

Investment Fund Processing in an Era of Heightened Risk Awareness, Increased Regulatory Demand, and Financial Austerity

Commissioned by Clearstream



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IMPACT POINTS

- This research is based on Aite Group interviews with 20 market participants in the investment fund services industry worldwide. Data was gathered during one-to-one interviews with participant firms conducted during Q2 and Q3 2013.
- The order placement, confirmation, fund transfer, and reconciliation processes remain particularly dominated by manual effort for the highest number of interview respondents.
- There are fewer qualified operational staff available to deal with the task of processing investment funds because firms are being forced to keep budgets static from the previous year or to decrease their cost base. Over half of firms interviewed (55%) therefore have to support increasing volumes of data without increasing FTE headcount and the rest have actually implemented a decrease in FTEs.
- Client-side reporting is the area cited by more than half of interview respondents as the function in which they are facing the highest degree of pressure to improve timeliness of processes, from batch-driven to intraday.
- AIFMD is considered to be the regulation with the highest impact on the overall funds processing universe. The bias toward European firms within the demographic of interview respondents should be noted in these results, however, as the firms operating outside Europe considered FATCA to have greater impact on their operations and those of their peers.
- Given the level of regulatory and market infrastructure change over the next few years combined with continued downward pressure on costs, it is no surprise that many interview respondents (45%) feel the way they currently process investment funds or hedge funds (5%) is not scalable.
- More than half of firms currently use an external fund-processing platform and just under a third have invested in their own internal platforms. One of the European firms that currently use an external platform notes that the operating cost difference between the direct-to-transfer-agent model versus using a fund processing platform is a reduction in transfer agency (TA) support costs of around 30%.
- The majority of interview respondents is either definitely (70%) or is considering (15%) making investments in technology to improve their capabilities for the processing of investment funds.

INTRODUCTION

The global investment funds industry, encompassing both the traditional and alternative fund spheres, is evolving rapidly. The industry has been on a critical path of change over the last decade, but this evolution has been spurred on further by the tough post-crisis financial climate, the increase in regulatory requirements for transparency, ongoing market structure change, and a heightened awareness of the importance of risk management.

The austere economic environment is causing many institutional investors to turn to alternative investment strategies such as hedge funds, which, in turn, are also coming under increased scrutiny as a result of regulations such as the Form Private Funds (Form PF) in the United States and the Alternative Investment Fund Managers Directive (AIFMD) in Europe. The changes are also extending to the retail fund world as a result of the global push to improve transparency in the funds industry via new regulations such as the Retail Distribution Review (RDR) in the United Kingdom. Transparency, accountability, trust, and cost containment are key concepts in the post-2008 landscape.

This white paper, commissioned by Clearstream, aims to ascertain the impact that these changing dynamics have had on the main four investment funds processing pillars (Figure 1). For example, it includes an exploration of how the widespread staff-cutting and cost-containment measures that have resulted from the financial downturn have put pressure on the traditionally manually intensive and inefficient middle- and back-office funds processing support functions. It also examines the anticipated impact of the deluge of incoming regulation that is driving increased transparency around fund structures, risk, and costs within the sector. It looks at the pressures facing players in the market such as fund distributors confronted with client demand to increase their range of fund offerings and bring down operational risk.

Figure 1: Four Main Investment Funds Processing Pillars

Client-facing activities	Front-office execution and order management	Middle- and back-office funds processing support	Internally focused functions
<ul style="list-style-type: none"> • Client onboarding and lifecycle support • Gathering of client documentation • Distribution of funds information • Marketing activities • Responding to investor enquiries 	<ul style="list-style-type: none"> • Order execution • Order management • Dealing activities • Commissions management • Trade compliance 	<ul style="list-style-type: none"> • Trade support, including allocation and confirmation • Fund processing • Fund valuations • Shareholder registry • Account data reconciliation • Corporate actions and proxy voting 	<ul style="list-style-type: none"> • Risk management • Liquidity, collateral, and cash management • Enterprise architecture and data management support • Regulation reporting and compliance

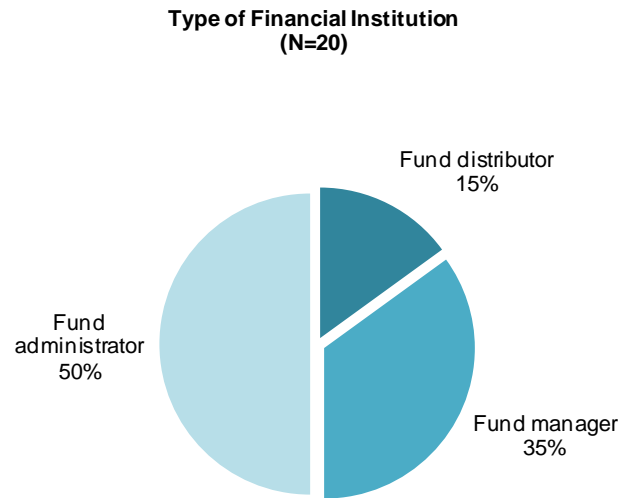
Source: Aite Group

The white paper is a follow up to a Clearstream and Deloitte study that was published in September 2007, "Cross-Border Fund Distribution in Europe," and extends the remit of the research beyond the original focus on Luxembourg and Ireland to a more global view. It seeks to highlight the benefits of greater automation of investment fund trading, settlement, and custody processes, including:

- Reduced operational risk—reduction of manual processes and removal of human error and key person risk
- Cost-rationalization benefits—full-time employee (FTE) resource reallocation (via the removal of manual processes), connectivity costs, and rationalization of technology environment
- Regulatory capital and liquidity reduction benefits in light of incoming Basel III requirements
- Regulatory compliance benefits via increased standardization and adoption of industry best practices
- Increased competitive edge—redeployment of FTEs to focus on core business, agility in support for new funds, and reduced pass-through costs

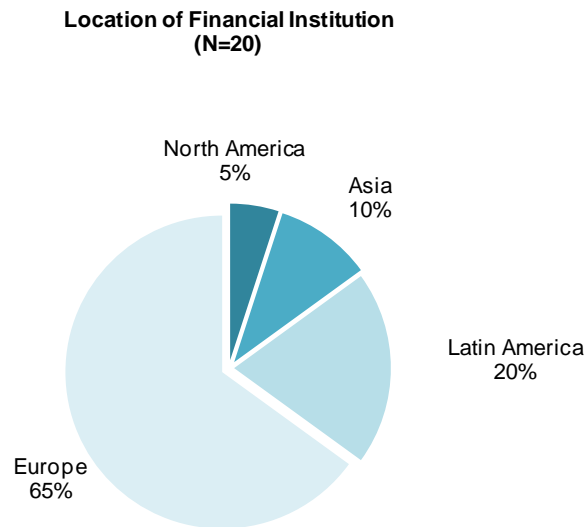
METHODOLOGY

This research is based on Aite Group interviews with 20 market participants in the investment fund services industry worldwide. Data was gathered during one-to-one interviews with participant firms conducted during Q3 2013, and data gathering from various funds industry associations such as the European Fund and Asset Management Association (EFAMA), the Investment Company Institute (ICI), and the International Securities Services Association (ISSA). Figure 2 indicates the breakdown of interview respondents by type of financial institution and reflects that the majority belong to the "fund administrator" and "fund manager" segments.

Figure 2: Interview Respondent Firms Categorized by Type of Financial Institution

Source: Aite Group interviews with 20 firms active in the funds sector, Q2 and Q3 2013

Figure 3 shows the breakdown of interview respondents by geographic location of operations, indicating the majority is based in Europe, followed by Latin America, Asia, and North America.

Figure 3: Interview Respondents Firms Categorized by Geographic Location

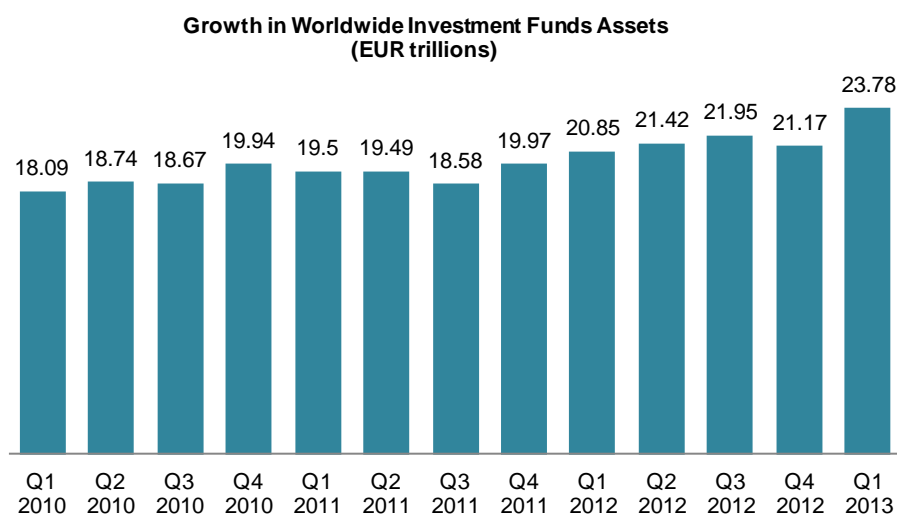
Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

SIZING THE MARKET, GLOBAL PRESSURE POINTS

The low level of straight-through processing (STP) within the investment funds industry has long been a pain point for those operating in the sector and especially for those active in the cross-border distribution of funds. Funds processes themselves are not standardized across markets and can involve a range of different market participants—for example, in some jurisdictions such as the U.K., the fund management firm will act as the principal on its own account for order execution, whereas in other markets such as Germany, this role will be performed by the depository. In Denmark, funds are traded ‘on exchange’ and settled the same way as equities. This trend permeates the full investment funds lifecycle right through to settlement, which can occur via a central securities depository (CSD) or an international CSD (ICSD) using either the delivery versus payment (DVP) model, or directly between the client custodian and the fund administrator in a sequential bilateral model.

Despite the inefficiencies in the sector and the tough economic climate generally, the investment funds market has seen a 31.5% increase in fund assets since Q1 2010 (including fund of fund assets) to EUR 23.78 trillion—an overall increase of EUR 5.96 trillion (Figure 4) between Q1 2010 to Q1 2013. The number of investment funds worldwide stood at 84,637 at the end of Q1 2013, according to EFAMA and ICI figures. In Europe, the total number of funds was 54,656 representing EUR 9.39 trillion in net assets as of the end of March 2013. The number of Undertaking for Collective Investment in Transferable Securities (UCITS) funds was 35,520, equaling EUR 6.64 trillion in net assets.

