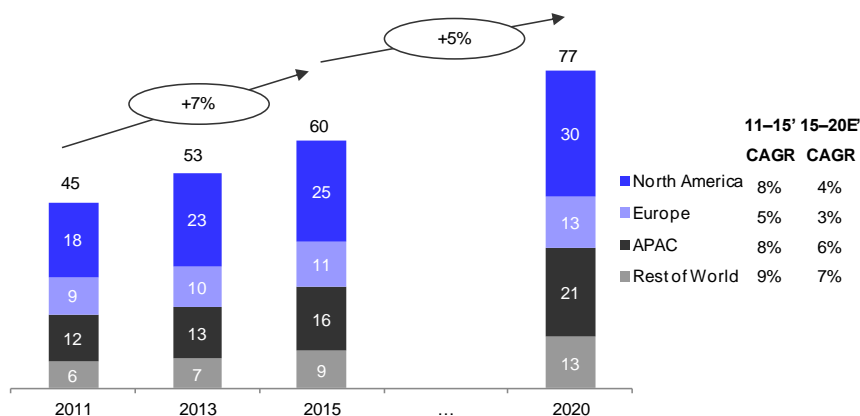
The industry faces 3 primary challenges to its earnings capacity, impacting underlying profitability: slower-than-expected AuM growth, heightened fee pressure, and increased cost of doing business.

1.1. AuM growth to disappoint

AuM growth will likely fall behind what Wealth Managers collectively assume in their business plans.

In our base case scenario we see global AuM growth slowing by 2%-points p.a., largely attributable to declining asset performance. This deceleration will be felt particularly in North America. APAC and Rest of World are expected to decline by 2% p.a. but remain the strongest growth regions.

Figure 13: Global HNW wealth by major region - 2011–2020, US\$ TN

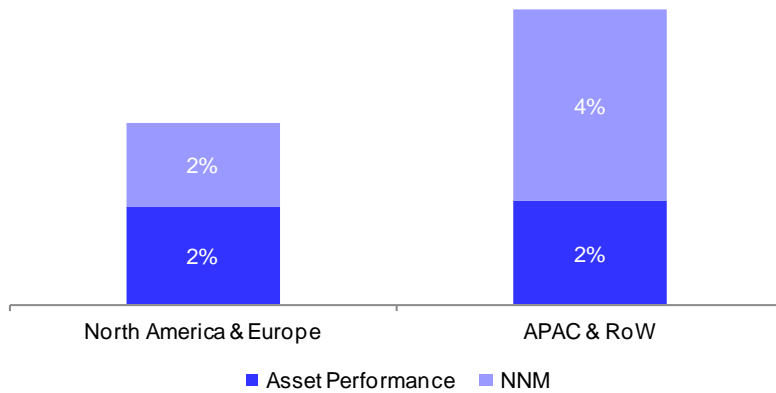


Source: Oliver Wyman Wealth Management model

Note: HNW wealth is measured across households with financial assets greater or equal to US\$ 1 million. Financial assets include investable assets (deposits, Equities, Fixed Income, mutual funds and Alternatives), excluding assets held in insurance policies, pensions and direct Real Estate or any other real assets. Numbers exclude the effect of currency fluctuations.

Looking more closely at the drivers behind expected growth, 58% of Net New Money will come from Emerging Markets, which account for only 31% of global AuM today. However, we estimate that much of this EM wealth will be hard to access. In Asia, for example, we estimate that only 30% of these assets are accessible to non-local players today.

Figure 14: AuM growth projections by region and source - 2015–2020, % p.a.

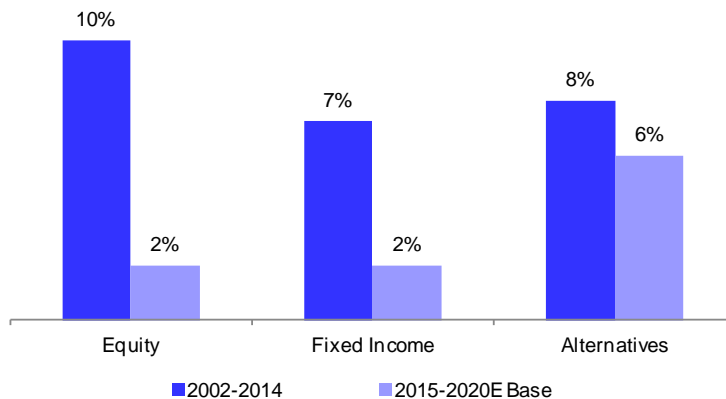


Source: Oliver Wyman Wealth Management model

In our base case, weaker asset performance contribution, expected to be ~2% through 2020 vs ~4% p.a. over 2011-15, is the primary driver for the expected slow-down in overall AuM growth.

With CAPE multiples of 26, compared to the previous cycle’s peak of 27, Equities look richly priced on an event neutral basis. It will be difficult to see significant further valuation growth ahead of earnings growth while earnings growth is challenged. In Fixed Income, a rising rates and widening credit spread environment (in the US) could bring the decade-long bull market to a halt. At the same time we expect more Quantitative Easing in Europe, mitigating the overall impact on Fixed Income assets. Despite recent performance concerns in Hedge Funds, Alternatives are likely to offer the most attractive performance outlook. However, even if clients doubled their portfolio allocation to Alternatives by 2020, overall AuM growth would only increase by up to 0.3% per year.

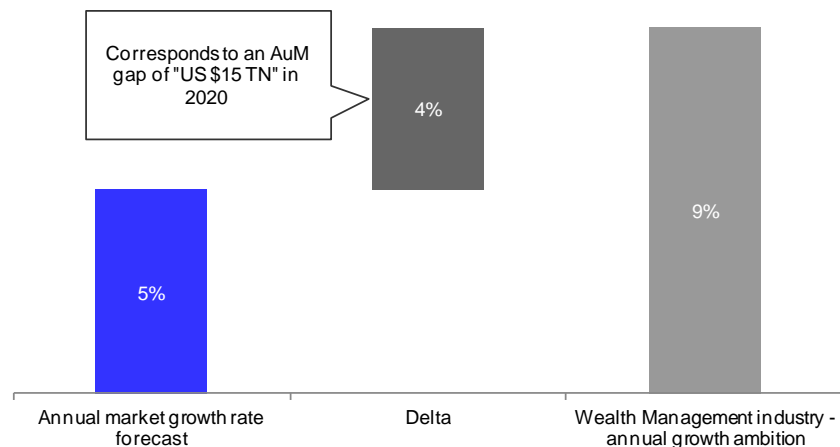
Figure 15: Historical gross return vs. base case forecasted performance - Base case, % p.a.



Source: Morningstar, Oliver Wyman analysis

Wealth Managers across the board are overestimating AuM growth. Compliance risks are likely to be on-boarded on the back of it. Our discussions with various Wealth Managers, collectively managing US\$ 11TN in AuM, reveal average growth targets of 8-10% p.a. for their Wealth Management units. With total global AuM projected to increase by only 5% p.a. in our base case, we see a gap of US\$ 15TN in AuM emerge by 2020.

Figure 16: Market growth forecast vs. industry growth projections 2015–2020
- Base case, % p.a.



Source: Company publications, press research, Oliver Wyman analysis

We are concerned that this growth gap may translate into more aggressive risk taking in order to acquire the necessary AuM to meet targets, which may lead to the onboarding of a new wave of compliance risks.

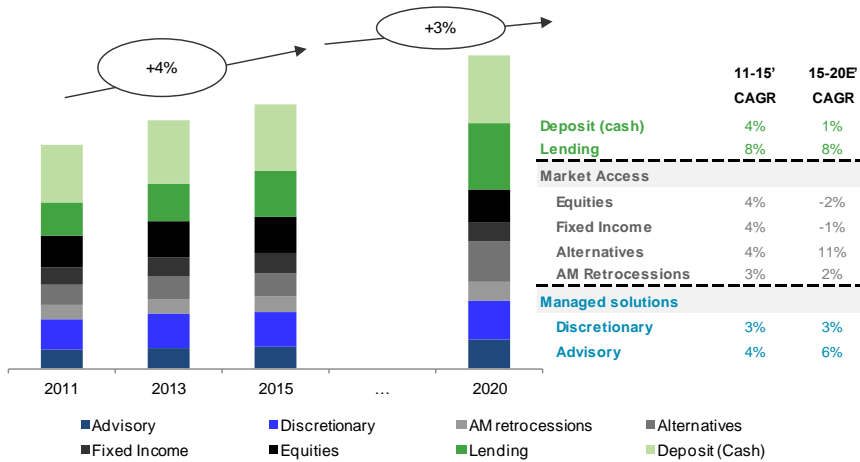
A bear case scenario would see materially slower global AuM growth of 2-3% p.a., dragged down by stagnation in Europe over the next 5 years.

In our bear case, which we modelled against prior significant market corrections, we see AuM growth materially lower at only 2-3% p.a. through 2020. Macro-shocks may lead to overall flat asset performance in Europe, skewing overall growth even further to Net New Money. In our bear scenario NNM accounts for 88% of overall AuM growth.

1.2. Margin erosion

We expect continued downward pressure on fees in particular in Europe and North America. In combination with lower AuM growth we see Wealth Management industry revenues slowing to 3% p.a. through 2020 in our base case. Hand in hand with weaker traditional asset class performance, we expect fee income to contract over the forecasting period, with significant slowdown in growth rates in the short term. Revenue generation will become even more dependent on balance sheet provision, particularly in North America where Net Interest Income accounted for 45% of revenues in 2015.

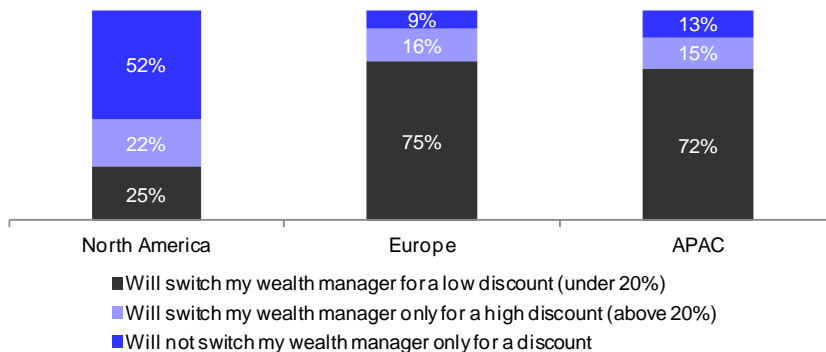
Figure 17: Global Wealth Management revenues by product type 2011-2020 - Base case, US\$ BN



Source: Oliver Wyman Wealth Management model
 Note: Assumptions have been applied to underlying wealth numbers to reflect the assets that wealth managers have access to. Forecasted 2020 global wealth management revenue is shown using conservative asset class return expectations to predict asset class performance.