Figure 4: Size of the Worldwide Investment Funds Market



Source: EFAMA and ICI

Looking at the alternative investment fund universe, the number of hedge funds worldwide was estimated to be around 24,749 in February 2012, according to figures consolidated by the U.K.'s Imperial College. This estimate is based on the number of unique hedge funds reported by the

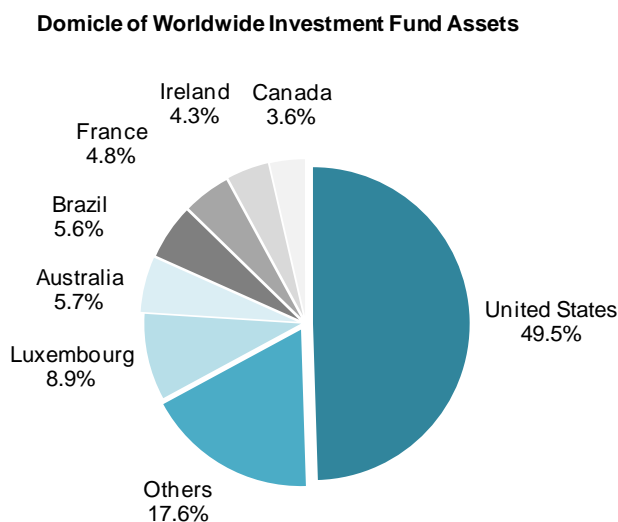
top five hedge fund data providers—Morningstar, BarclayHedge, EurekaHedge, Hedge Fund Research, and Lipper—and can be broken down roughly into 8,512 active and 16,237 inactive funds (those not providing any active data to vendors).

GLOBALIZATION OF FUNDS

An increasingly global market has further highlighted the non-standard manner in which the investment funds industry operates in terms of market best practices and conventions. Cross-border investment frequently throws a spotlight on the differences between markets and the complexity of the processing of investment funds in a cross-border context. For example, UCITS as a brand has grown far beyond the boundaries of the European market and a growing number of markets such as those in Asia and Latin America are active in investing in these funds.

Figure 5 shows the worldwide distribution of investment fund assets by domicile (including funds of funds) as at the end of March 2013. It highlights the dominance of cross-border investment funds centers like Luxembourg and Ireland, but also the growing importance of markets such as Brazil. In total, Europe makes up 27.9% of investment fund assets globally.

Figure 5: Domicile of Worldwide Investment Fund Assets as of Q1 2013



Sources: EFAMA and ICI

At a European level, Luxembourg represented the country with both the highest number of funds and the domicile with the highest value in net investment fund assets for full year 2012. This is followed by France, Germany, the U.K., and Ireland, which all had over a trillion EUR in net assets in 2012.

Table A: European Funds Industry Statistics for Full Year 2012

Country	Number of funds (% of total)	Net assets in EUR millions (% of total)	Net assets in US\$ millions
Austria	2,152 (3.9%)	151,249 (1.6%)	193,675
Belgium	1,664 (3.0%)	88,700 (0.9%)	113,580
Bulgaria	98 (0.2%)	288 (0.0%)	369
Czech Republic	114 (0.2%)	4,681 (0.0%)	5,994
Denmark	869 (1.6%)	171,981 (1.8%)	220,222
Finland	498 (0.9%)	69,098 (0.7%)	88,480
France	11,668 (21.3%)	1,524,484 (14.1%)	1,952,102
Germany	5,903 (10.8%)	1,325,050 (0.1%)	1,696,726
Greece	209 (0.4%)	6,721 (0.1%)	8,606
Hungary	523 (1.0%)	11,211 (0.1%)	14,356
Ireland	5,341 (9.8%)	1,304,318 (13.9%)	1,670,180
Italy	977 (1.8%)	194,310 (2.1%)	248,814
Luxembourg	13,525 (24.7%)	2,528,920 (26.9%)	3,238,282
Malta	564 (1.0%)	9,433 (0.1%)	12,079
Netherlands	616 (1.1%)	70,687 (0.8%)	90,515
Norway	406 (0.7%)	79,616 (0.8%)	101,948
Poland	673 (1.2%)	37,416 (0.4%)	47,912
Portugal	516 (0.9%)	24,334 (0.3%)	31,160
Romania	89 (0.2%)	3,816 (0.0%)	4,887
Slovakia	81 (0.1%)	3,950 (0.0%)	5,058
Slovenia	130(0.2%)	1,871 (0.0%)	2,396
Spain	2,425 (4.4%)	157,017 (1.7%)	201,061
Sweden	554 (1.0%)	189,162 (2.0%)	242,222
Switzerland	931 (1.7%)	352,995 (3.8%)	455,573
Turkey	408 (0.7%)	23,923 (0.3%)	30,633
United Kingdom	2,853 (5.2%)	1,025,293(10.9%)	1,312,888

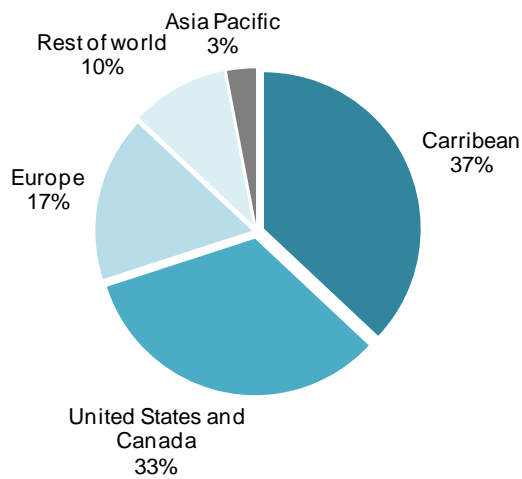
Source: EFAMA

HEDGE FUNDS

The worldwide distribution of hedge fund assets (Figure 6) highlights the continued dominance of offshore fund domiciles such as the Cayman Islands and the British Virgin Islands in the Caribbean and European offshore hubs such as Gibraltar, the Isle of Man, Jersey, Switzerland, Luxembourg, and Liechtenstein. Asia Pacific has a smaller percentage of hedge fund assets, and the majority of these are located in Hong Kong. It should be noted, however, that a large proportion of funds are located in the United States in terms of number of funds rather than value of hedge fund assets.

Figure 6: Domicile of Worldwide Hedge Fund Assets as of Q1 2012

Domicile of Worldwide Hedge Fund Assets



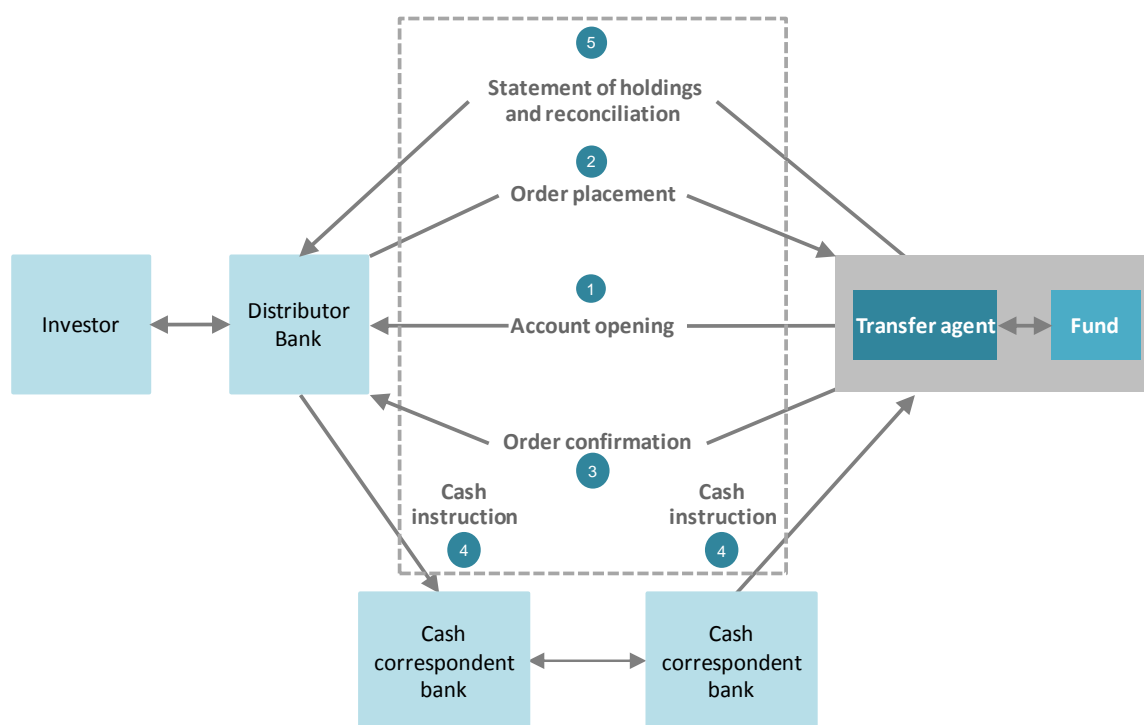
Source: Imperial College London

The global nature of the investment fund and hedge fund markets means that those engaged in trading and processing these funds must deal with cross-border complexity and a lack of a harmonized legal and operational environment.

PAIN POINTS IN THE FUNDS PROCESSING CHAIN

It is difficult to draw a precise diagram of the investment funds processing lifecycle because of the high degree of variance in process and market participant involvement across geographies—for example, order placement can be performed by different market participants such as directly by investors, by fund distributors, or via a fund platform/hub. There are also differences related to the type of fund that is being traded—registered (plain vanilla) funds, such as UCITS, versus hedge funds. Figure 7 shows a high-level view of the investment funds processing lifecycle to highlight some of the key market participants that may be involved and the various stages in the process from order initiation to settlement. The dotted line shows where a fund processing platform could sit—providing services to support the lifecycle of investment and alternative funds including order routing, settlement, reconciliation, account management, and reporting services.

Figure 7: A High-Level View of the Investment Funds Processing Lifecycle



Source: Aite Group

To some extent, there has been a perceived industrialization of fund transaction, execution, and settlement processes in the eyes of fund distributors and fund buyers. Marketing efforts by fund processing platforms to these parties have therefore featured more emphasis on value-added services in recent years (processing capabilities are considered to be part of a standard package). The perceived commoditization of these processes, however, may not be reflected by their level of automation—fax and manual processes are ever-present in the investment funds universe as demonstrated by some of the key findings of the research that are laid out in this report.

MANUAL EFFORT/LOW AUTOMATION

Low levels of automation generally translate into higher costs and operational risks within the funds processing environment due to the high level of manual intervention. To this end, some key processes within the investment funds and alternative funds universe continue to be dependent on the sending of faxes and even postal correspondence. One of the European interview respondents indicates that the level of STP for its full investment funds processing cycle is around 40%, and its previous investment in automated processes has concentrated on the support of its own funds. The other investment funds the firm distributes are supported by numerous manual processes and fax, as a means of communication, features heavily. This means that sometimes orders are not processed in time across borders, thus resulting in an increase in operating costs such as those related to delayed settlement and potential claims.

A fund management respondent notes that communication with transfer agents is an area of high manual effort, particularly when interacting with investors in markets such as Taiwan. STP rates are estimated by some firms to be around 80% for the Taiwanese market, but the interview respondent believes they are closer to 50%. Translating this into the operating costs of supporting manual processes, the firm estimates that Taiwanese investors cost the fund manager EUR 600,000 per year due to their use of fax. These investors represent 30% of the firm's total transfer agency bill and 2% of assets under management.

This level of manual intervention and support is not restricted to the Asian region—a European respondent firm indicates that the order confirmation process with its transfer agents takes a long time because of the high level of manual effort. The firm believes that confirmation should occur on trade date or T+1 but it usually slips by two or three days, and the firm is therefore forced to rely on FTEs from the firm's fund buying desk to dedicate 25% of their time to chasing transfer agent operatives.

Figure 8 shows the areas identified as featuring the highest levels of manual effort by interview respondents, thus indicating that the confirmation, fund transfer, and order placement processes are particularly dominated by manual effort. Reconciliation and confirmation processes are cited by 50% of respondents as the area of highest manual effort.