While price sensitivity is lowest in North America, fee pressure may actually be highest. According to our survey of 2,000 global HNW clients, Europe has the highest price sensitivity, with three quarters of HNW survey respondents willing to switch Wealth Managers for less than a 20% discount. With an increasing number of low-cost Wealth offerings this poses a real challenge to traditional Wealth Management businesses in Europe. In APAC, the survey results reveal a similarly high HNW client sensitivity to price, which will likely lead to a further reduction in fees despite the absence of stricter regulation.

Figure 18: Price sensitivity of Wealth Management clients by region - Oliver Wyman HNW client survey 2016

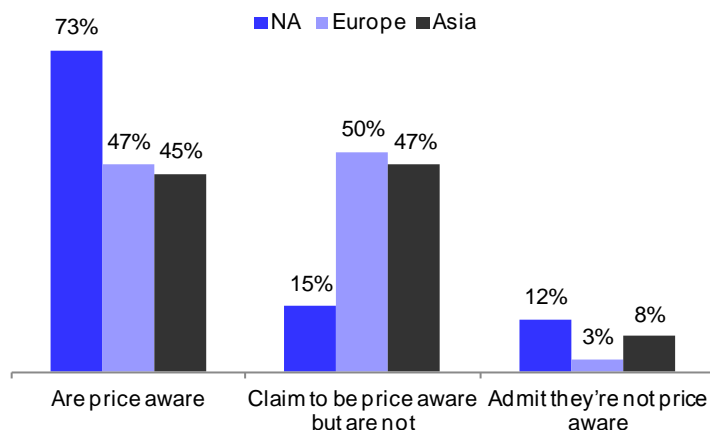


Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

The extent of the problem may even be under-stated given almost half of all survey respondents in Asia and Europe aren't really aware of the price they are paying, which impending regulation will start to change. In North America, where more HNW individuals are price-aware, sensitivity to price is in fact lower than in other regions. However, it is in North America where we have started to see robo-advisory models have the highest negative impact on

observed fee levels in the market, as execution-only models become increasingly commoditized. Total AuM gathered by these new competitors remains comparatively low. We are more concerned that increased price transparency will erode incumbents' margins than about the impact of losing AuM to these new competitors. Moreover, DOL rules may accelerate the shift toward passive products, particularly if many active products continue to underperform passive substitutes.

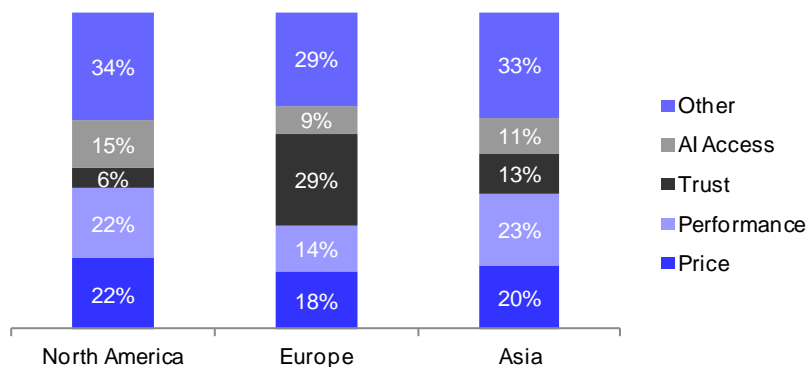
Figure 19: Perception vs. actual awareness of price - Oliver Wyman HNW client survey 2016



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

Various regulatory initiatives will also accelerate margin squeezes as clients become more aware of fees paid. Based on our HNW survey, transparency on risk, pricing and performance were cited as the most important factors in a trusted relationship, which in turn was identified as one of the most important elements in choosing a Wealth Manager. Moreover, when being asked for main reasons of dissatisfaction with Wealth Managers, pricing consistently ranks top 3 across all regions.

Figure 20: Drivers of Wealth Management clients' dissatisfaction by region - Oliver Wyman HNW client survey 2016



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

In Europe, MiFID II/MIFIR includes a slew of reforms targeting increased fee and performance transparency, while in North America Canada's CRM II⁶ calls for similar improvements. As a result, clients will be able to better compare Wealth Management offerings, both on a product dimension (e.g. active vs. passive) and a provider dimension (e.g. traditional Wealth Managers vs. robo-advisors). Clients in these jurisdictions can also now dissect exactly what they are paying for advice vs. commissions, thereby enabling a better assessment of the real value their Wealth Managers are providing.

Figure 21: Fee margin impact forecasting by region and product

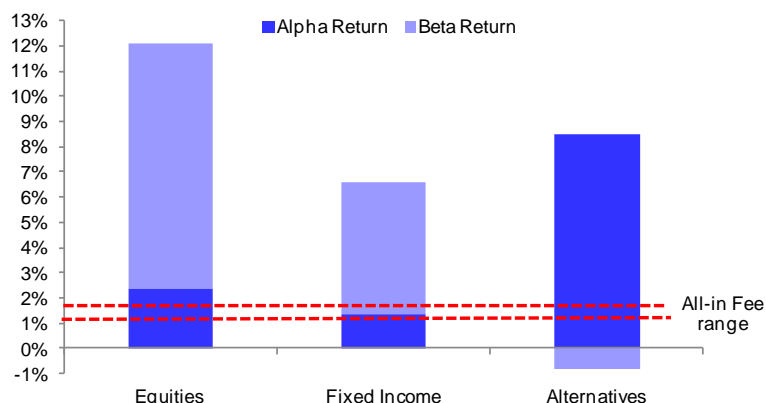
Investment product fee pressure			
	Market access/transaction (Equities, Fixed Income, Alternatives, Asset Managers retrocessions)	Advice (Discretionary, Advisory)	Financing (Deposit & lending)
North America	<ul style="list-style-type: none"> • Downward pressure on brokerage fees as cheap beta products continue to proliferate and integrated value chain becomes increasingly unbundled • More pressure as competition among broker/dealer community intensifies 	<ul style="list-style-type: none"> • Some downward pressure driven by greater transparency and increasing client awareness of price (e.g. ability to compare Wealth Manager offerings vs. robo-advisors), as well as heightened fiduciary standards (DOL) 	<ul style="list-style-type: none"> • Base: NIM has potential to rebound as Fed Funds rate could further increase • Bear: NIM likely to remain close to current levels as Fed maintains low rate policy on lower GDP growth
Europe	<ul style="list-style-type: none"> • Downward pressure on brokerage fees as cheap beta becomes readily available (e.g. ETF) • More pressure if additional European countries restrict inducement fees (post Retail Distribution Review (RDR)) 	<ul style="list-style-type: none"> • Downward pressure as regulatory initiatives (e.g. Markets in Financial Instruments Directive II (MiFID II)) pose stricter requirements on fee transparency 	<ul style="list-style-type: none"> • Base: NIM could rebound in the longer term as rate environment unlikely to deteriorate further yet expected to stay low in the short/medium term • Bear: NIM remains low with rates close to zero across EU
APAC	<ul style="list-style-type: none"> • Some downward pressure on fees from heightened price sensitivity of Asian investors and increasing competition • Comparatively less fee pressure from regulatory initiatives 	<ul style="list-style-type: none"> • Some downward pressure on fees from heightened price sensitivity of Asian investors and increasing competition • Comparatively less fee pressure from regulatory initiatives 	<ul style="list-style-type: none"> • NIM to stay relatively constant

Source: Oliver Wyman analysis

Clients globally cite portfolio performance as the number one factor in choosing a Wealth Manager. As a result, greater transparency may start to put the overall value-added Wealth Managers are providing into question. Our analysis of industry returns over the past decade reveals that Equities and Fixed Income mandates in particular have failed to produce alpha for the average client in the past, with excess returns in the range of only 1-2% p.a. This is reduced to almost zero net of all-in management fees. While Alternatives have demonstrated alpha of ~8% p.a. over the same time period, overall portfolio allocations to Alternatives remain too small for this to have had a material effect on overall alpha generated in client portfolios. As the penetration levels of low-cost beta products increases, and regulators have started to make this alpha-beta reality more transparent, Wealth Managers will need to dramatically rethink their client propositions.

⁶ Client Relationship Model II

Figure 22: Asset class alpha and beta performance 2002-2015 - % p.a.



Source: Morningstar, Wealth Managers' publicly disclosed information, DB analysis, Oliver Wyman analysis
 Note: Gross return defined as pre-fee return. Alpha return defined as excess return wealth managers achieve vs. market performance, which is proxied by the difference between mutual fund returns vs. ETF returns (Beta return)

Our survey finding needs to be seen in the light of a behavioural bias in that many clients are not aware of the actual performance of their portfolio, particularly in Europe and Asia. Going forward, however, we expect regulators to put the onus on Wealth Managers to bridge this disconnect and hence establish a direct link between performance achieved, prices charged and client satisfaction.

We also expect product-independent firms who will look to become clients' 'trusted advisors' to be among the ultimate beneficiaries of higher transparency. This trend will be most evident in Europe, where RDR in the UK and similar regulatory pressures elsewhere will force independent advisors away from execution-only fee models to providing more holistic advisory services, directly challenging incumbents with more integrated value propositions. The industry will likely see family-office style approaches becoming more prevalent, and targeting wealth brackets beyond just the UHNW segment.

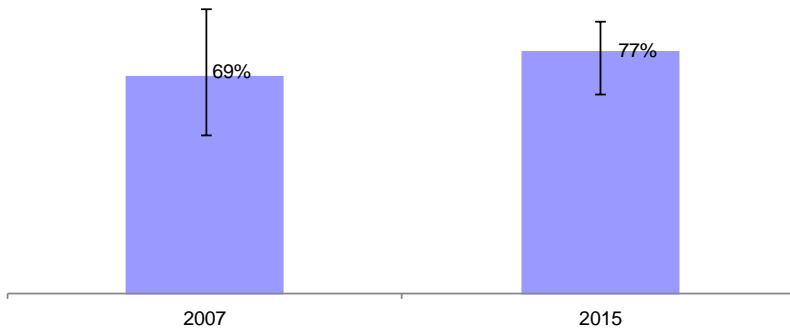
In summary, in a world of greater fee transparency, in particular in Europe and North America, Wealth Managers will face a more existential challenge as their economic value-added proposition is increasingly called into question in the absence of alpha generation.

1.3. Challenge to tackle high levels of operational gearing

The market underestimates the challenges of managing Wealth Management businesses at very high operational gearing.

Wealth Managers globally operate at Cost Income ratios (CIRs) in the high 70s, almost 10%-points higher than pre-crisis levels. The increase has primarily been driven by Europe and then Asia, whereas in the US CIRs have slowly returned towards their pre-crisis levels.