Figure 8: Highest Concentration of Manual Effort in the Funds Processing Environment

Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

Table B shows the levels of automation for three different processes within the investment fund lifecycle at three respondent firms. The first European firm has focused on automating the order placement and confirmation processes but is still heavily reliant on manual processes for fund transfers and the re-registration of funds. The second European firm has high levels of automation for all of its mutual fund processing but no automation at all to support the processing of alternative funds. The North American-headquartered firm has a relatively high level of automation for order placement and confirmations, but much like the first European firm, has lower levels of automation for fund transfers.

Table B: Level of Automation at Various Investment Fund Market Participants

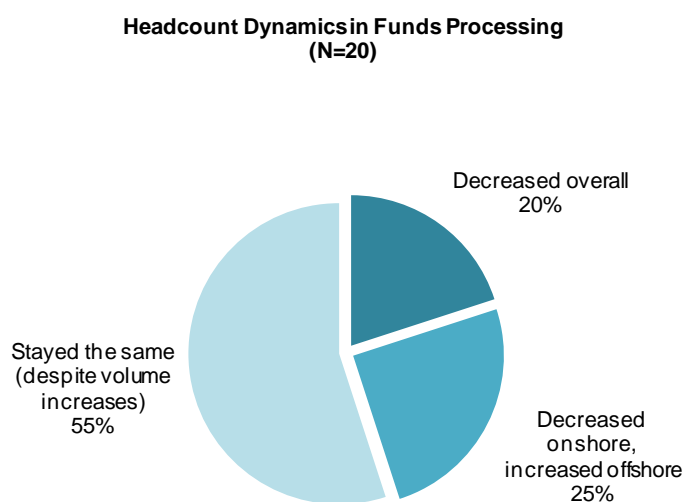
Location of firm headquarters	Order placement	Confirmation and allocation	Fund transfers and re-registrations
Europe	94% electronic, 6% fax/telephone	94% electronic, 6% postal delivery	20% electronic, 80% postal delivery
Europe	Mutual funds 100% electronic (SWIFT), alternative funds 100% fax/postal delivery	Mutual funds 100% electronic (SWIFT), alternative funds 100% fax/postal delivery	Mutual funds 100% electronic (SWIFT), alternative funds 100% fax/postal delivery
North America	80% electronic, 20% fax	80 to 90% electronic, 10 to 20% fax	40% electronic, 60% postal delivery

Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013, selected replies

Looking at other processes, one of the European fund distributors indicates that its execution and settlement processes are 90% STP, reconciliation is around 70% STP, and fund transfers and corporate actions processing are fully manual (0% STP).

The ability of firms to support these manual processes is coming under pressure because of the tough economic climate's impact on headcount. There are fewer people to deal with the processing of investment funds because firms are being forced to keep budgets static from the previous year or to decrease their spending on running costs. The majority of firms therefore have to support increasing volumes of data without increasing FTE headcount (Figure 9).

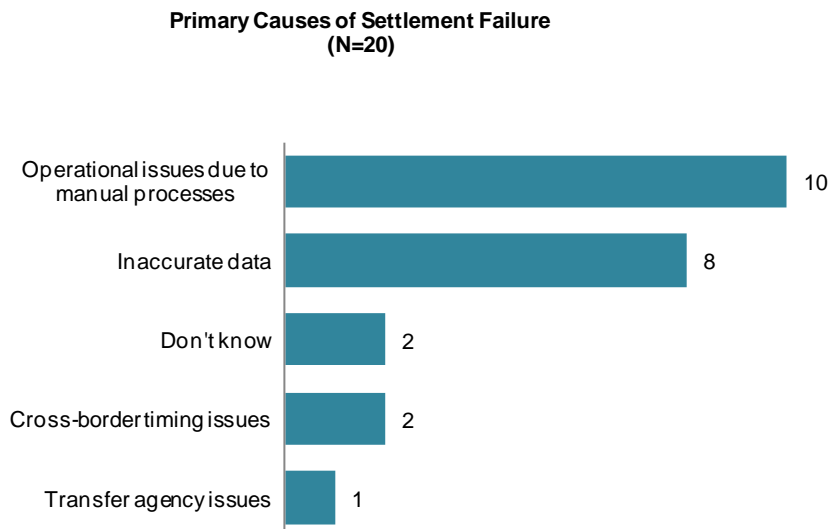
Figure 9: FTE Headcount Changes in Investment Funds Universe



Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

The direct impact of a high level of manual processes is also an increase in the number of fund settlement failures (Figure 10). The primary cause of settlement failures for 50% of interview respondents is incorrect reference data resulting from the manual input of errors and miscommunication during the fund settlement process. The retyping of data into multiple systems at the point of order entry increases the risk of errors occurring further down the funds processing chain.

Miscommunication can mean that a buyer and seller may not identify to their respective operations departments the same details for a given trade. On the settlement date, the seller may deliver what it believes is the correct quantity of the right security and claim what it believes is the correct payment, but the buyer will reject the delivery if it has a different understanding of the trade. If the rejection occurs late in the day, there may not be enough time for the parties to resolve the misunderstanding. In other cases, operational problems may lead to the failure of a seller or a seller's custodian to deliver securities or a seller may be unable to deliver securities because of a failure to receive the same securities in settlement of an unrelated purchase.

Figure 10: Primary Causes of Settlement Failure

Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

A European respondent firm indicates that the vast majority of its settlement failures, around 90%, are due to reference data inaccuracies. The other 10% are generally related to delays on the fund platform provider side. Overall, the firm has a fairly low level of settlement failure, with an estimated failure rate of 5% on an annual basis.

The cost of settlement failure to each firm is a relatively hard metric to quantify because of the resulting direct and indirect impact of a failed trade—the failure of one trade could cause a firm to be short for another trade, and so on; hence the overall cost could be very high. In terms of direct impacts, one of the European asset managers notes that settlement failures require the attention of an FTE to re-register and reprocess the trade. Industry estimates for the overall cost of settlement failure for equities markets on an annual basis have ranged between US\$976 million and US\$2.9 billion, but there is very little data on the fund universe.

HEDGE AND ALTERNATIVE FUNDS SUPPORT

Alternative fund processing support is an area of particularly high manual effort for those firms that deal with these funds. One of the North American-headquartered respondents highlights the difference in STP rates for investment funds processing compared to alternative funds, noting that the firm has an STP rate of 86% overall and the 14% of manual processes are accounted for by its support of hedge funds. The firm's operations head indicates that the hedge funds' complex structures and customized trading processes are partially responsible for the lack of automation in the alternative funds process. The firm also has many more transfer agency relationships to support for hedge funds in comparison to other investment funds; it has relationships with six transfer agents for plain vanilla funds but relationships with around 40 transfer agents for hedge funds.

CLIENT-FACING ACTIVITIES

Many of the issues underlying settlement fails can be traced back to the client-facing activities at the start of the processing chain. If data is incorrectly captured at the outset by the fund-side institution that is registering a new client or updating a current client's account, then the risk of settlement failures or errors is greatly increased. Duplicate accounts can be created and accounts can be incorrectly coded and registered at the point of entry.

ACCOUNT ONBOARDING

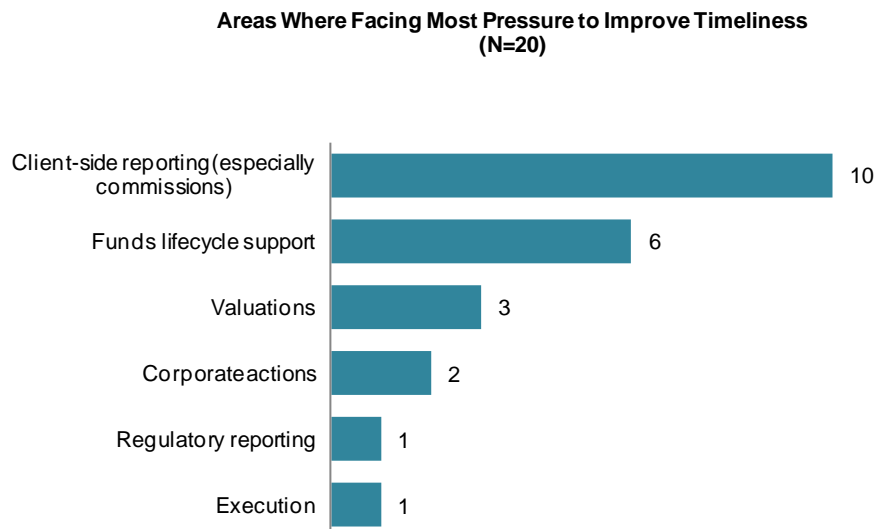
There is currently no market best practice or commonly adopted standard that can be used to uniquely identify a fund holder—firms each have their own proprietary method of identification. This problem is exacerbated by the number of parties in the fund lifecycle that may need to interact with the end client throughout the client lifecycle—the more parties involved, the more proprietary formats that must be maintained and cross-referenced, and the increased likelihood that errors will occur. Ongoing support for clients can require interaction with multiple systems because very few firms have single client master file records at the enterprise level; hence there is the potential for further inaccuracies to be introduced and for inconsistencies to occur across a firm's internal systems. In summary:

- Clients are not identified by an agreed unique, common reference by all parties in the transaction chain—multiple references can result in errors
- Manual input can result in point of entry errors for client data—incorrect coding or registration of accounts
- Very few firms have an enterprise-level client account master file

HOLDING AND TRANSACTION REPORTING

There is a lack of standardization in the basic process of reporting holdings and transaction data to distributors and institutional holders. The fund administrator can report via a CSD/ICSD, a funds hub, distribution platform, or direct to institutional investors, but there are no commonly adopted guidelines about frequency and manner of reporting across the industry. This means that firms are required to maintain multiple connections to different market participants and support numerous proprietary formats and standards.

Interview respondents indicate that client-side reporting on holdings and transactions has come under increased pressure from a timeliness perspective as a result of an investor push for increased transparency on an intraday basis (Figure 11). One European firm respondent notes that there is a greater desire from its clients to be able to define the manner in which reports are formatted in order for them to be able to slice and dice the data in certain ways. This becomes particularly challenging because many of the firm's clients are multi-entity companies and want to receive consolidated data but without losing the granularity of the data.

Figure 11: Primary Areas of Pressure Related to Timeliness

Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

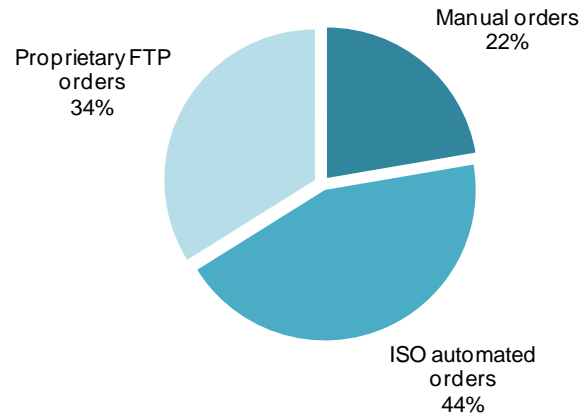
ORDER PLACEMENT

Much like the onboarding of clients, the placement of orders can be the origination point for manual errors that can cause trade or settlement failures further down the processing chain. Orders can be placed in a variety of manners including via fax, email, and electronic messaging, most of which require the manual rekeying of information at one or multiple points in the chain with the related risk of mistyping or misinterpretation of key pieces of fund or client data.

According to a survey of 32 transfer agents in Luxembourg and Ireland conducted at the start of 2013 by SWIFT and EFAMA,¹ the total automation rate of orders in Luxembourg and Ireland during Q4 2012 reached 77.7%, which represents an increase of 1.7 percentage points compared to Q4 2011. The 32 survey contributors reported 282 new International Organization for Standardization (ISO) automated links implemented during 2012, compared to 11 new proprietary file transfer protocol (FTP) links put in place in 2012—ISO standardized links are considered to be easier to maintain than proprietary formats. The transfer agents manually processed 5.6 million orders in 2012, compared to 6.3 million in 2011.

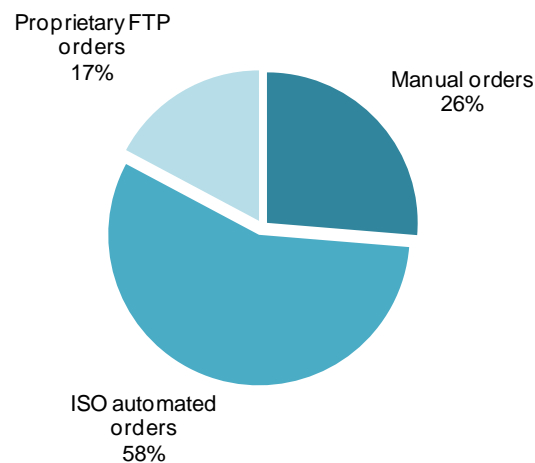
Figure 12 shows the level of automation of 243 million orders processed by 11 transfer agents active in the Irish market during Q4 2012. Although there is a relatively high level of automation (at 78%), there remain a fairly high number of proprietary FTP submitted orders (34%) that must be supported by the transfer agents. The corresponding STP figures for the custody business would be much higher than these numbers due to the higher level of standardization for domestic securities markets.

1. Fund Processing Standardization Annual Report, EFAMA and SWIFT, March 2013

Figure 12: Percentage of Automated Order Placements for Transfer Agents in Ireland**Percentage of STP in Investment Fund Order Placement in Ireland
Q4 2012**

Source: EFAMA and SWIFT survey of 11 transfer agents based in Ireland, Q4 2012

Figure 13 shows the level of automation of 16.2 million orders processed by 21 transfer agents active in the Luxembourg funds market during Q4 2012. It indicates that the Luxembourg transfer agents are faced with a slightly higher number of manual orders than are their Irish counterparts (4% more) but there is much higher adoption of ISO standards within the Luxembourg market; hence there is less support required for FTP order transmission.

Figure 13: Percentage of Automated Order Placements for Transfer Agents in Luxembourg**Percentage of STP in Investment Fund Order Placement in Luxembourg
Q4 2012**

Source: EFAMA and SWIFT survey of 21 transfer agents based in Luxembourg, Q4 2012

Orders also usually require multiple transaction references, allocated by each individual participant in the processing chain, thus adding an additional layer of complexity to the process. The application of the wrong reference could result in confirmation mismatches and settlement errors.

The order placement process can also be negatively impacted by the variability in valuation points and the associated dealing cut-off times between different funds. The variety in deadlines and data points across funds increases the complexity of the process for client-side institutions, especially if they are supporting investment across a range of countries.

In summary:

- Manual processes in placing orders increase the risk of settlement failures
- Support for multiple proprietary FTP order transmission processes can be expensive
- Use of multiple transaction references for the same transaction further increases risk of error
- A lack of standardization of valuation points and dealing cut-off times for funds means there is added complexity for firms, especially in a cross-border context

CONFIRMATION PROCESSES

The process of confirming fund orders often involves a mandatory time lag because the majority of funds are dealt on a forward basis, which means the price of units is calculated on the basis of the first valuation point after a deal is accepted. This can mean that the confirmation process and the price allocation process are separate, thus involving multiple communications to be sent between parties. Most often, however, these communications are bundled together in an end-of-day batch process where prices are calculated, allocated, and sent with a confirmation communication to the other party the next business day after the order has been accepted.

Much like order origination, these communications can be based on fax, email, or proprietary or standardized electronic messages. The more manual and proprietary the formats involved, the harder the data is to reconcile by each party and the lower the chance that automatic matching processes can be applied. Any delays in this process can mean that settlement is delayed, hence incurring cost to market participants involved. Unmatched orders need to be dealt with as and when they are flagged, and any orders that have been executed incorrectly by the fund order desk need to be cancelled and amended as soon as possible as there will be knock-on effects on the compensation process (commissions and other fees) and will directly impact distribution streams.

SETTLEMENT

Depending on the market, a number of different processes can come into play when funds are settled—for example, settlement can occur directly between fund-side and client-side institutions or via a CSD or ICSD. There is no harmonized settlement cycle for investment funds

across the globe; hence subscription and redemption payments can occur in a range of timeframes dependent on the location of the funds.

FUND TRANSFERS AND RE-REGISTRATIONS

There are several processes via which funds can be transferred from one party to another—they can be transferred via an instruction sent by the delivering party or by an instruction sent by the receiving party, via a transfer agent matching the two legs of the transfer, or via a CSD or ICSD. These disparities result from differing legislation and market conventions between countries. Transfers outside the world of CSDs/ICSDs are mostly instructed using manually intensive processes such as the transfer of physical documents via postal correspondence or via fax. The process often lacks the pressure on timeliness that settlement processes involve; hence delays are more frequent within the transfer process than for settlement.

One of the European firm respondents indicates that the funds re-registration process is particularly difficult and requires dedicated FTE resources on a weekly basis, though this is part of the FTE's time rather than his sole task. The process is labor-intensive because of the paper-based nature of the re-registration process, which often involves postal correspondence.

OTHER PROCESSES

COMMISSION-REPORTING

The commission-reporting process between fund sponsors and distributors is particularly complex and challenging because of the number of different charges that may need to be applied, which could include fund entry charges, initial commission payments, and trailer fees based upon the values of the funds held. As this is an area of competitive differentiation, it is not one that can be easily standardized, and the reporting process is dominated by manual processes and inconsistent message formats. There are also significant upcoming changes as a result of various pieces of regulation such as MiFID II that will fundamentally affect how commissions are organized.

CORPORATE ACTIONS

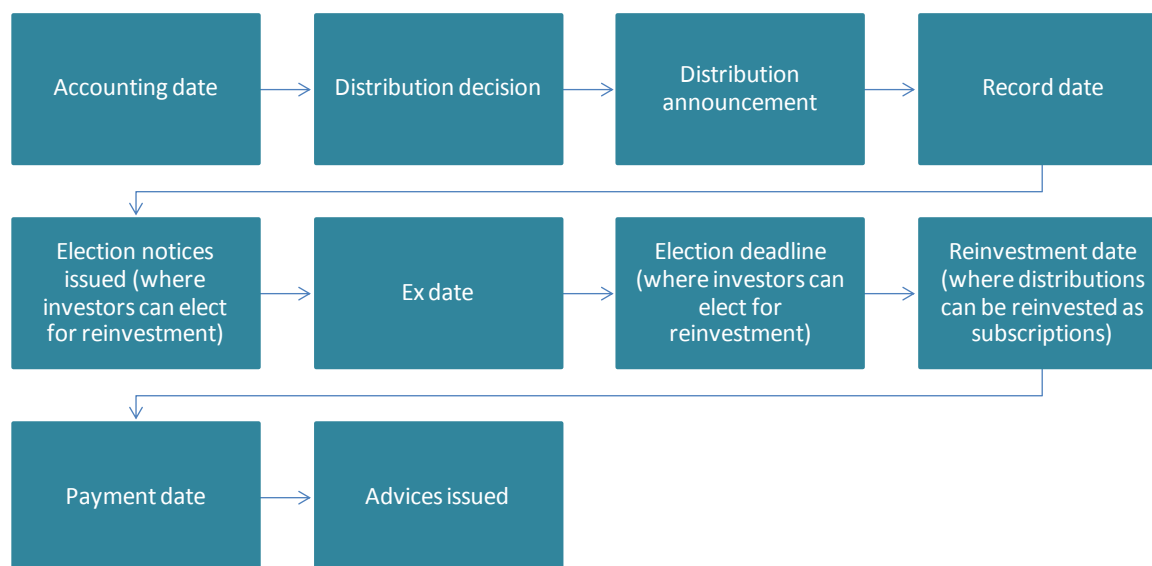
Investors must be notified of any corporate action events that have an impact upon holdings of units in an investment fund, such as those that give rise to entitlements or those that require investor notification. This could relate to a structural reorganization where income flows distributed to the fund are materially altered, or it could be an event that results in the changing of the constitution of a fund, or the unit holder voting process. The corporate action notification communication process is regulated on the unit holder side—so there may be specific requirements regarding the format of communication set by the regulator of the fund domicile—but the process of communicating this information to the wider investment funds community does not always fall under specific legislation. This means that there is inconsistency in methods of communication and timeframes for this process across markets.

Income earned by a fund on its investments can either be retained within the fund (an internal fund roll-up process) or distributed to end investors as income units. The distribution process

can vary from market to market and in relation to the type of asset being distributed, which directly impacts the timings of various stages of the process such as the cut-off for entitlement to the dividend and the record date. For investment funds in Europe the distribution process is one where the accounting period to which the distribution relates ends before the record date (Figure 14).

Reinvestment is not mandatory but can result from the instruction of the investor, and this can be carried out via standing instruction or on a distribution-by-distribution basis. The reinvestment election process usually requires a minimum of 20 business days between the announcement and the payment date, but some money market funds are reinvested in a shorter timeframe.

Figure 14: A Common Investment Funds Income Distribution Process



Source: Aite Group

The processes involved in general meetings vary widely due to applicable regulation and the details specified within a fund's prospectus. This has led service providers to offer specific solutions for proxy voting.

Due to the high degree of complexity and variance in the corporate actions process across jurisdictions and between funds, there is a high degree of manual effort and risk within the process overall, which can tie up a lot of internal resource. Industry estimates from 2010 indicate that firms in Europe incur total actual costs in the region of EUR 65 million to EUR 140 million per year as a result of corporate actions processing failures.

PERSPECTIVES ON OPERATIONAL RISK

Investment funds processing requires a high level of coordination between all parties involved. From opening an account through order placement and execution to settlement and reporting, each step of each process comes with its own set of potential risks and issues, some operational and some financial.

PAIN POINTS FOR FUND DISTRIBUTORS

- **Account opening and maintenance:** Errors made in setting up an account could result in failures to properly calculate commissions resulting in non-payment and understatement of distributor revenues, and reduced cash flows.
- **Holding and transaction reporting:** Improper data could lead to transactions being allocated to the wrong distributor, missed dividend reinvestments, and delay in commissions.
- **Commission reporting:** Commission calculations and reporting are directly affected by the holding and transaction data. Calculations are also dependent on agreement between parties for parameters such as day count conventions and trade date versus settlement date fee calculations.
- **Non-standardized communication channels between distributors and other market/industry participants.**

PAIN POINTS FOR TRANSFER AGENTS

- **Account opening and maintenance:** Improper custodian and distributor information could result in non-payments and failed receipts.
- **Order placement, execution, and confirmation:** Orders can be rejected due to improper fund data such as the fund's identifier or cut-off time. Inefficiencies from lack of automation result in increased operational risks and costs. The late receipt of a fund's net asset value (NAV) and late confirmation of order executions can each contribute to improper booking of a trade. There are further risks and costs that can arise from a delay between share creation and trade settlement.
- **Non-standardized communication channels between transfer agents and other market/industry participants.**
- **Trade settlement:** Failure to properly associate payment with delivery can result in creation of shares without receipt of cash, or payment without receiving the shares.
- **Transfer of holdings:** Failures in the communication with delivering and receiving custodians could result in delays caused by rejection of shares by the receiving custodian.