Figure 23: Cost Income ratios 2007 vs. 2015 - Sample of leading Wealth Managers

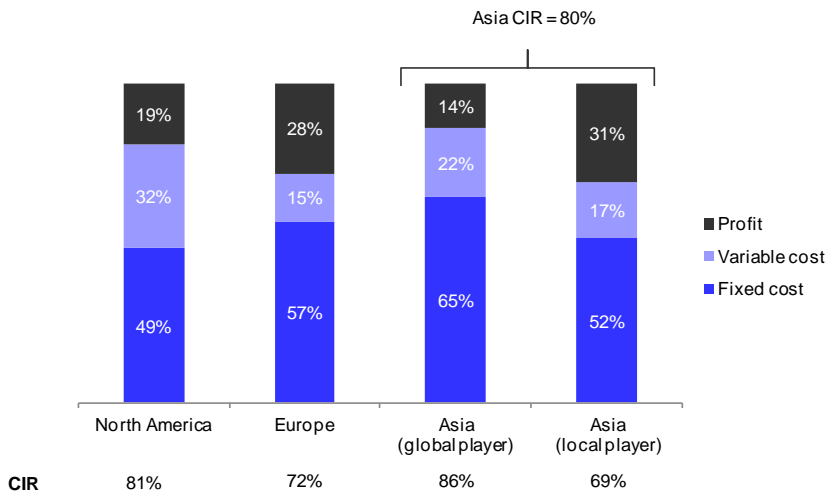


Source: Bloomberg Finance LP, Deutsche Bank database, Oliver Wyman analysis

While Europe's CIRs are lowest, only 15-20% of its cost base is variable, similar to in APAC.

In APAC some of the domestic banks successfully manage their Wealth Management businesses at comparatively low Cost Income ratios in the high 60s, while the regional average of low 80s is driven by global Wealth Managers with expensive local infrastructure and often lacking a broader bank network in the region that allows them to effectively share infrastructure costs with other parts of the bank.

Figure 24: Cost Income ratios split by cost type by region

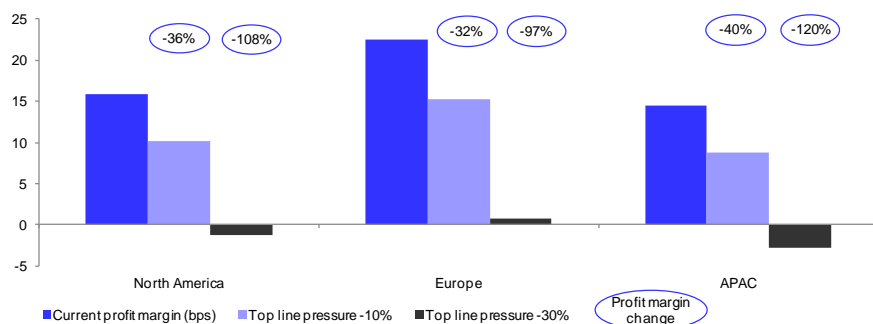


Source: Bloomberg Finance LP, Deutsche Bank database, Oliver Wyman Analysis

In North America the main driver behind high Cost Income ratios in the low 80s lies primarily in the commission payout agreements with advisors. At the same time North America benefits from having a much higher percentage of its cost base in variable costs (40% vs 15-25% in Europe and APAC), providing more flexibility when facing a decline in the top-line.

High operational gearing means industry profitability is extremely sensitive to top-line fluctuations. A 30% contraction in top line would completely wipe out global industry-wide profits, pre-mitigation.

Figure 25: Profit margins by region and top-line pressure scenario - Oliver Wyman estimates, bps



Source: Oliver Wyman analysis

Despite higher CIR levels, the Wealth Management industry has yet to make the significant investments required to upgrade legacy infrastructure. Functions and systems are in many cases duplicated across regions and booking centres, and material middle and back office inefficiencies have yet to be tackled. Further, operating models differ across geographies with limited standardization being achieved to date. We see the industry still in the very early stages of addressing these structural issues, though Finance teams are already earmarking significant budget allocations in anticipation.

We expect operational costs to increase ~4% by 2020 as Wealth Managers upgrade their control infrastructure in response to new regulations and client pressure. This is materially lower than the US\$ 8BN that regulatory compliance upgrades have cost the Wholesale Banking industry to date. However, the Wealth Management industry is far behind Wholesale Banking in terms of implementation progress, having not yet absorbed the bulk of the costs. This is most prevalent in Europe for now, but we expect this to become a global issue in short order with the cost of doing business increasing across geographies.

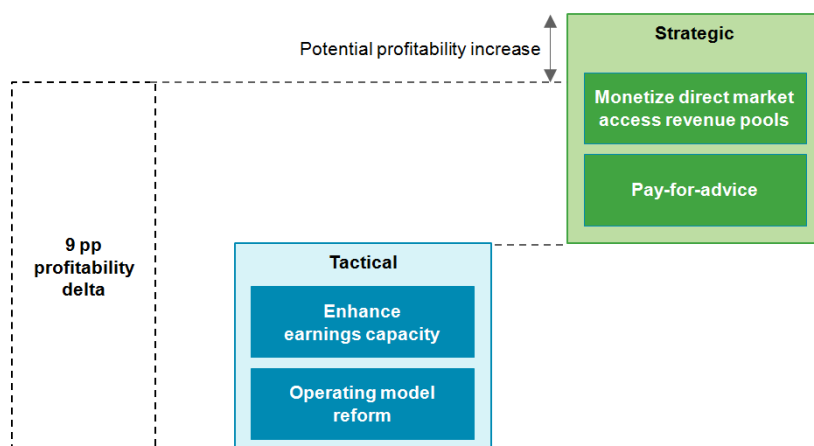
Greater transparency requirements are forcing Wealth Managers to upgrade their reporting systems and increase the standard and frequency of KYC / AML processes. In Europe, the Fourth Money Laundering Directive obliges Wealth Managers to improve due diligence of both named and beneficial owners, while in APAC Singapore has issued revised regulations on AML and counter-terrorism financing based on recommendations from the Financial Action Task Force (FATF). Given the current legacy infrastructure in use across much of the industry, Wealth Managers will be forced to invest heavily in systems standardization and automation to ensure compliance with these new regulations. In particular all requirements that are cross-border, such as tax reporting, will drive operating model complexity and add further costs.

Regulations focused on greater accountability will require Wealth Managers to invest heavily in tools and controls to ensure client and product suitability. The US DOL's fiduciary responsibility ruling has substantially increased the compliance burden when selling investment products and providing advice to clients. Going forward, advisors and RMs will need enhanced tools and training to better measure client risk appetite, where sophistication levels vary widely across managers. In our HNW client survey over a quarter of all respondents noted that their Wealth Manager hadn't used a questionnaire, interview or software to gauge their risk appetite. Another 43% had only filled out a questionnaire. Going forward regulators will scrutinize these assessment processes much more thoroughly. Those Wealth Managers that fail to implement sufficiently robust and discerning tools to profile their clients will be at higher risk of being penalized for mis-selling.

2. Bridging the profitability gap

Addressing the profitability gap will not be solved by entirely new business models but by exploring a host of tactical and strategic levers. The industry will need to look for new sources of value creation while addressing the inefficiencies in the current operating model.

Figure 26: Types of initiatives to close profitability gap



Source: Oliver Wyman analysis

2.1. Tactical levers

2.1.1. Enhance earnings capacity

We see three main tactical levers that Wealth Managers need to pull to retain and effectively increase earnings capacity: renewed focus on client acquisition and attrition management, access to Alternatives, and alignment of regional footprint with growth hubs / Offshore 2.0 offerings.

1. Attrition management & strategic sourcing

The industry has largely neglected the 'hard' task of acquiring new clients in recent years. RMs have been able to hit revenue targets by extending loan balances to existing customers, a far easier task than client acquisition. However, this strategy may not be sustainable going forward, especially if Wealth Managers' lending appetite does not grow in line with growth targets. In response to increasing regulatory and compliance pressures, we also see a trend whereby more of senior management's time and resources are spent on administrative functions, with a corresponding reduction in time spent training junior RMs how to acquire new clients.

Wealth Managers need to better incentivize new client acquisition, and ensure internal teams and divisions are aligned in this endeavour. In most organizations today, RMs are not incentivized to focus on prospecting new clients vs. serving their existing clients. Wealth Managers need to change this, articulating a clear view on the primacy of new accounts and rewarding those RMs that onboard new clients successfully through compensation structures or additional support. As re-calibrating the incentives of existing RMs will likely prove challenging, Wealth Managers should also look to hire new profiles externally. Firms will need to align this new model across divisions to achieve optimal results, ensuring that efforts and incentive structures within the Wealth Management division are complemented across other bank units, not undermined.

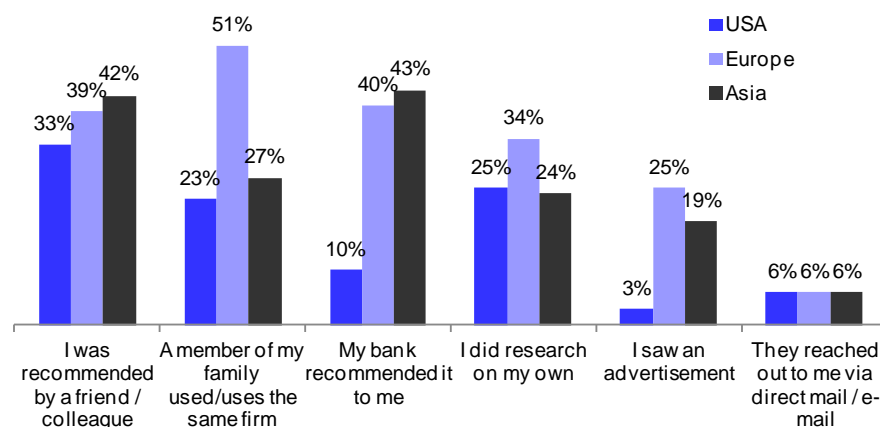
Wealth Managers are currently failing to leverage the full suite of client acquisition channels. Bank-internal cross-sell is still way under-utilized as a feeder mechanism. Wealth Management units need to increase their engagement with their Retail and Commercial Banking counterparts and overcome silos that traditionally have prevented effective cross-sell of investment advice. This is particularly acute in the US where the typical bank has an advisory relationship with less than 10% of its customers⁷. Firms in Asia and Europe fare better but even they have a significant untapped opportunity in their banking customer base. The key barrier here is largely organizational which prevents the development of an effective operating model. In its simplest form, staff in the Retail or Commercial Bank would be incented to identify and refer prospects to the Wealth Manager. The executives running the business units would have associated goals and incentives as well. In reality, many banks still have units that compete with each other for the same customers. We find that institutions where this works well use a combination of “carrots and sticks” to incent referrals. As an example, some leading banks incent Retail advisors for upward referrals to the Wealth Management unit and provide client development targets to increase referral flow. At the same time we note that it is often more complex to define similar rules for Commercial Bank to Wealth Management referrals as bank internal MIS does not always allow effective identification of links between business relationships and owners served across the bank. Creating greater data transparency is often the first step to make this work.