- **Holding and transaction reporting:** Mistakes in transaction and holding data could result in allocating to the wrong distributor, miscalculation of commissions, and missed dividend reinvestments.
- **Commission reporting:** Commission calculations and reporting are directly affected by the holding and transaction data. Calculations are also dependent on agreement between parties for parameters such as day count conventions and trade date versus settlement date fee calculations.

A COMPLEX MATRIX OF REGULATION

Although the Group of 20 countries (G20) has been working to establish a common regulatory framework since the 2008 crisis, the discussions have not yet resulted in truly equivalent regulation across the globe. The capital markets community is therefore currently faced with an influx of various (sometimes disparate) regulatory requirements across key jurisdictions such as North America, Europe, and Asia. In an increasingly global and interconnected market, it is not enough to look at pieces of regulation in isolation—potential combinations and conflicts between regional and domestic regulation could have a significant negative impact on the investment funds industry in different markets. Moreover, the threat of regulatory arbitrage is a clear and present danger if there continues to be significant diversion in regulatory burden across geographies/domiciles.

There can even be challenges related to the interconnectedness of regulations in one region; for example, there is some concern about the interaction between the fund regulations UCITS V and AIFMD, and the OTC derivatives clearing requirements under EMIR. UCITS funds currently have a 5% limit on exposures to a single counterparty on OTC derivatives, which is raised to 10% if the counterparty is a credit institution. There is currently some degree of concern about how these limits apply in the context of clearing through central counterparties (CCPs) and, in particular, as to who the counterparty is for the purposes of the 5% or 10% limit. Clarity on these points is lacking at the moment but is necessary for full compliance in the funds sector.

Meanwhile, the rapidly changing tax and regulatory landscape has resulted in a reduction in the pool of investment available for firms to spend on expanding their core competencies. Firms are forced to deal with a low margin environment on one side and an increasing compliance burden on the other; hence compliance projects have taken the lion's share of internal investment over the last couple of years. Operational efficiency and a more strategic approach to regulation is, however, a priority now for many firms because of the lack of sustainability of multiple tactical fixes in the face of so much regulatory change.

Figure 15 highlights the regulatory compliance priorities as viewed by firms active in the investment funds universe. The highest priority items are related to direct regulation of the funds universe encompassing the following:

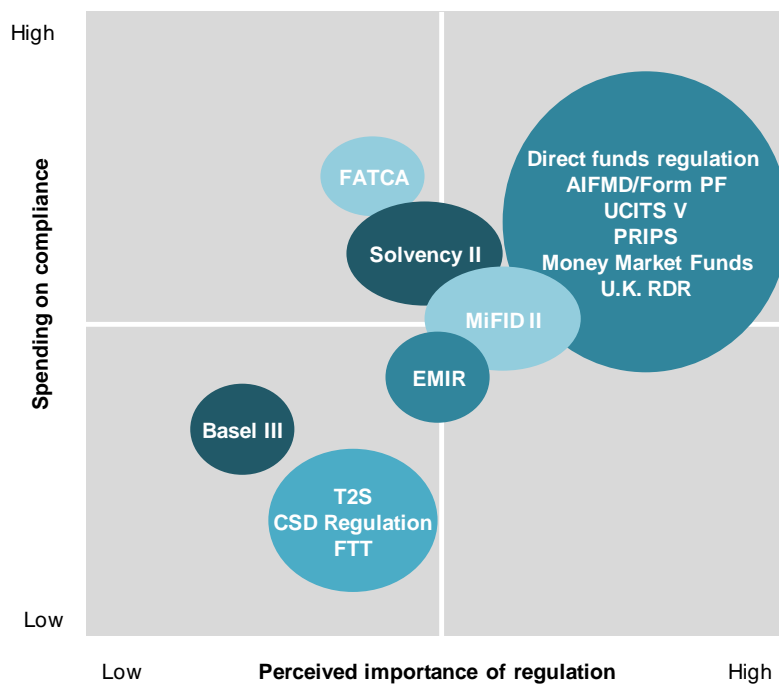
- Europe's AIFMD and the U.S.'s Form PF in the alternative funds sector
- The latest incoming iteration of the UCITS Directive—UCITS V
- The European Commission's proposed Packaged Retail Investment Products (PRIIPs) Directive
- The proposed regulation of money market funds in the U.S. and Europe as part of incoming shadow banking legislation
- The U.K.'s Retail Distribution Review, which impacts the domestic retail funds market

These regulations are also perceived to be high-price ticket items in terms of compliance spending because of their direct impact on the investment funds sector within key regions. The

Foreign Account Tax Compliance Act (FATCA), which is U.S. withholding tax legislation imposed on the rest of the world, and insurance regulation Solvency II are also both considered to be regulations of note with regard to spending, even if they are not as strategically important to all participants of the investment fund industry.

Regulations that are altering market structure within adjacent sectors to the investment funds universe—EMIR, the second Markets in Financial Instruments Directive (MiFID II), the Central Securities Depository Regulation (CSDR), and the European Financial Transaction Tax (FTT), are all considered to have some form of impact on the funds process but are not perceived to be as high a priority in terms of spending or compliance effort. MiFID II is ranked first out of these regulations due to its direct impact on the client classification process for determining appropriateness of fund products. The move to a single settlement platform across Europe in the form of Target2-Securities (T2S) is also considered to be of note but, given its focus on equities markets, not yet of high impact.

Figure 15: Regulatory Priorities Within Investment Funds Community



Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

Another area of concern that doesn't fall under the auspices of a single regulation is the deployment of a single, global legal entity identification (LEI) standard. This will require all firms active in the financial markets to tag client and counterparty accounts with the unique identification standard issued by their domestic LEI issuing authority. Fund-level identifiers will also be required as part of the deployment of the LEI; hence this additional reference data item must be added to fund master data files by all participants in the funds market.

SHADOW BANKING AND MONEY MARKET FUNDS

Incoming proposed shadow banking regulations, which focus on non-bank market participants, include key reforms targeted at the money market funds sector. The regulation could potentially introduce a new two-tier system for the classification of money market funds:

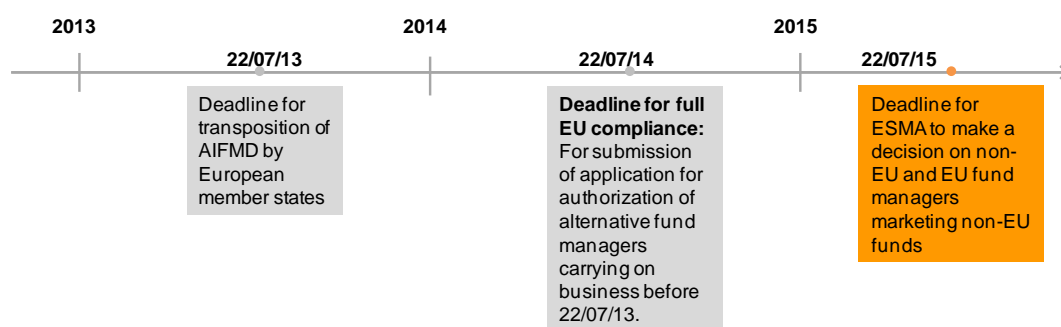
- A "short-term" designation for money market funds that operate a very short weighted average maturity and weighted average life.
- A category of funds that display longer weighted average maturity and weighted average life.

At a basic level, this will entail a new level of data tagging and maintenance for these funds.

AIFMD AND FORM PF

AIFMD is aimed at improving transparency within the alternative investment sector, encompassing hedge funds, private equity funds, and other private funds (essentially those funds that fall outside of the remit of UCITS regulation). The deadline for the transposition of the directive into national law within European countries was July 22, 2013, and as of August 1, 2013, 12 member states had completed the full transposition and 15 member states indicated they were implementing a transitional period for the phase-in and drafting process; a further five appeared to have made no progress toward drafting the required legislation. Figure 16 shows the key deadlines for AIFMD transposition and compliance—the focus is initially on EU-based funds, but there remains debate about how the marketing of non-EU funds should be treated.

Figure 16: Key Deadlines for AIFMD



Source: ESMA

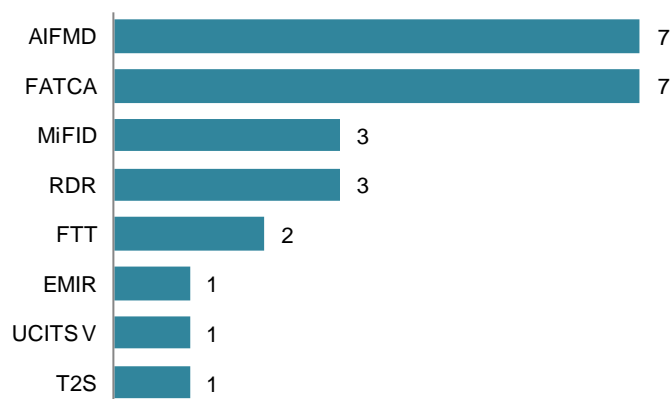
The directive aims to bring the wider funds world into line with the UCITS regime and requires that alternative funds must appoint a depositary.

Figure 17 highlights the fact that AIFMD is considered to be the regulation with the highest impact on the overall funds processing universe. The bias toward European firms within the demographic of interview respondents should be noted in these results, however, as the firms

hailing from outside Europe considered FATCA to have greater impact on their operations and those of their peers.

Figure 17: Regulation of Highest Impact on Investment Funds Landscape

**Regulation of Largest Impact to Investment Funds Universe Overall
(N=20)**



Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

A great deal of impetus is being placed on depositary banks' responsibilities in mitigating risk, including the return of financial instruments in the event of a loss. These banks must also meet obligations to provide detailed cash and securities account monitoring on behalf of their underlying alternative investment fund clients. The depositary has then to account for this risk and mitigate it. This might have additional cost and operational considerations for funds because of the requirement for more rigorous oversight of the processes and liability that sits with the depositary.

These funds are also required to adopt order handling and execution policies broadly in line with those required under MiFID and the UCITS Directive. They must execute orders "sequentially and promptly" and improve recordkeeping for this process in order to prove due diligence and comply with detailed requirements with regards to the aggregation and allocation of orders. They must also be able to provide aggregated data related to order execution information to each investor concerning that investor's subscriptions and redemptions to or from an alternative fund.

In the United States, Form PF was implemented in 2012 and required alternative funds to register with the regulator and add in capabilities to store and deliver reporting data in the required format on a quarterly or annual basis. This entailed the aggregation of data and mapping to each Form PF question and the introduction of an audit trail to track input and decisions on the part of the compliance team.

UCITS V

UCITS V is the latest in a set of European Union directives aimed at establishing a harmonized legal framework for the creation, management, and marketing of collective investment schemes in the European Union, with a strong focus on investor protection and product regulation. This harmonized framework enables UCITS funds, once registered in one member state, to be freely marketed across the European Union. Since it was first adopted in 1985, the UCITS Directive has been modified several times to take into account developments in financial markets.

The latest proposed directive, UCITS V, focuses on a clarification of the UCITS depositary duties and liabilities, a review of remuneration practices with the objective of aligning the interests of UCITS managers with the long-term interests of investors as well as the harmonization and strengthening of sanctioning regimes. It also brings the regime into line with the changes being introduced in the alternative fund sector via AIFMD.

PRIPS (AND KIIDS FOR RETAIL FUNDS)

The European regulatory community is keen to extend fund transparency requirements beyond solely UCITS funds to the wider retail investor community—encompassing all investment funds, retail structured products, and investments packaged as insurance policies. The European Commission believes retail investors should receive short, comparable, and standardized disclosures, termed key information documents (KIIDs), whatever the investment product they are considering. The intent is to help retail investors to make a more informed decision on whether or not an investment is right for them and be able to compare investment products with each other. The proposal also aims to ensure a level playing field between different investment product manufacturers and those selling such products.

Fund manufacturers need to decide whether to outsource certain functions and, if so, put in place procedures to ensure data quality and continuous data transfer to the relevant third party. There would also need to be an implementation of procedures to allow continuous access of distributors to up-to-date KIIDs.

RDR

The U.K.'s retail funds regulation means that firms operating in the sector will transition from a commission-based to a fee-based approach for remuneration. This essentially means that investment platforms will only be able to obtain payment for the charges they levy direct from consumers. Currently some platforms receive payments from financial product providers or fund managers in order to feature those products or services, whilst they also charge consumers or their financial advisers to use their platform.

Those active in the retail funds sector will also be required to prove that they have appropriately segmented their client bases and appraised the suitability of the retail funds that they market at these client segments. This will necessarily require a robust audit trail for due diligence around the investment research and decision-making process for funds selection. They will also need to focus on improving the sourcing of investment, platform, and product solutions for these clients.

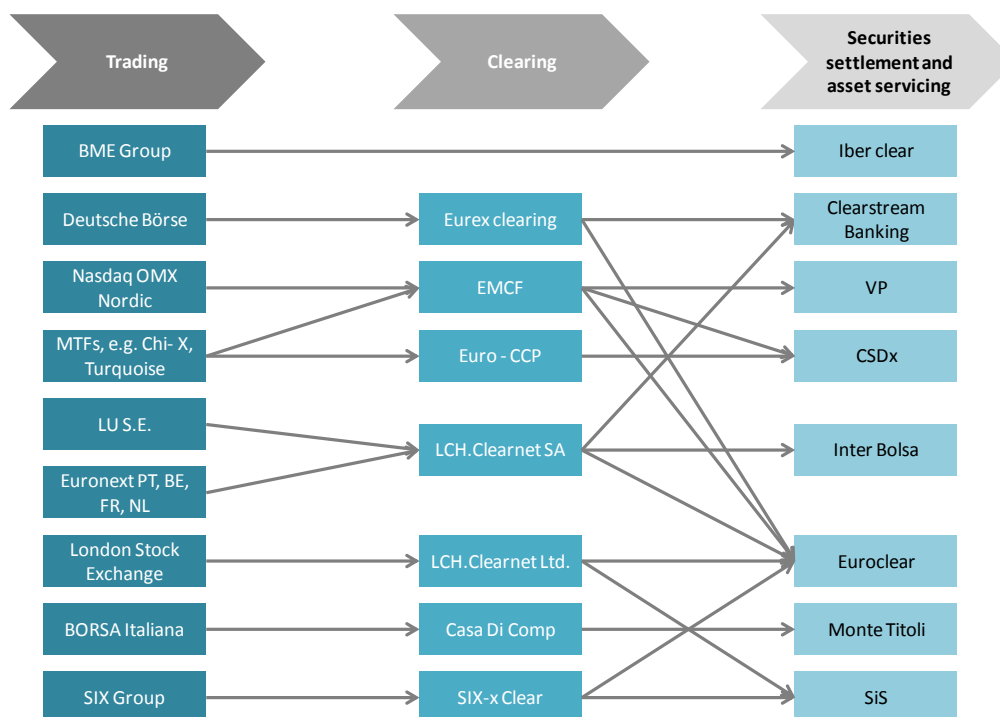
The change in the remuneration process could potentially have a significant long-term impact on fund platforms' internal investment. Where previously the focus was on fund manager satisfaction, a move to focus on end customer and distributor satisfaction could mean these platforms are compelled to invest in data improvement, automation, and more robust reporting processes.

CSDR AND T2S

CSDR is a new European regulation that targets CSDs and ICSDs with a view to providing a level playing field for existing and new market entrants, bringing down the cost of settlement, and harmonizing the region's market practices. Aside from Germany, the majority of the countries in Europe operate on a T+3 basis; however, CSDR is set to change this by directly mandating a move to T+2 for all European markets. This will necessarily compel a reconfiguration of the trade settlement process to shorten the cycle, which will involve operational and, potentially, technology changes to certain financial market participants' internal infrastructures. CSDR will also mandate a move to book entry recording for the issuance and transfer of securities rather than physical transfer and a move to harmonize sanctions and penalties for settlement failure across Europe—including the introduction of a naming and shaming regime for those causing failures "systematically." This will prove further compulsion for investment in automation across the trade lifecycle.

The regulation aims to establish a level playing field for CSDs and ICSDs (no distinction between the two is made in the regulatory requirements) operating within and across the European region by establishing a common regulatory framework. The complexity of the cross-border settlement process has resulted in significantly higher costs for settlement in a cross-border context across Europe when compared to domestic settlement—EUR 0.27 for domestic equities settlement versus EUR 0.90 for cross-border equities settlement—this has compelled the European Central Bank to establish a pan-European settlement system (T2S) by 2015 with prices fixed by the ECB at EUR 0.15.

Figure 18 shows a high-level view of the current European trading, clearing, and settlement environment, highlighting the complexity of connections between trading venues, CSDs, and clearing houses. The intent of T2S is to simplify the European landscape and bring down the cost of cross-border settlement overall. Although funds settlement is not currently in scope for T2S, Clearstream has stated that it will make funds T2S eligible via LuxCSD, which will act as an access point for settlement of investment funds in central bank money via T2S.

Figure 18: A Snapshot of the Current Trading, Clearing, and Settlement Environment

Source: Aite Group

Operational changes as part of CSDR and T2S include:

- Move to mandatory buy-in in the case of settlement failure
- Potential processing cycle change for some CSDs (overnight cycle)
- Technology investment to cope with squeezed settlement cycle
- Potential adoption of new harmonized data standards and message formats
- Move from voluntary to mandatory processes in certain areas
- Changes to liquidity and collateral management timeframes
- Move to book entry recording for the issuance and transfer of securities

MIFID II, EMIR, AND DODD-FRANK

MiFID II, which is currently going through the dialogue process within the European Parliament, seeks to improve investor protection and to improve the transparency and regulation of more opaque markets, such as derivatives. To this end, it extends the pre-trade and post-trade disclosure requirements of the first directive to markets other than equities including bonds, asset backed securities, and derivatives. There is some concern within the fund industry that this

will negatively impact the less liquid markets such as derivatives because of the requirement to provide pricing formation data on a more frequent basis.

On the disclosure front, trade reports will need to be published through Approved Publication Arrangement (APA) firms, which will also be subject to authorization and certain organizational requirements. Transaction reports will need to capture additional information. MiFID II will require major changes in both operational and reference data—the introduction of unique trade identifiers, counterparty, legal entity, and product identifiers.

The directive would require EU member states to impose rules that ensure that investment firms are not paid "any fee or commission, or provide or are provided with any non-monetary benefit in connection with the provision of an investment services or ancillary service" other than directly from their clients. Such payments, however, would be legitimate if investment firms "clearly" flagged up the "existence, nature and amount" of the fees or commission to investors prior to providing them with a "relevant service." This potentially places the directive in conflict with the U.K.'s RDR regulation, which includes a requirement that investment platforms can only obtain payment for the charges they levy direct from consumers.

MiFID II also places restrictions on any non-EU-based firm planning to offer investment services to European retail clients. The proposals indicate that such a firm could potentially have to establish an EU branch and be authorized by a regulator in the region, which could restrict most aspects of EU financial services to within Europe's borders.

One of the European respondents indicates that his firm is expecting MiFID II to seriously impact its operating model because it will need to introduce new appropriateness tests for the marketing of funds with underlying complex instruments. This will entail more data gathering and reporting processes to prospective clients in order to prove appropriateness of the funds.

The Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank) has been the frontrunner in global OTC derivatives regulation. It imposed new reporting requirements for those active in those markets and introduced new processes for the trading and centralized clearing of those instruments, all of which require greater data management support.

In Europe EMIR sets out to promote transparency, risk management, and regulatory oversight of the OTC derivatives markets. Funds very active in these instruments will need to cope with new requirements for the trading and clearing of OTC derivatives, including:

- The reporting of OTC derivatives trades to trade repositories using new regulator-defined data standards and formats
- The move to an electronically traded and centrally cleared model for OTC derivatives, which means firms will have to cope with a higher volume of electronic data
- Support for higher collateral management requirements, which will put pressure on firms to move away from cash collateral to other assets deemed to be of high quality

As a result, funds will need to access more, high (or higher) quality collateral and to partner with "best-in-class" collateral management venues, to consolidate their internal pools where possible, and reduce fragmentation.

FTT

Currently Italy and France have implemented their own versions of a transaction tax, but the European Commission is working on a regional version of the FTT that could initially be applied to 11 European member states. The most controversial impact of the FTT is that it will push up the cost of trading in the countries affected by imposing an additional levy on equities, bonds, and derivatives transactions. Under the current proposal, the tax would apply to both sides of transactions in all asset classes, instruments, and markets throughout the 11 countries adopting the rule.

Based on principles of residence and issuance, it will cover transactions in which one or more parties are established in any of the 11 EU member states that currently support the tax as well as transactions in which the underlying financial instrument was issued in one of the 11 member states. This broad scope is one of the reasons that the wider investment funds community is concerned—the potential is for the regulation to push up costs for operating in the European capital markets at the expense of its competitive position globally.

SOLVENCY II

Solvency II is the new prudential regulatory framework being introduced in the European Union for the insurance and reinsurance sectors that will overhaul the sectors' risk and capital management practices. It will impact insurance firms and investment firms that receive allocations from European insurance companies. The European Union directive is structured across three pillars—quantification, governance, and disclosure—and is currently being negotiated at the European Parliament level.

One of the biggest impacts of the regulation for investment funds is the requirement for a more integrated operational framework between the asset management, insurance risk capital, actuarial, and finance departments of those active in the insurance sector. The regulation will also likely force a reassessment of current investment strategies and operational structure within these firms. Reporting requirements introduced via Solvency II will increase demand for investment data and data governance processes.

FATCA

The United States-led Foreign Account Tax Compliance Act (FATCA) imposes new client and legal entity-level data tracking and reporting requirements on the rest of the world for the purposes of tax-withholding compliance. The rules are indicative of a huge sea change in countries' focus on identifying and retrieving tax on undeclared assets. While this has traditionally focused principally on jurisdictions considered as low tax regimes or in some cases "tax havens" (for example, Switzerland, Luxembourg, Singapore, British Channel Islands Jersey and Guernsey, and

so on), the reach of FATCA has been extended to the rest of the world. The U.S. Internal Revenue Service is seeking to identify and receive the right amount of tax from all U.S. individuals that hold financial accounts overseas. Any foreign financial institution (FFI) that has U.S. clients will need to register with the U.S. Internal Revenue Service and apply the required set of reporting and payment processes.