In the US, we see a growing opportunity for Wealth Managers to use Retail lending products as a strategic anchor to grow AuM. We have observed a few bank-affiliated Wealth Managers offer discounted mortgage lending as an anchor to attract new client assets. However, to date many incumbents have been reluctant to pursue this strategy for two reasons. First, wirehouse advisors typically shy away from mortgages. Second, banks have been using mortgage-led strategies to attract deposits, but their Wealth Management divisions are often siloed and therefore don't see incremental assets on the back of this.

Wealth Managers need to solicit investors when they are 'in the market' for financial advice. According to our HNW survey, globally 25-35% of investors do their own research to find their primary Wealth Manager. Compare this to the 6% that were solicited by Wealth Managers directly – four times as many investors were in the market for advice but not solicited, translating into a major untapped opportunity for Wealth Managers.

⁷ Excluding banks which own wirehouses. Source: Oliver Wyman US Wealth Survey

Figure 27: Sources of finding primary WM by region - Oliver Wyman HNW client survey 2016



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

This is not an easy problem to solve since financial advice is not an impulse purchase and investors rarely switch their existing relationships. However, our research shows that there are occasions when investors are looking for advice, largely centred on life events such as marriage, divorce and moving. Wealth Managers need to identify investors at these times and reach out with the right message. For example, consider a HNW investor who is moving. She will put her home up for sale which is information that can be picked up through available data sources (e.g. Real Estate listing services). She is also likely looking for her next house and is unlikely to be able to buy it while her existing house is on the market. A Wealth Manager can approach her with an offer that combines credit and liquidity – offer her a bridge loan backed by her financial assets which can help serve as the down-payment for the new house. These are the kinds of tactics that Wealth Managers will need to institutionalize and build a sourcing engine around.

However, in a slowing AuM growth environment attrition management will be equally important as acquiring new clients. While a proportion of asset outflows can be attributed to Wealth Managers actively exiting less profitable or undesirable client relationships, managing voluntary attrition is key. The reasons behind outflows are manifold, ranging from client dissatisfaction with price, performance or Relationship Managers failing to adequately address life events such as inter-generational wealth transfers.

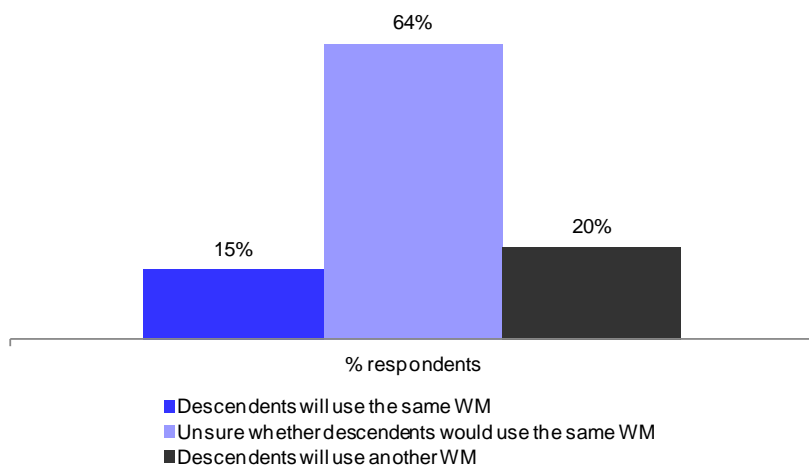
We see inter-generational wealth transfers as one of the main attrition challenges the industry needs to tackle. When managed correctly, market-leading firms have translated such events into an increase in share of wallet of up to 15%. Yet despite the importance Wealth Managers ascribe to this issue, most have done little thus far to ensure AuM pass seamlessly from one generation to the next. When surveyed, almost two-thirds of a sample of HNW clients over the age of 55⁸ indicated they were unsure whether their heirs would use the same Wealth Manager, and a further 20% said that their heirs

⁸ HNW survey respondents from North America & Asia. There were insufficient responses from European HNW individuals on this question for reliable conclusions to be drawn

were likely to change firms. There are significant regional differences here though. An investor in Europe is more likely to use her parents' Wealth Manager than her peer in Asia than her peer in the US. Yet the level of uncertainty across generations suggests that Wealth Managers have not yet found a solution to the issue at hand and relationship continuity is far from guaranteed.

Most Wealth Managers see inter-generational wealth transfer as an asset retention play. This constitutes a significant problem, since the task is then passed on to the exact Relationship Manager whose client is going to transfer assets to the next generation.

Figure 28: Global Wealth Manager inheritance retention - Oliver Wyman HNW client survey 2016 (Question: Will your current primary Wealth Manager be responsible for managing wealth after it passes on to your descendants?)



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

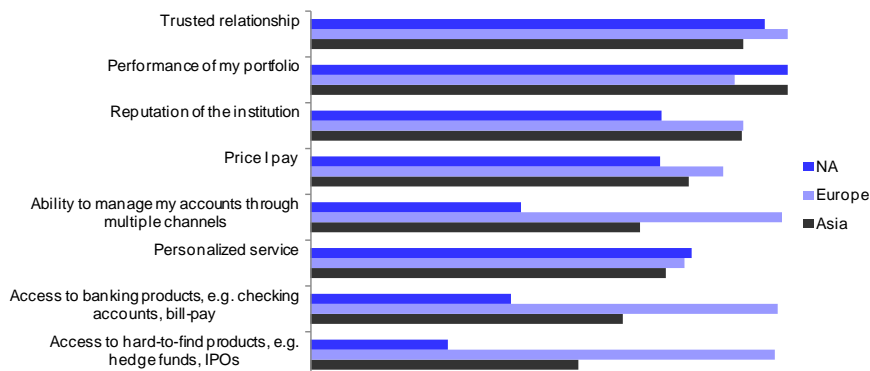
Wealth Managers need to treat the descendants as prospects – albeit qualified ones – and not existing customers. The responsibility to acquire them is hence an institutional responsibility, involving determining the right team to serve the client and the most appropriate service model. Some firms have already rolled out financial planning programs that engage expected wealth recipients long before the handover takes place. Given younger generations favour digital interactions across all geographies, Wealth Managers must ensure their Relationship Managers have the right training and tools to effectively engage them in wealth transfer discussions.

Wealth Managers must find ways to productively engage the bequeather's Relationship Manager who has likely delivered exceptional service and built trust with the family and find ways of compensating them for transitioning the relationship to a new Relationship Manager. This is often at odds with how overall compensation for Relationship Managers works, which is why even the leading Wealth Managers struggle to get this right. Increasing team shares in compensation is one way of solving for the issue as legacy Relationship Managers can be allocated greater team shares for successfully transitioned relationships.

Another secret to delivering best in class attrition management is to get the soft factors right.

As our HNW client survey reveals, clients globally value intangible factors almost as highly as performance and pricing. A trusted relationship and firm reputation are among the most important elements for clients across geographies.

Figure 29: Relative value of different Wealth Manager attributes for HNW investors - Oliver Wyman HNW client survey 2016



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

The burden of delivering the soft factors lies predominantly in the hands of Relationship Managers. Hence winning in delivering these soft factors will require training Relationship Managers beyond product sales and providing them with a different set of tools. Wealth Managers can learn a lot from other industries in this regard. For example the hospitality and aviation sectors have developed a range of client engagement tools to drive loyalty and positive brand perception that Wealth Managers need to adapt for their own purposes.

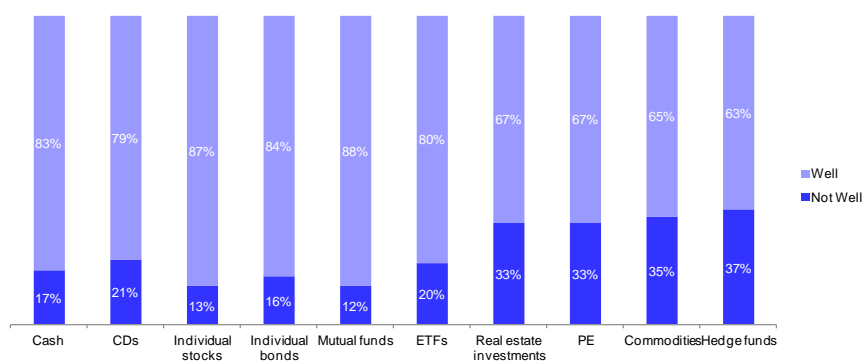
2. Access to Alternatives

Wealth Managers need to better align their product offering with client product demand. Our interviews with Wealth Managers reveal that in particular upper HNW and UHNW clients are increasingly looking for “hard to find” or “hard to access” assets rather than core Equities and Fixed Income based exposure. These ‘Alternative’ asset classes include Real assets (including Real Estate), Private Equity, Hedge Funds, and to a lesser extend Commodities and Structured Products. Our survey of HNW individuals also revealed client appetite for Alternative investments, especially in Europe and APAC. Wealth Managers must therefore increase access to, and penetration of Alternatives products.

Alternatives come with the highest chance of delivering alpha, and have 5-8x the revenue potential of ‘core’ products. Alternatives will have to play an important role in re-aligning value-creation by Wealth Managers with client expectations given their alpha generation capacity and relative scarcity of beta products in the space.

Alternatives currently make up only ~6% of clients' portfolio allocations globally; the prospect of increasing Alternatives penetration varies across regions. Clients in Europe already place significant value on these 'hard-to-access' products. HNW clients in North America indicate that they are not overly interested in Alternatives at present, though the proportion of funds invested in Alternatives is similar to other geographies. Part of the explanation for this apparent disconnect is that Relationship Managers who grew up in an 'Equities culture' struggle to explain the value proposition and risks associated with these more esoteric products. In order to fully monetize this opportunity, Wealth Managers need to up-skill Relationship Managers to properly position Alternatives as part of the offering.

Figure 30: Quality of Wealth Manager risk explanation by product - Oliver Wyman HNW client survey 2016



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

Despite currently low levels of penetration and a keen client interest in Europe, AIFMD is likely to make expansion of Alternatives mandates extremely difficult. In order to evidence that these more complex products are only sold to qualified investors, Wealth Managers and Alternatives providers alike will need to maintain end-to-end audit trails and fulfil heightened KYC standards increasing costs significantly. As a result, the current product range available in Europe may start to dwindle as large product manufacturers may focus their resources on other geographies. However, those Wealth Managers that are able to overcome these regulatory hurdles will differentiate themselves and be able to monetize an increasingly under-served client need.