FATCA was cited as the biggest concern for interview respondents based outside of the European region, many of whom were not familiar with specific European regulations.

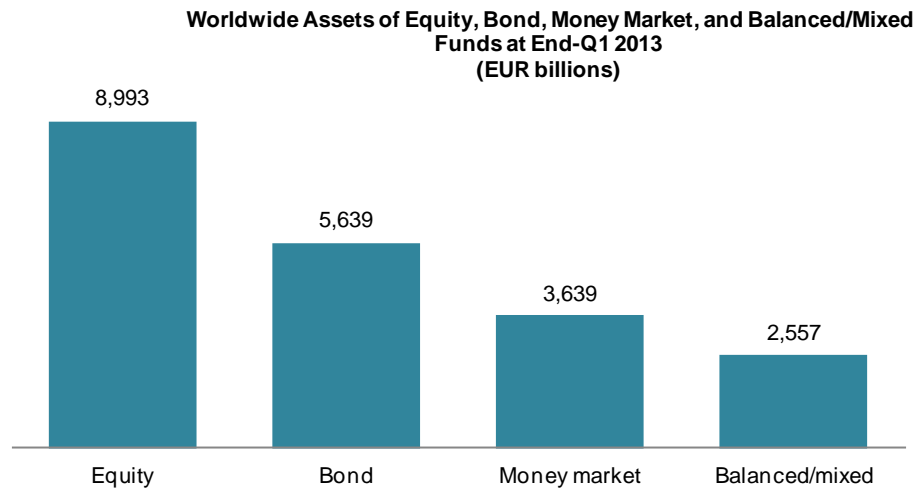
BASEL III

Basel III is a global framework for the management of capital and liquidity in the post-2008 era, primarily aimed at the banking community with a view to:

- Strengthening bank capital requirements—the new key capital ratio is set at 4.5% (more than double the Basel II ratio of 2%)
- Introducing capital conservation and macro-prudential countercyclical buffers
- Introducing a framework for new regulatory regimes on liquidity and leverage

Although the focus of Basel III is on the banking industry, it will have a significant impact on the financial services industry as a whole and the investment funds industry in particular. Many investment companies belong to banking groups and will be directly hit by the requirements via their parent companies—capital and liquidity requirements and leverage restrictions will be more evident to these market participants.

Money market funds currently make up a relatively significant volume of worldwide investment fund assets (Figure 19), but there is concern that Basel III could cause decline in the overall number of money market funds available for investment. The regulatory framework allows retail deposits to be counted towards banks' net stable funding ratio but not assets held in money market funds; hence there is an incentive for banks to promote savings accounts rather than money market funds in order to strengthen their balance sheets.

Figure 19: Breakdown of Worldwide Assets Allocated to Different Fund Types

Source: EFAMA, ICI

Transaction fees for all players in the investment funds universe are likely to increase in order to compensate for requirements for banking institutions to maintain a liquidity coverage ratio (LCR) and a net stable funding ratio (NSFR). The LCR dictates that a bank may only lend with a minimum 30-day term, and a direct impact of this will be that every time a prime broker lends money to a fund manager, they need to commit to their obligations and the execution thereof. The NSFR also stipulates that 50% of capital lent must be maintained for approximately a year. This increase in trading costs and reduced access to leverage will put up the barriers to entry in the funds sector.

The direct impact of the regulation on the investment funds sector will therefore be:

- A potential decline in the number of money market funds globally
- An increase in transaction fees for the investment fund processing lifecycle, which will result in a need to reduce operating costs
- A push to improve capital and liquidity will drive investment in risk analytics, which, in turn, requires greater data standardization and increased automation
- The overall cost of Basel III compliance (combined with the weight of other regulation and a poor economic climate) may cause some banking institutions to exit the fund administration business and could result in M&A activity for smaller and mid-tier players
- There will be greater pressure to improve timeliness of processes and data provision overall

U.S. TAX AND REPORTING CHANGES

The United States tax code has been dramatically altered for both mutual funds and investors, resulting in changes in reporting requirements and distributions. Mutual funds are regulated investment companies (RICs) and for the most part benefitted from the changes made under the Regulated Investment Company (RIC) Modernization Act of 2010. Investors, broker-dealers, custodians, transfer agents, and other reporting parties were all impacted by the cost basis accounting requirements that came into effect in 2013 set forth in the Emergency Economic Stabilization Act of 2008.

RIC MODERNIZATION ACT OF 2010

This United States law is the most significant tax legislation to impact U.S.-based firms since the Tax Reform Act of 1986. Seen mostly as a positive development by the fund industry, this law eliminated many uncertainties that existed regarding calculation and distribution of fund net income and capital gains. One provision that is not seen as a benefit to the industry is an increase in the capital gains distribution requirement.

COST BASIS ACCOUNTING

The United States Emergency Economic Stabilization Act of 2008 included new tax reporting requirements mandating that custodians, broker-dealers, transfer agents, and other reporting entities report the adjusted cost basis of sold securities including mutual funds, exchange traded funds (ETFs), and dividend reinvestment plans (DRIPS) be reported to the U.S. IRS beginning in 2013. Investors are required to report gains and losses to the IRS on a cost basis as well. Firms will now need to consider the tax implications of a trade at the time of trade as cost basis accounting methods cannot be changed after the trade settles.

12B-1 FEES

In the United States mutual funds are subject to Securities and Exchange Commission's rule 12b-1. Rule 12b-1 authorizes a fund to pay fees for distribution expenses and sometimes shareholder service expenses out of fund assets. The law requires mutual funds to report their performance on a net basis, after deducting expensed including these fees which are known as 12b-1 fees.

OVERALL IMPACT OF REGULATION

A clear outcome of this patchwork of regulation is that the cost of operating in the investment funds universe is likely to go up to take into account additional direct and indirect compliance costs. The money market funds sector is likely due to face some significant pressures in particular from shadow banking regulation and Basel III requirements. At a high level, the combined effect of much of this regulation will be to:

- **Put pressure on firms to automate their fund processing**—developments within the market infrastructure sphere such as a shortening of the equities settlement cycle in Europe or the move of OTC instruments onto electronic trading venues will push up data volumes and shorten the window for funds processing.

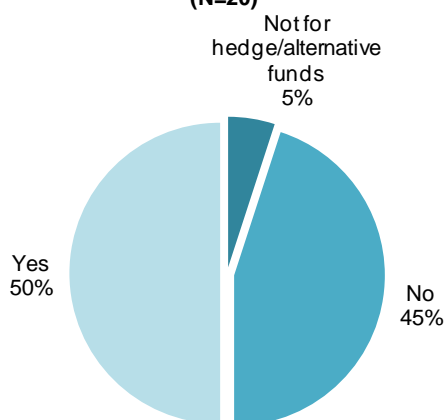
- **Increase the frequency of reporting**—timeliness of data will become much more of an issue, and participants in the investment funds sector will need to have the ability to support daily (or even near-real-time reporting processes in some cases) to support risk analysis and reporting to regulators and clients.
- **Require more granular and aggregate data for reporting**—most key pieces of regulation include reporting requirements aimed at improving transparency; hence, firms must be able to provide investment fund look-through and identify how pricing data has been derived, for example. Risk and business analytics tools also require support for higher volumes of both granular and aggregated data.
- **Require new reference and operational data to be supported**—whether it is CIC or NACE codes for Solvency II reporting or legal entity identifiers for OTC derivatives reporting, many new reference data items are being added into the data maintenance list. Firms must also be able to aggregate at the enterprise level the operational and investment data sets that are currently being stored in end systems in a disparate manner.
- **Increase the need for improvement in end-documentation storage**—fund and client documentation needs to be much more available on an ad hoc basis in order to support reporting for regulations such as FATCA and audit trails for investor protection due diligence purposes.
- **Compel firms to provide transparency into fee structures**—full transparency into how costs have been derived and distributed across the fund processing chain is a requirement of regulations including MiFID II and RDR.
- **Require fund distributors to provide access to a wider range of funds that are best suited to end investors' needs**—fitness and appropriateness of funds for end investors is a key dynamic that all actors in the investment funds universe need to take into account.
- **Compel firms to consider forms of collateral other than cash**—there is a lot of concern about access to high-quality collateral for both risk management and clearing purposes; this could force firms to turn to assets such as investment funds for collateral.
- **Force firms to do more with less**—with compliance spending eating up a lot of firms' annual budgets, maintenance and support of in-house platforms will come under pressure. This is likely to result in a refocusing on core competencies and outsourcing of non-core activities.
- **Cash and securities monitoring through the custody chain**—AIFMD requires depositary banks to strengthen their oversight of alternative investment fund accounts and imposes additional liability to this end.

ACHIEVING EFFICIENCY THROUGH SYSTEM OPTIMISATION

Given the level of regulatory and market infrastructure change over the next few years combined with continued downward pressure on costs and the increased focus on operational risk, it is no surprise that many interview respondents (45%) feel the way they currently process investment funds or hedge funds (5%) is not scalable (Figure 20). One European fund administrator respondent notes that the way it supports investment fund processing is heavily dependent on manual effort and if the firm experienced a significant growth in volume then it would likely "encounter serious issues." The business case for that particular firm to invest in a fund processing platform is therefore the ability to scale to meet future volume growth and to reduce operational risk by removing manual processes in certain key areas.

Figure 20: Future Scalability of Funds Processing Environment

Q. Is the manner in which you process investment funds scalable for the next few years?
(N=20)

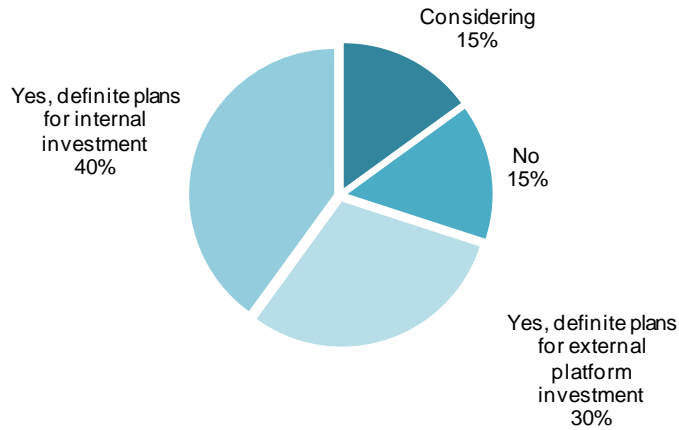


Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

Unsurprisingly, the majority of interview respondents is either definitely (70%) or is considering (15%) making investments in technology to improve their capabilities for the processing of investment funds (Figure 21). This investment is split across internal investments such as the addition of new reporting capabilities to clients or regulators to meet particular compliance requirements, and investment in external platforms and systems such as connectivity to an investment funds processing platform or new dashboarding tools for operational risk monitoring.