3. Regional footprint optimization & Offshore 2.0 offerings

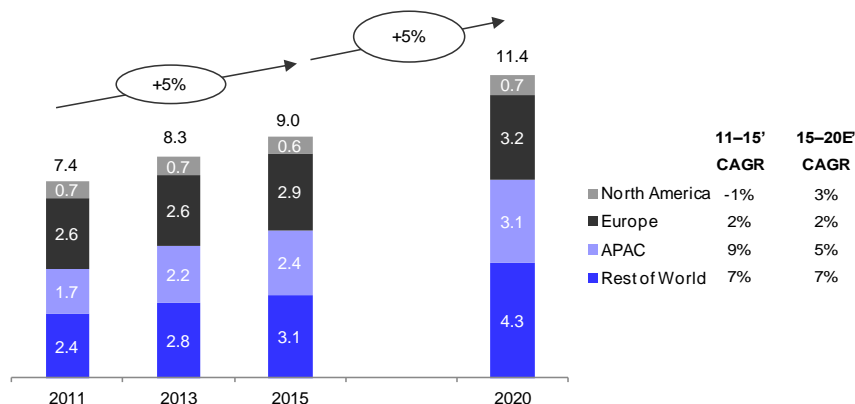
Acquiring Net New Money will require Wealth Managers to further align their regional footprint with Emerging Markets growth markets and to deploy a targeted offshore strategy.

In the aftermath of large tax evasion scandals and subsequent settlements post financial crisis, many firms scaled back their offshore operations. Offshore locations and booking centres were closed, and clients from various domiciles exited. The resulting landscape is less crowded.

We see an attractive offshore business opportunity for Wealth Managers to service Emerging Market ex-Asia wealth pools, expected to grow by 7% p.a. from 2015-2020. In the Middle East, Africa and to some extent LatAm, clients keep a material portion of their wealth offshore. For those firms who have remained in the game and cleaned up their offshore activities and legal /

compliance setups, there is a large and growing pool of HNW wealth in Emerging Markets that forms the basis for a legitimate offshore business. From 2011-2015 offshore assets emanating from EM ex Asia countries grew at 7% p.a. to reach US\$ ~3.1 TN or 37% of total offshore assets in that year. We see macro-economic and political instability as a continued driver for high growth over the next 5 years, despite regularisation initiatives coming into effect in some jurisdictions which may translate into outflows for individual countries. In South Africa, for example, the extreme volatility of the Rand in 2015 led to record outflows to offshore accounts.

Figure 31: Global HNW wealth booked offshore by source - US\$ TN



Source: Oliver Wyman Wealth Management model

Offshore clean-up has often led to overly simplified product shelves, providing a clear opportunity for Wealth Managers to differentiate vs. competitors. Wealth Managers will need to revisit the offshore product shelf to better align their offer with client needs. Outside the top 3 Wealth Managers in this space, offshore offerings are often rudimentary and fail to acknowledge client offshore product needs. Product needs are largely centred around hard currency investment products, FX and mortgages/structured lending.

While offshore strategies will be key to capturing Emerging Markets growth in general, in Asia (ex Japan) more of the growth will be onshore, and offshore markets here are more crowded. For Asia (ex Japan) we observe that the traditional off-shore model used by global Wealth Managers, with booking centres in Singapore and Hong Kong, has its limits, given it provides access to less than 10% of expected Net New Money growth. Moreover, Asia (ex Japan) offshore centres are getting increasingly crowded with ~70% of AuM owned by the top 10 players, leaving a long tail of aspirants fighting for the rest. Consolidation and exits are inevitable as there are insufficient assets in the market for every new entrant to achieve the scale necessary to survive. We see a minimum scale threshold of around US\$ ~30BN to run an economically sustainable business, up from US\$ 10-15BN 10 years ago; several Wealth Management firms that have been acquired in recent years did not reach these levels.

In the larger Asia (ex Japan) markets, leading local firms are also building out their own regional networks and will increasingly challenge mature market players in the major offshore centres for Asia (ex Japan) sourced wealth.

In Asia (ex. Japan) on-shore markets, local universal bank-tied Wealth Managers are emerging as new competitors while the more progressive local brokers are transforming themselves into more well-rounded Wealth Managers. Local policy makers are keen to promote this development to keep more domestic wealth “at home”. Along with steps towards automatic transfer of information (e.g. between Singapore and Indonesia) and growing confidence in the stability of local banking sectors, we see Asia (ex Japan) onshore wealth as one of the fastest growing wealth segments worldwide.

Global players have struggled to gain market share with on-shore HNW individuals in some large markets such as China. The current market share of international Wealth Managers in on-shore China is less than 3% for example, and at-scale profitability is some distance away. We estimate that foreign players in Asia (ex Japan) have access to only ~30% of HNW wealth. Emerging HNW wealth in many Asia (ex Japan) countries has been less willing to pay for full Wealth Management services, preferring brokerage-style offerings. Clients are also more familiar and comfortable with domestic Wealth Managers who have local product and regulatory expertise. If global players are to win more of this wallet, they will need to better differentiate their offerings from domestic competitors, while still catering to local client behaviour and taste.

RM comp and infrastructure build-out continue to ramp up costs for global Wealth Managers in Asia (ex Japan). Upfront infrastructure costs can be prohibitive for new entrants, and competition for experienced talent is intense. Cost Income ratios for global players in Asia (ex Japan) are more than 20%-points higher than the Wealth Management arms of local universal banks due to higher client acquisition costs and lack of infrastructure scale. The need to build out control infrastructure to handle the nuances of multiple local regulations further adds to these costs.

Global Wealth Managers are looking to differentiate by tailoring product offerings to niche client segments like UHNW and younger ‘digital’ generations. Specialist platforms for UHNW entrepreneurs are emerging which provide structured financing and primary market/Investment Banking products. Focusing on another client segment, highly digital platforms are being created to target the newly rich millennial segments in certain countries. Transforming the traditional Wealth Management model into an international transaction bank structure is another option, though one only available to a select few global banks. One final option is to instead partner with a local player, forming an on-offshore joint venture that combines the best of local expertise with access to segregated global investment products and offshore booking capabilities.

2.1.2. Lean operations

To handle the cost challenge, Wealth Managers will need to redesign the ‘core’ HNW service model (client segment of US\$ 1-5MM in investable assets), realise control infrastructure efficiencies and digitize parts of the value chain, particularly in the back office. We see potential for leaders to reduce CIR by 10%+ and further flexibilize costs by another 20%-points.

1. Redesign core HNW service model

Redesigning the core HNW servicing model is likely one of the most significant efficiency levers for most Wealth Managers. This is a particularly challenging problem to solve as core HNW clients represent a significant asset pool and care deeply about personalized service and hence demand a high touch and costly coverage model. At the same time their comparatively low asset levels limit top-line capacity for the providers, especially in brokerage accounts with low turnover in 'risk off' environments. Core HNW clients are on average 8-10%-points less profitable than US\$ 10MM+ clients, though this number is significantly higher for many Wealth Managers. However, increasing regulatory requirements, which tend to increase costs equally for all clients, are likely to increase the current gap rather than reduce it.

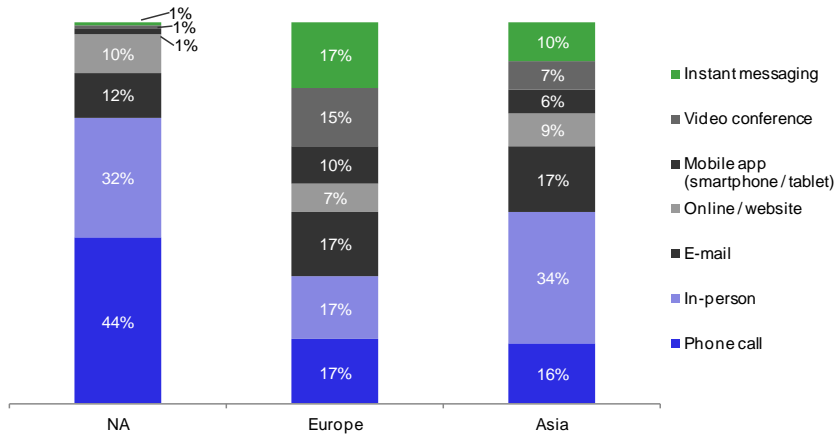
There are different ways to solve for this problem. One option is to stop serving these clients altogether and focus Relationship Manager capacity on the largest and most profitable clients. Some Wealth Managers in particular in the US have already implemented strategies to this effect, by increasing the minimum asset levels required for a Wealth Management relationship. Similar trends are observed in Asia.

There is a second option which involves identifying the 'valuable' core HNW relationships. There are significant profitability skews within the core HNW segment, driven both by revenue (e.g. product ownership) and cost drivers (e.g. frequency of in-person interactions). Many Wealth Managers do not have the analytics to determine customer-level profitability and this is a key capability gap to be plugged. Based on this, Wealth Managers can identify high-profit core HNW clients for whom the current service model is defensible.

A third option is to reduce service levels and hence Relationship Manager time spent on these clients. In this option "non-valuable" core HNW relationships are migrated to a cheaper Relationship Manager channel with a more standardized approach and a limited product offering. In the US, several universal bank-affiliated Wealth Managers have built lower-touch service platforms for these clients, bridging the mass affluent and core HNW wealth buckets. In these models, clients typically have access to both a call centre and advisors who are situated in bank branches.

Digital channels offer a complementary mechanism to increase Relationship Manager capacity; however both regional and client-level differences exist. As results from our HNW survey show, at present, physical interactions (in-person and phone) still dominate client interactions in North America and Asia, but digital interactions (instant messaging, video conference, smartphones) are gaining popularity.

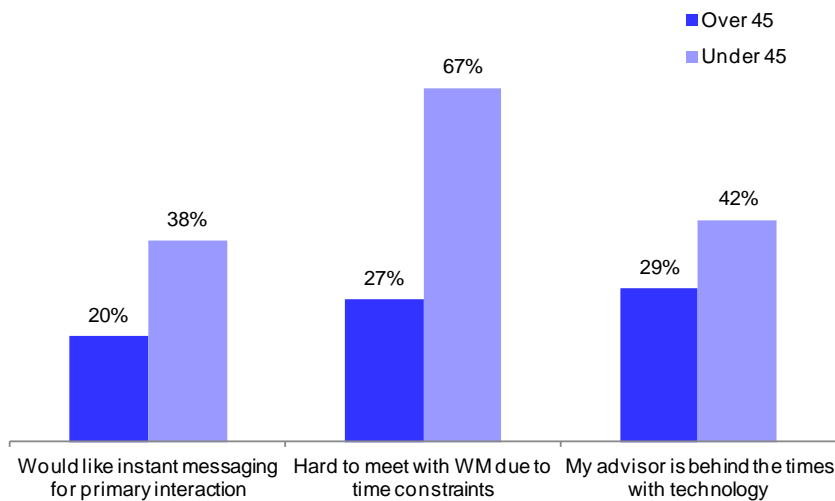
Figure 32: Distribution of WM interactions by channel - Oliver Wyman HNW client survey 2016



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

Some clients naturally have greater propensity to adapt digital channels than others. For example, younger clients in North America are more than twice as likely to believe that they are hard-pressed for time to meet their advisor, hence show a stronger preference for wanting to use instant messaging as their primary method of interaction. They also believe that their Wealth Manager is behind the times when it comes to technology, which is also an expression of dissatisfaction with the degree of digital access offered in today's market.

Figure 33: North America - Percentage of respondents strongly agreeing with statements, by age - Oliver Wyman HNW client survey 2016



Source: Oliver Wyman HNW client survey 2016. Countries covered in survey: Germany, Hong Kong, Singapore, UK, USA

2. Optimize risk & compliance infrastructure

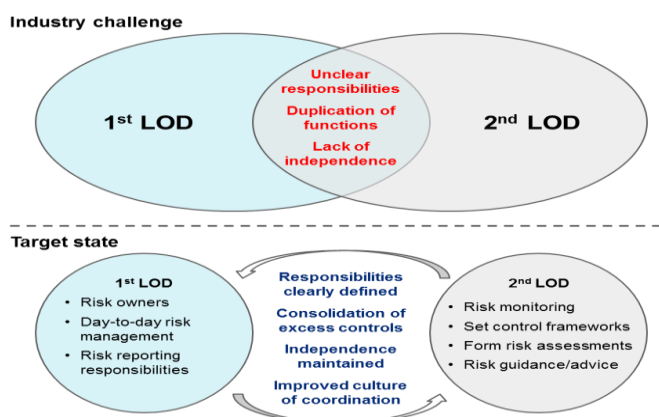
As a second efficiency driver Wealth Managers need to design control infrastructures with a strict focus on efficiency and effectiveness. In response to the surge in regulation since the global financial crisis, many Wealth Managers have started to invest in additional compliance and risk resources and infrastructure, but with very little eye on cost-efficiency. Controls at many larger firms have already ballooned as a result. At the same time, as a result of these often poorly coordinated ramp-up efforts in control structures, we observe overlapping responsibilities and duplicate functions between the 3 Lines of Defence. Risk and control focused staff across the 1st and 2nd lines often overlap by up to 25% at some institutions. This has already resulted in a material increase in costs and significant issues on both efficiency and effectiveness in the setup.

Risk appetite definition needs to become a more integral part of managing businesses going forward.

Eliminating controls that add little value or overlap with others, and tightening the entire structure to eliminate control-related risks is moving to the top of management’s agenda. An excessive bottom-up ‘reports’ culture is also absorbing significant resources at many of our clients.

Management will need to make tough decisions on the trade-offs between control effectiveness and acceptable business risks. This will require a more explicit articulation of risk appetite across all financial and non-financial risks, including quantifiable risk metrics and limits that are actionable on the front line.

Figure 34: Risk management 3 Line of Defence & control infrastructure reform



Source: Oliver Wyman Analysis

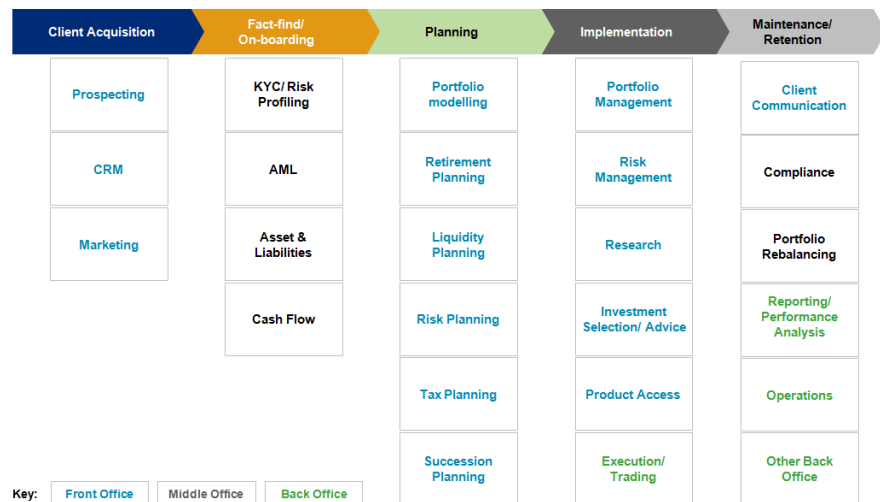
To achieve optimal cost reductions, improve internal cross-sell and maximise the impact of digital, leaders will need to leverage Group level initiatives, enforcing a higher level of infrastructure and resource sharing. For example, any pre-existing automation of KYC or AML processes within the Investment Bank could be leveraged within Wealth Management units. Ideally any infrastructure initiatives would be designed up-front with use cases for all business units in mind, saving costs and building synergies. Similarly, incentivization of internal referrals needs to be rolled out across all business lines, such that referrals are not one-sided but rather result from complementary push-pull relationships between units.

3. Embrace Digital

In contrast to widely held views, we think the bigger economic impact will not be at the front-end (robo) but at the back end.

Dissecting the value chain into components that offer digitization opportunities is the starting point for Wealth Managers. We see significant efficiency potential for digital solutions in particular in the middle and back office.

Figure 35: Wealth Management value chain components



Source: Oliver Wyman Analysis

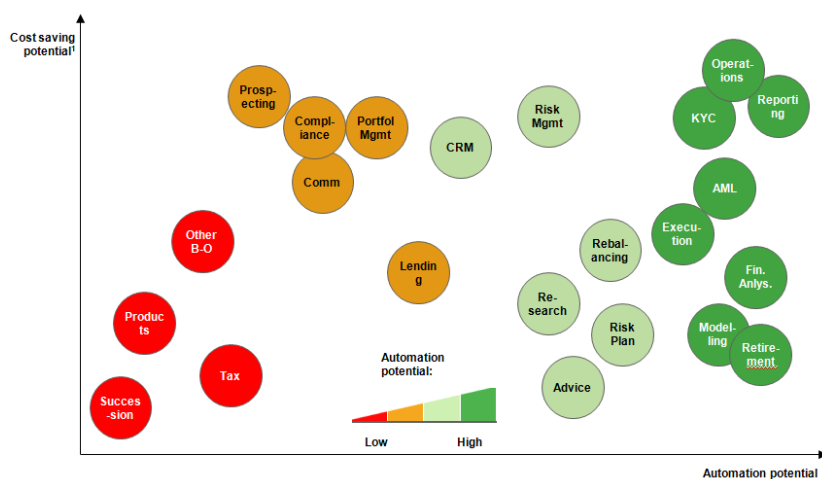
Digital approaches across the value chain offer a new toolkit for making business processes more efficient and effective. Significant gains can be made by ensuring the right people have the right data at the right time, by having information flow seamlessly through all the participants in a process (within and outside the firm), and by leveraging rules-management and artificial intelligence technologies to allow automated decision-making. The outcome can be a far better experience for customers, lower costs, and better decisions. Some Wealth Managers have already begun investing in digital-age tools to this effect. For example, many paper-based processes – such as account opening – can be made more efficient by scanning and encoding, which results in cost reduction. However, passing on the data included in the account opening forms to lending systems can be used to pre-populate the investor’s margin lending application and also help the underwriter make their decision. This shortens the time to decision making which both reduces costs and increases client satisfaction. Equivalent efficiencies can be realized across KYC / AML, client reporting and efficiently adjusting pricing grids.

Digitization is also a key driver of risk reduction. As processes get digitized, it increases the degree of standardization which in turn should reduce operational risk. As a result, better tools can be created to measure the client’s risk appetite and product suitability. As the responses to our HNW survey show, in the current market only 25% of clients reported that their Wealth Manager uses a software solution to gauge their risk appetite. For the remainder risk appetite is still measured through an “old-fashioned” interview and / or questionnaire approach. The use of artificial intelligence will also be

increasingly effective in risk management, helping to better monitor Relationship Manager behaviour and allowing earlier detection of client risk appetite evolution.

Digitization and automation often go hand in hand. Automation is still a key driver of efficiencies, leveraging Business Process Reengineering (BPR) strategies and lean approaches. The figure below shows the automation potential of key processes: middle and back office functions are typically much more suitable for automation, whereas front office tasks such as portfolio management, product build, and wealth transfers require more hands-on approaches. The greatest savings opportunities are also in the middle and back office, where processes like AML and KYC are currently burdensome and often require time-consuming involvement of front office staff. Managers need to overlay this with the ability and need to digitize to assess the opportunity space.

Figure 36: Cost savings vs. automation potential by function



Source: Oliver Wyman analysis. 1. Cost savings as a potential of current total costs

2.2. Strategic levers

Transforming traditionally non-monetized direct investments into revenue-generating propositions through a new platform model and implementing “Pay for advice” models are the most relevant strategic options to tackle the shrinking wallet of traditional Wealth Management services.

2.2.1. Monetize direct investment appetite

HNW/UHNW wealth direct investments are one of the fastest growing but still largely untapped opportunities for Wealth Managers. The proportion of HNW/UHNW wealth that Wealth Managers currently have access to varies materially across regions, from 70-80% in Europe and North America to only 20-30% in Asia (ex Japan). In Europe and North America this figure is likely to grow as clients increasingly look for assets with a chance of achieving investors’ yield expectations. While the industry has had limited success in monetizing this revenue potential to date, many of the necessary tools and

expertise already exist in house, making this a viable and attractive opportunity. Particularly in Europe, we expect to see an accelerating trend of largely UHNW clients looking to grow their direct investments at the expense of traditionally managed portfolios.

Wealth Managers that can successfully build a direct private market access platform will be best positioned to tackle this shift in wealth pools. A large percentage of HNW wealth is at present invested directly in private businesses and non-primary residence Real Estate. As part of their current business models Wealth Managers typically have a very limited product shelf for addressing this client appetite. The only banking products that come close to serving these needs at present are distributed shares in Venture Capital funds, Private Equity funds or pre-IPO share allocations. As these examples already show, Wealth Management platforms are not yet suited to provide direct private market access. Winning in this space will require a dramatically redesigned platform model.

The key to success will be to create an open platform that can on-board a host of specialized third party providers providing deal flow.

Direct market access platforms need to be open to accommodate a host of specialized third party providers who can provide flow in a broad variety of private market deals. Specific opportunities to target include growth-stage equity and debt financing, Real Estate development or rejuvenation projects. As an example, non-listed boutique Real Estate developers or angel investor networks could be platform targets. In addition to these niche players, third party service providers that serve the broader market could be on-boarded as well to create an ecosystem that provides end-to-end solutions out of one hand. An example for this would be specialized law firms, accountants or tax consultants.