Figure 21: Plans to Invest in Technology for Investment Fund Support

Q. Are you planning on investing in funds processing technology in the next 24 months?
(N=20)

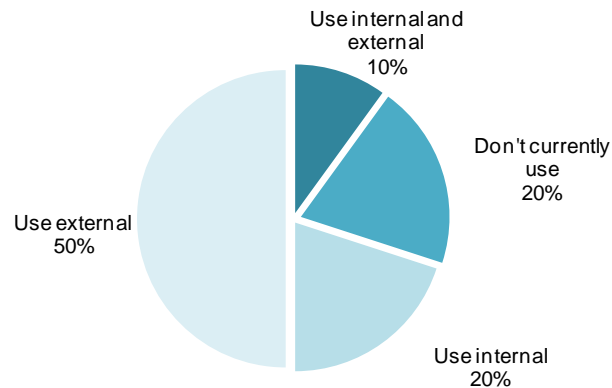


Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

More than half of firms currently use an external fund processing platform, and just under a third have invested in their own internal platforms (Figure 22). One of the European firms that currently use an external platform notes that the operating cost difference between the direct to transfer agent model versus using a fund processing platform is a reduction in transfer agency support costs of around 30%. These savings are achieved via the use of a single portal to access multiple actors in the transfer agency universe rather than the maintenance of multiple connections in the direct model. The main difference in cost is also accounted for by man-hours dedicated to data reconciliation and communication processes between parties.

Figure 22: Current Use of Fund Processing Platforms

Q. Do you currently use a funds processing platform?
(N=20)



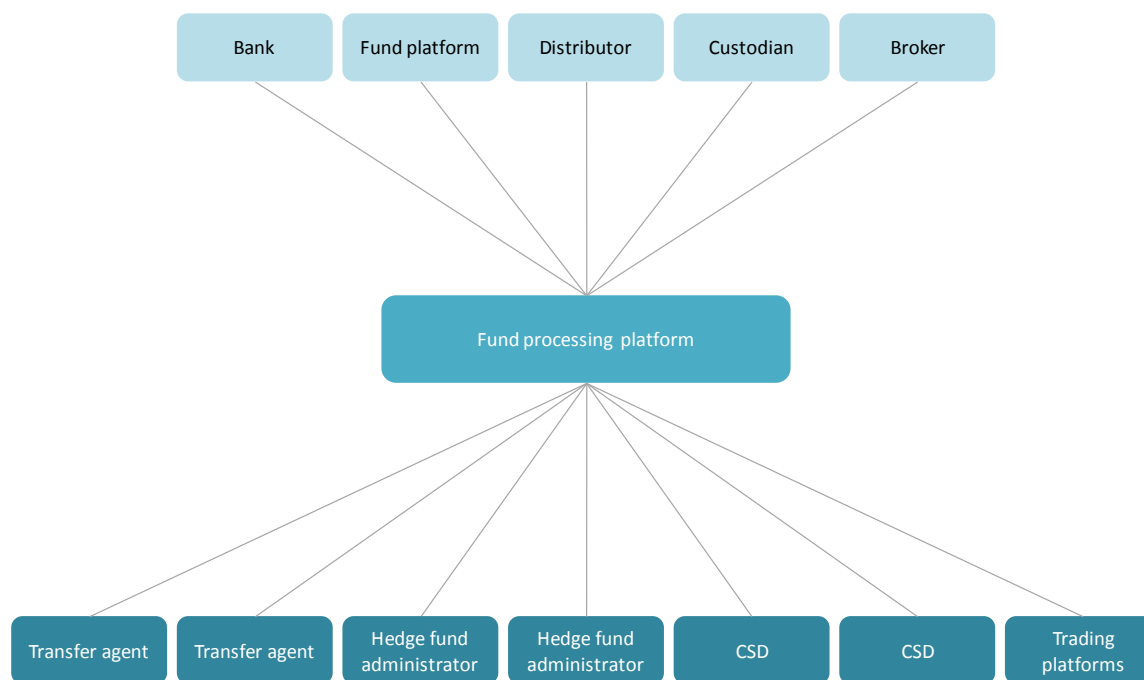
Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

Figure 23 highlights the ability of a fund processing platform to act as a gateway to multiple actors and market infrastructures in the investment funds universe. Order routing capabilities mean that funds can be traded via the direct transfer agent model, CSDs or via trading platforms/stock exchanges. This allows these funds to compete with other asset classes such as equities or bonds. A hub also provides access to post-trade infrastructure for fund transactions in domestic and cross-border markets via a centralized settlement account.

Services offered by a fund processing platform can include:

- Routing of orders to funds/fund agents, CSDs or trading platforms/stock exchanges in a standardized way
- Centralized trade settlement (delivery versus payment—secured settlement through simultaneous exchange of securities and cash)
- Asset servicing of the fund units
- Support to use investment funds as collateral
- Value-added services, such as full real-time reporting including a centralized source of funds reference data

Figure 23: A Fund Processing Platform as a Single Point of Access to Multiple Actors



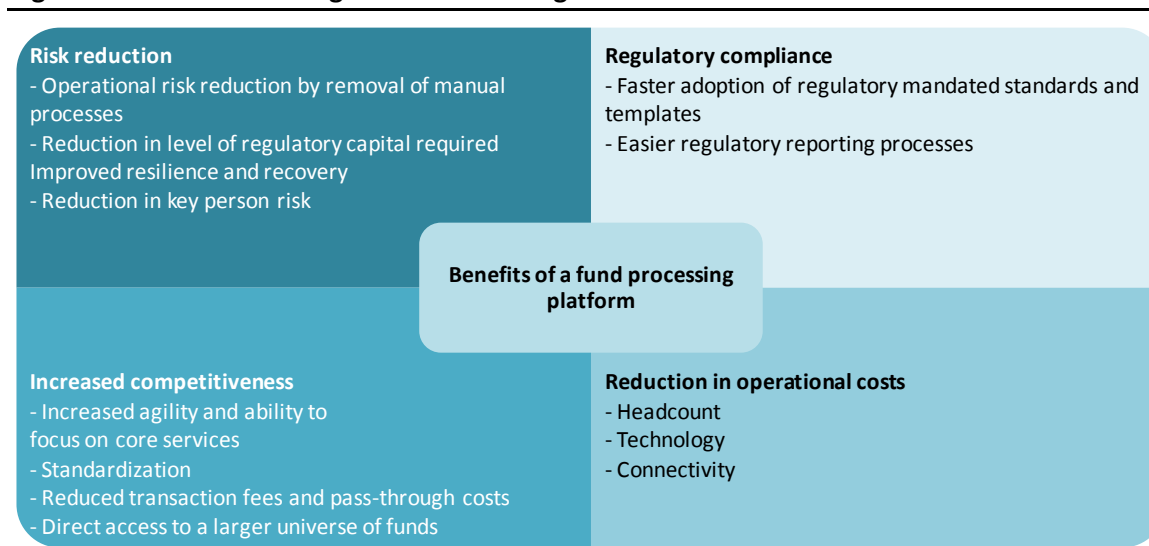
Source: Aite Group

Figure 24 shows some of the benefits of using a fund processing platform from the perspective of reducing operational risk, increasing efficiency and competitive edge, reducing operational costs, and tackling regulatory compliance issues. On the subject of improving competitive

market positioning, one of the European fund manager respondents indicates that the main perceived benefit is a better turnaround time for funds processing overall. He explains that the firm is able to confirm the funds trade on T+1, which represents a "significant reduction in the time taken out of the day to chase information" between actors in the funds process. This time saving therefore enables the firm to dedicate more FTE resources to providing better information to its clients.

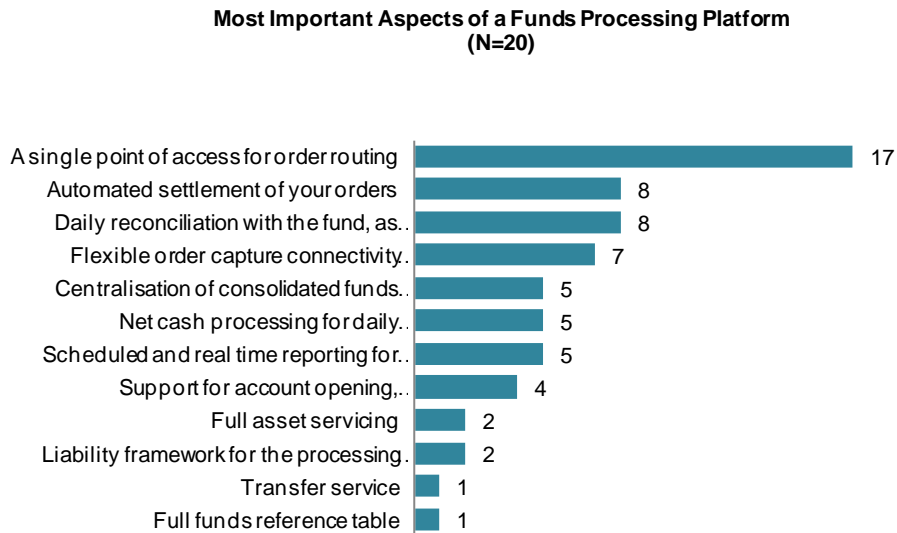
On the operational costs side, a European fund distributor respondent indicates that the firm decided to connect to a fund processing platform because the reduced routing, and settlement costs as well as the higher STP rate involved in the move were "decisive." Another notes that regulatory compliance pressures are compelling the firm to look at connecting to a fund processing platform because of the complexity of the reporting process and the perceived benefit of being provided with a higher level of standardized data.

Figure 24: Benefits of Using a Fund Processing Platform



Source: Aite Group

The majority of respondents believe the most important aspect of a fund processing platform is the ability to provide a single point of access for order routing (Figure 25). A number of interview respondents are using these platforms for only the order routing portion of the investment funds process, which may account for the particularly high number of firms focusing solely on this aspect of a fund processing platform's capabilities.

Figure 25: Most Important Aspects of a Fund Processing Platform

Source: Aite Group interviews with 20 firms active in the investment funds sector, Q2 and Q3 2013

The full capabilities of a fund processing platform include:

- Support for account opening, maintenance, and operation
- A single point of access for order routing
- Flexible order capture connectivity options
- Automated settlement of orders
- Centralization of consolidated funds holdings
- Transfer service
- Liability framework for the processing and safekeeping of funds
- Daily reconciliation with the fund as well as with the distributor side
- Full asset servicing
- Scheduled and real-time reporting for orders, cash, and securities
- Net cash processing for daily settlement activity
- Full funds data reference table
- A single point of access to stock exchange execution for ETFs and "funds traded on exchange"

ABOUT CLEARSTREAM

Clearstream is a global leader in post-trade securities services and with more than 11.2 trillion Euros in assets under custody, one of the world's largest settlement and custody firms for domestic and international securities. As an ICSD, Clearstream provides customers in more than 100 countries with access to 53 domestic markets, the international securities market and the carbon emission rights market. The global reach is more than just geographical as its services cover all major asset classes and enable settlement in real-time across borders, time zones and currencies. As a CSD based in Frankfurt, Clearstream also provides the post-trade infrastructure for the German securities industry, offering access to a growing number of markets in Europe.

Clearstream's product portfolio includes the issuance, settlement and custody of securities, award-winning collateral management and securities lending services through the Global Liquidity Hub as well as innovative investment funds services via the Vestima platform.

Vestima provides a gateway to global funds solutions ranging from order routing, settlement and custody to collateral management. This allows customers to benefit from a streamlined process regardless of the variety of markets and investment funds involved. It offers a single access point to over 120,000 funds from 33 jurisdictions worldwide. In 2012, Vestima started covering hedge funds giving customers access to a complete universe of funds with a standardised process for all instruments.

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