We see three distinct but not necessarily mutually exclusive revenue models to monetize private market platforms, all of which require moving away from the 'obsessive' AuM mind-set. The real question for Wealth Managers who embrace this platform model is what role they will play and how they will get compensated for it. We see three options for this:

- **Brokerage model:** Wealth Managers to charge directly for brokering deals via their platform in the form of deal-based commissions either as fixed fees or by deal type and size.
- **Advice based model:** Wealth Managers to charge for deal independent advice, i.e. expanding on already prevalent portfolio construction to include private market allocations and the assessment of potential deal opportunities.
- **Ancillary services model:** Wealth Managers to act primarily as facilitators not charging for any deals directly but rather acting as a quarterback to refer deal flow to other parts of the bank. This could include deal financing or asset financing as well as building a future ECM IPO pipeline. The success of this model will hinge on the broader bank's ability to compensate the Wealth Manager for this role.

2.2.2. Establish closed-network investment fora

Wealth Managers can also use the 'platform' model to create closed-network investment fora for their best clients, increasing stickiness and differentiating their offering. Over the past decade a number of private clubs have been established as fora for HNW and UHNW individuals to exchange investment ideas. Given the importance that clients ascribe to 'intangible' value-added, hosting such fora could go a long way to drive client satisfaction. In addition to improving client stickiness, such fora could also serve as a genuine differentiator for Wealth Managers in a market where industry fees and product shelves become more and more standardized. Moreover, the typical members of these clubs are higher tier HNW or UHNW individuals, the exact client segments Wealth Managers compete most heavily for.

Charging for these closed-network fora will be challenging but Wealth Managers can get preferential access to earnings opportunities by having a seat at the table. The purpose of such closed-network fora is for HNW individuals to exchange advice and investment ideas, many of which may require banking services at the back end. Joint investments to create a new company, selling parts of privately held companies and Real Estate investments are all common deals entered on the back of such meetings, each of which could be supported by existing banking services. An additional opportunity for Wealth Managers hosting such fora lies in the opportunity to spot new product ideas ahead of competition. HNW individuals attending these meetings are often highly successful in a broad range of careers raising investment ideas traditionally not often thought of by Wealth Managers on their own. Having a seat at the table may hence translate into an innovation incubator for new product launches. Wealth Managers will need to protect against disintermediation by firmly establishing themselves as the facilitator.

2.2.3. Full-service philanthropy offerings

Wealth Managers should expand their existing philanthropy offering into full charity operations support, capitalizing on the growing trend of professionalizing charitable giving. As an example, the HNW charity market in the US represents a new asset pool of donations of > \$US 300BN p.a. and has seen significant growth since 2011⁹. The average HNW individual gives ~\$US 70k annually, while UHNW philanthropists are estimated to donate US\$ ~25MM over the course of their lifetime. Yet despite the material size of the market, Wealth Managers have so far largely failed to fully monetize this asset pool. We see two areas for Wealth Managers to tap into this opportunity: advising HNW clients with charity selection and helping the charities themselves to professionalize. The former is already part of some Wealth Managers offering whereas the latter is so far largely untapped.

Wealth Managers can help charities to professionalize and build a charity platform offering on the back of existing trust, family office and investment capabilities. Charity organisations often display great inefficiencies, operating at higher Cost Income ratios than their for-profit peers. At the same time they also often lack transparent and up to date investment processes. In recent years the industry has started to embark on a transformation journey, led among others by the Gates Foundation and Bloomberg Philanthropies, moving

⁹ US Trust Study of High Net Worth Philanthropy, 2014

towards professionalizing charitable giving and providing a clear set of success KPIs centred on cost to invest and investment impact. This introduces clear challenges for all but the largest and most innovative charities. We believe Wealth Managers are well suited to help charities master these transformational challenges. Existing trust platforms, family office platforms and core competencies in investments are all building blocks that can be deployed to unlock this opportunity. Winning Wealth Managers in this space could build end-to-end charity platforms, providing operations support, investment process support, as well as day-to-day investment management services for capital not yet deployed.



Appendix 1

Important Disclosures

Additional information available upon request

*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors . Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at <http://gm.db.com/ger/disclosure/DisclosureDirectory.eqs>

Analyst Certification

The views expressed in this report accurately reflect the personal views of the undersigned lead analyst about the subject issuers and the securities of those issuers. In addition, the undersigned lead analyst has not and will not receive any compensation for providing a specific recommendation or view in this report. Kinner Lakhani

Equity rating key

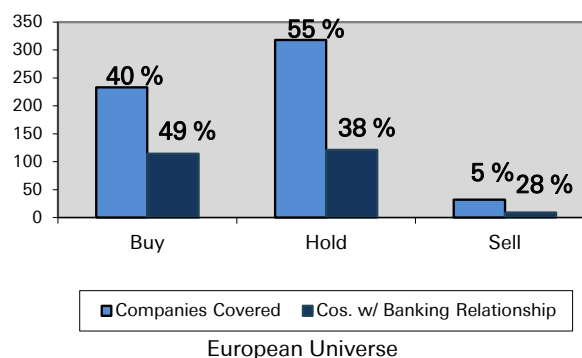
Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus pro-jected dividend yield) , we recommend that investors buy the stock.

Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock

Hold: We take a neutral view on the stock 12-months out and, based on this time horizon, do not recommend either a Buy or Sell.

Newly issued research recommendations and target prices supersede previously published research.

Equity rating dispersion and banking relationships



Regulatory Disclosures

1.Important Additional Conflict Disclosures

Aside from within this report, important conflict disclosures can also be found at <https://gm.db.com/equities> under the "Disclosures Lookup" and "Legal" tabs. Investors are strongly encouraged to review this information before investing.

2.Short-Term Trade Ideas

Deutsche Bank equity research analysts sometimes have shorter-term trade ideas (known as SOLAR ideas) that are consistent or inconsistent with Deutsche Bank's existing longer term ratings. These trade ideas can be found at the SOLAR link at <http://gm.db.com>.



Additional Information

The information and opinions in this report were prepared by Deutsche Bank AG or one of its affiliates (collectively "Deutsche Bank"). Though the information herein is believed to be reliable and has been obtained from public sources believed to be reliable, Deutsche Bank makes no representation as to its accuracy or completeness.

If you use the services of Deutsche Bank in connection with a purchase or sale of a security that is discussed in this report, or is included or discussed in another communication (oral or written) from a Deutsche Bank analyst, Deutsche Bank may act as principal for its own account or as agent for another person.

Deutsche Bank may consider this report in deciding to trade as principal. It may also engage in transactions, for its own account or with customers, in a manner inconsistent with the views taken in this research report. Others within Deutsche Bank, including strategists, sales staff and other analysts, may take views that are inconsistent with those taken in this research report. Deutsche Bank issues a variety of research products, including fundamental analysis, equity-linked analysis, quantitative analysis and trade ideas. Recommendations contained in one type of communication may differ from recommendations contained in others, whether as a result of differing time horizons, methodologies or otherwise. Deutsche Bank and/or its affiliates may also be holding debt or equity securities of the issuers it writes on. Analysts are paid in part based on the profitability of Deutsche Bank AG and its affiliates, which includes investment banking revenues.

Opinions, estimates and projections constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of Deutsche Bank and are subject to change without notice. Deutsche Bank research analysts sometimes have shorter-term trade ideas that are consistent or inconsistent with Deutsche Bank's existing longer term ratings. These trade ideas for equities can be found at the SOLAR link at <http://gm.db.com>. A SOLAR idea represents a high conviction belief by an analyst that a stock will outperform or underperform the market and/or sector delineated over a time frame of no less than two weeks. In addition to SOLAR ideas, the analysts named in this report may have from time to time discussed with our clients, including Deutsche Bank salespersons and traders, or may discuss in this report or elsewhere, trading strategies or ideas that reference catalysts or events that may have a near-term or medium-term impact on the market price of the securities discussed in this report, which impact may be directionally counter to the analysts' current 12-month view of total return as described herein. Deutsche Bank has no obligation to update, modify or amend this report or to otherwise notify a recipient thereof if any opinion, forecast or estimate contained herein changes or subsequently becomes inaccurate. Coverage and the frequency of changes in market conditions and in both general and company specific economic prospects makes it difficult to update research at defined intervals. Updates are at the sole discretion of the coverage analyst concerned or of the Research Department Management and as such the majority of reports are published at irregular intervals. This report is provided for informational purposes only. It is not an offer or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy. Target prices are inherently imprecise and a product of the analyst's judgment. The financial instruments discussed in this report may not be suitable for all investors and investors must make their own informed investment decisions. Prices and availability of financial instruments are subject to change without notice and investment transactions can lead to losses as a result of price fluctuations and other factors. If a financial instrument is denominated in a currency other than an investor's currency, a change in exchange rates may adversely affect the investment. Past performance is not necessarily indicative of future results. Unless otherwise indicated, prices are current as of the end of the previous trading session, and are sourced from local exchanges via Reuters, Bloomberg and other vendors. Data is sourced from Deutsche Bank, subject companies, and in some cases, other parties.

The Deutsche Bank Research Department is independent of other business areas divisions of the Bank. Details regarding our organizational arrangements and information barriers we have to prevent and avoid conflicts of interest with respect to our research is available on our website under Disclaimer found on the Legal tab.

Macroeconomic fluctuations often account for most of the risks associated with exposures to instruments that promise to pay fixed or variable interest rates. For an investor who is long fixed rate instruments (thus receiving these cash flows), increases in interest rates naturally lift the discount factors applied to the expected cash flows and thus cause a



loss. The longer the maturity of a certain cash flow and the higher the move in the discount factor, the higher will be the loss. Upside surprises in inflation, fiscal funding needs, and FX depreciation rates are among the most common adverse macroeconomic shocks to receivers. But counterparty exposure, issuer creditworthiness, client segmentation, regulation (including changes in assets holding limits for different types of investors), changes in tax policies, currency convertibility (which may constrain currency conversion, repatriation of profits and/or the liquidation of positions), and settlement issues related to local clearing houses are also important risk factors to be considered. The sensitivity of fixed income instruments to macroeconomic shocks may be mitigated by indexing the contracted cash flows to inflation, to FX depreciation, or to specified interest rates – these are common in emerging markets. It is important to note that the index fixings may – by construction – lag or mis-measure the actual move in the underlying variables they are intended to track. The choice of the proper fixing (or metric) is particularly important in swaps markets, where floating coupon rates (i.e., coupons indexed to a typically short-dated interest rate reference index) are exchanged for fixed coupons. It is also important to acknowledge that funding in a currency that differs from the currency in which coupons are denominated carries FX risk. Naturally, options on swaps (swaptions) also bear the risks typical to options in addition to the risks related to rates movements.

Derivative transactions involve numerous risks including, among others, market, counterparty default and illiquidity risk. The appropriateness or otherwise of these products for use by investors is dependent on the investors' own circumstances including their tax position, their regulatory environment and the nature of their other assets and liabilities, and as such, investors should take expert legal and financial advice before entering into any transaction similar to or inspired by the contents of this publication. The risk of loss in futures trading and options, foreign or domestic, can be substantial. As a result of the high degree of leverage obtainable in futures and options trading, losses may be incurred that are greater than the amount of funds initially deposited. Trading in options involves risk and is not suitable for all investors. Prior to buying or selling an option investors must review the "Characteristics and Risks of Standardized Options", at <http://www.optionsclearing.com/about/publications/character-risks.jsp>. If you are unable to access the website please contact your Deutsche Bank representative for a copy of this important document.

Participants in foreign exchange transactions may incur risks arising from several factors, including the following: (i) exchange rates can be volatile and are subject to large fluctuations; (ii) the value of currencies may be affected by numerous market factors, including world and national economic, political and regulatory events, events in equity and debt markets and changes in interest rates; and (iii) currencies may be subject to devaluation or government imposed exchange controls which could affect the value of the currency. Investors in securities such as ADRs, whose values are affected by the currency of an underlying security, effectively assume currency risk.

Unless governing law provides otherwise, all transactions should be executed through the Deutsche Bank entity in the investor's home jurisdiction.

United States: Approved and/or distributed by Deutsche Bank Securities Incorporated, a member of FINRA, NFA and SIPC. Analysts employed by non-US affiliates may not be associated persons of Deutsche Bank Securities Incorporated and therefore not subject to FINRA regulations concerning communications with subject companies, public appearances and securities held by analysts.

Germany: Approved and/or distributed by Deutsche Bank AG, a joint stock corporation with limited liability incorporated in the Federal Republic of Germany with its principal office in Frankfurt am Main. Deutsche Bank AG is authorized under German Banking Law and is subject to supervision by the European Central Bank and by BaFin, Germany's Federal Financial Supervisory Authority.

United Kingdom: Approved and/or distributed by Deutsche Bank AG acting through its London Branch at Winchester House, 1 Great Winchester Street, London EC2N 2DB. Deutsche Bank AG in the United Kingdom is authorised by the Prudential Regulation Authority and is subject to limited regulation by the Prudential Regulation Authority and Financial Conduct Authority. Details about the extent of our authorisation and regulation are available on request.

Hong Kong: Distributed by Deutsche Bank AG, Hong Kong Branch.

India: Prepared by Deutsche Equities India Pvt Ltd, which is registered by the Securities and Exchange Board of India (SEBI) as a stock broker. Research Analyst SEBI Registration Number is INH000001741. DEIPL may have received



administrative warnings from the SEBI for breaches of Indian regulations.

Japan: Approved and/or distributed by Deutsche Securities Inc.(DSI). Registration number - Registered as a financial instruments dealer by the Head of the Kanto Local Finance Bureau (Kinsho) No. 117. Member of associations: JSDA, Type II Financial Instruments Firms Association and The Financial Futures Association of Japan. Commissions and risks involved in stock transactions - for stock transactions, we charge stock commissions and consumption tax by multiplying the transaction amount by the commission rate agreed with each customer. Stock transactions can lead to losses as a result of share price fluctuations and other factors. Transactions in foreign stocks can lead to additional losses stemming from foreign exchange fluctuations. We may also charge commissions and fees for certain categories of investment advice, products and services. Recommended investment strategies, products and services carry the risk of losses to principal and other losses as a result of changes in market and/or economic trends, and/or fluctuations in market value. Before deciding on the purchase of financial products and/or services, customers should carefully read the relevant disclosures, prospectuses and other documentation. "Moody's", "Standard & Poor's", and "Fitch" mentioned in this report are not registered credit rating agencies in Japan unless Japan or "Nippon" is specifically designated in the name of the entity. Reports on Japanese listed companies not written by analysts of DSI are written by Deutsche Bank Group's analysts with the coverage companies specified by DSI. Some of the foreign securities stated on this report are not disclosed according to the Financial Instruments and Exchange Law of Japan.

Korea: Distributed by Deutsche Securities Korea Co.

South Africa: Deutsche Bank AG Johannesburg is incorporated in the Federal Republic of Germany (Branch Register Number in South Africa: 1998/003298/10).

Singapore: by Deutsche Bank AG, Singapore Branch or Deutsche Securities Asia Limited, Singapore Branch (One Raffles Quay #18-00 South Tower Singapore 048583, +65 6423 8001), which may be contacted in respect of any matters arising from, or in connection with, this report. Where this report is issued or promulgated in Singapore to a person who is not an accredited investor, expert investor or institutional investor (as defined in the applicable Singapore laws and regulations), they accept legal responsibility to such person for its contents.

Taiwan: Information on securities/investments that trade in Taiwan is for your reference only. Readers should independently evaluate investment risks and are solely responsible for their investment decisions. Deutsche Bank research may not be distributed to the Taiwan public media or quoted or used by the Taiwan public media without written consent. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation to trade in such securities/instruments. Deutsche Securities Asia Limited, Taipei Branch may not execute transactions for clients in these securities/instruments.

Qatar: Deutsche Bank AG in the Qatar Financial Centre (registered no. 00032) is regulated by the Qatar Financial Centre Regulatory Authority. Deutsche Bank AG - QFC Branch may only undertake the financial services activities that fall within the scope of its existing QFCRA license. Principal place of business in the QFC: Qatar Financial Centre, Tower, West Bay, Level 5, PO Box 14928, Doha, Qatar. This information has been distributed by Deutsche Bank AG. Related financial products or services are only available to Business Customers, as defined by the Qatar Financial Centre Regulatory Authority.

Russia: This information, interpretation and opinions submitted herein are not in the context of, and do not constitute, any appraisal or evaluation activity requiring a license in the Russian Federation.

Kingdom of Saudi Arabia: Deutsche Securities Saudi Arabia LLC Company, (registered no. 07073-37) is regulated by the Capital Market Authority. Deutsche Securities Saudi Arabia may only undertake the financial services activities that fall within the scope of its existing CMA license. Principal place of business in Saudi Arabia: King Fahad Road, Al Olaya District, P.O. Box 301809, Faisaliah Tower - 17th Floor, 11372 Riyadh, Saudi Arabia.

United Arab Emirates: Deutsche Bank AG in the Dubai International Financial Centre (registered no. 00045) is regulated by the Dubai Financial Services Authority. Deutsche Bank AG - DIFC Branch may only undertake the financial services activities that fall within the scope of its existing DFSA license. Principal place of business in the DIFC: Dubai International Financial Centre, The Gate Village, Building 5, PO Box 504902, Dubai, U.A.E. This information has been



distributed by Deutsche Bank AG. Related financial products or services are only available to Professional Clients, as defined by the Dubai Financial Services Authority.

Australia: Retail clients should obtain a copy of a Product Disclosure Statement (PDS) relating to any financial product referred to in this report and consider the PDS before making any decision about whether to acquire the product. Please refer to Australian specific research disclosures and related information at <https://australia.db.com/australia/content/research-information.html>

Australia and New Zealand: This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act and New Zealand Financial Advisors Act respectively. Additional information relative to securities, other financial products or issuers discussed in this report is available upon request. This report may not be reproduced, distributed or published without Deutsche Bank's prior written consent. Copyright © 2016 Deutsche Bank AG

Important Disclosures from Oliver Wyman

Copyright © 2016 Oliver Wyman. All rights reserved. This report may not be reproduced or redistributed, in whole or in part, without the written permission of Oliver Wyman and Oliver Wyman accepts no liability whatsoever for the actions of third parties in this respect.

This report is not a substitute for tailored professional advice on how a specific financial institution should execute its strategy. This report is not investment advice and should not be relied on for such advice or as a substitute for consultation with professional accountants, tax, legal or financial advisers. Oliver Wyman has made every effort to use reliable, up-to-date and comprehensive information and analysis, but all information is provided without warranty of any kind, express or implied. Oliver Wyman disclaims any responsibility to update the information or conclusions in this report. Oliver Wyman accepts no liability for any loss arising from any action taken or refrained from as a result of information contained in this report or any reports or sources of information referred to herein, or for any consequential, special or similar damages even if advised of the possibility of such damages.

The Oliver Wyman employees that contributed to this report are neither FCA nor FINRA registered. This report may not be sold without the written consent of Oliver Wyman.

Oliver Wyman is not authorised or regulated by the Financial Conduct Authority or the Prudential Regulatory Authority. As a consultancy firm it may have business relationships with companies mentioned in this report and as such may receive fees for executing this business. Please refer to www.oliverwyman.com for further details.

Oliver Wyman

EMEA
London W1U 8EW
United Kingdom
Tel: +44 20 7333 8333

Americas
1166 Avenue of the Americas 29th Floor
New York, NY 10036
United States
Tel: +1 212 541 8100

Asia Pacific
8 Cross Street, #24-01
048424 Singapore
Tel: +65 6510 9700



David Folkerts-Landau

Group Chief Economist and Global Head of Research

Raj Hindocha
Global Chief Operating Officer
Research

Michael Spencer
Head of APAC Research
Global Head of Economics

Steve Pollard
Head of Americas Research
Global Head of Equity Research

Anthony Klarman
Global Head of
Debt Research

Paul Reynolds
Head of EMEA
Equity Research

Dave Clark
Head of APAC
Equity Research

Pam Finelli
Global Head of
Equity Derivatives Research

Andreas Neubauer
Head of Research - Germany

Stuart Kirk
Head of Thematic Research

International locations

Deutsche Bank AG

Deutsche Bank Place
Level 16
Corner of Hunter & Phillip Streets
Sydney, NSW 2000
Australia
Tel: (61) 2 8258 1234

Deutsche Bank AG

Große Gallusstraße 10-14
60272 Frankfurt am Main
Germany
Tel: (49) 69 910 00

Deutsche Bank AG

Filiale Hongkong
International Commerce Centre,
1 Austin Road West, Kowloon,
Hong Kong
Tel: (852) 2203 8888

Deutsche Securities Inc.

2-11-1 Nagatacho
Sanno Park Tower
Chiyoda-ku, Tokyo 100-6171
Japan
Tel: (81) 3 5156 6770

Deutsche Bank AG London

1 Great Winchester Street
London EC2N 2EQ
United Kingdom
Tel: (44) 20 7545 8000

Deutsche Bank Securities Inc.

60 Wall Street
New York, NY 10005
United States of America
Tel: (1) 212 250 2500