
ISDA 2001 OPERATIONS BENCHMARKING SURVEY: Over-the-counter Derivatives Operations Issues

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ISDA 2001 Operations Benchmarking Survey

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Section 1: Introduction to the Survey

Purpose

An immediate goal of the ISDA 2001 Operations Benchmarking Survey is to satisfy member interest in having detailed quantitative information on the processing of over-the-counter (“OTC”) derivatives. Against a background of increasing volumes and product variety, the ISDA Operations Committee has identified a need for data that would allow operations managers to compare themselves against the average for their peer group, in terms of the promptness and accuracy of their processing of trades, confirmation procedures and settlement.

Clearly, on an aggregate basis, such information is also of broader interest and can contribute to industry debate, standards and progress, as well as to the understanding of those who work with and observe the industry, including regulators and auditors. In particular, it brings a focus to issues such as automation and standardisation.

We therefore hope this benchmarking survey will be a useful tool for operations professionals in their respective firms, and to wider audience too, as a benchmark for firms’ current operations and as an indication of the direction the industry is likely to take in the years to come.

Wherever possible, this survey has continued the themes of the initial ISDA Operations Benchmarking Survey (published in October 2000 and available at www.isda.org) in order to allow ISDA to identify and track trends in the industry. At the same time, ISDA has rationalised the approach adopted in the first survey, by focusing on a smaller, more targeted range of issues and on the comparability of responses. This was felt necessary in order to derive meaningful and practical market benchmarks.

Current Survey

Product splits

In order to elicit data which could be compared and contrasted in the most useful way, the survey asked for some information by different product sets. Where this happened, the principal product groups were:

- FRAs;
- vanilla interest rate (IR) and currency swaps (sometimes referred to simply as ‘vanilla swaps’), and;
- non-vanilla IR and currency swaps (sometimes referred to simply as ‘non-vanilla swaps’).

The other products covered in part in the survey are derivatives on: commodities, credit, currency (options), equities and interest rates (options).

Definition of ‘vanilla/non vanilla’

For the purposes of this survey, and in order to achieve consistency, the term ‘vanilla’ is taken to mean a contract that is *capable* of being electronically matched by a commercially available auto-matching engine (regardless of whether the respondent actually uses that electronic capability). This distinction

between vanilla and non-vanilla is made in order to capture the bespoke, complex nature of non-vanilla products that may cause particular processing issues.

Profile of firms responding to the survey

Sixty-one financial institutions responded to this year’s survey. The name of the institutions that participated can be found in Appendix 3. These respondents have been divided into three groups – small, medium and large – on the basis of their OTC derivatives trading volumes and the global nature of their activity. Accordingly there are 17 large firms, 26 medium and 18 small, with regional mixes in each tier as shown in the table.

Number of firms in each tier	Regional mix in each tier
17 large firms	9 European 8 American
26 medium firms	9 Asian Pacific 10 European 7 American
18 small firms	5 Asian Pacific 10 European 3 American
61 respondents in all	14 Asian Pacific 29 European 18 American

Coverage of responses

The survey asked participants for data covering their global OTC derivatives business, including the activities of all companies in their group. Most respondents have managed to comply with this. In those instances where information was available only for a certain region or product, that firm’s data has nevertheless been included in the results presented in this report.

Furthermore, the survey asked that the data include only OTC derivatives deals executed with third parties. Internal and intra-company deals have, for the most part, been excluded.

Where the survey refers to days, this should always be taken to mean business days.

Data controls

Generally, we believe that the data given in the 2001 Survey is more reliable than that in the 2000 Survey. That was the first of its kind and we reviewed it carefully in framing this year’s survey, resulting in a document that is more focused in certain important ways. This year’s data shows more consistency across the survey population and, while not all questions were fully answered by all respondents, the integrity of the survey should speak for itself. Response rates are indicated throughout.

Survey Advisory Group

A crucial role in framing the current survey and checking the integrity of the finished report was played by an Advisory Group, made up of members of the ISDA Operations Committee. This Group

guided ISDA and its independent consultant in interpreting the results. The names of the members of this Advisory Group and of the consultant can be found in Appendix 2.

As indicated in the original questionnaire, all data has been kept in the strictest confidence. The members of the Advisory Group have had access only to aggregate data, not to individual responses of any firm other than their own.

Structure of the 2001 Survey

The ISDA 2001 Operations Benchmarking Survey consists of five main parts:

1. Volumes, Customers and Staffing;
2. Organisational Structure;
3. Operations Processing (Trade tickets and confirmations; Payments and settlement);
4. Automation;
5. Trends in Market Practice.

Within this structure, the greatest detail is on operations processing (part 3), which constitutes the core 'benchmark'. Wherever possible, noteworthy results, developments and trends are pointed out. Appendix 1 gives supplementary data for certain issues.

Future surveys

This second edition of the survey is structured such that, although some changes in format may still occur in future, it should be similar in scope and substance. This means comparison over the years should become increasingly meaningful and valuable as ISDA repeats the exercise, allowing ISDA to build up a more accurate picture of OTC derivatives operations practice and also to monitor and report on trends.

As mentioned above, this year's edition addresses similar themes to last year's but in a format designed to be more clear and focused (which is why the survey does not generally make comparisons with last year's results). ISDA welcomes comments on the current edition of the survey and suggestions as to how it could be further improved. These can be directed to Richard Metcalfe in the European Office of ISDA or Karel Engelen in the North American office.

Section 2: Executive Summary

Part 1 – Volumes, Customers and Staffing

Volumes

With intra-company deals excluded, survey participants report an average of 689 new OTC derivative trades per week (averaged over the twelve months to end-March 2001). Volumes varied considerably by size: large firms report an average weekly volume of 1,975 trades, medium firms 286 trades, and small firms 57 trades. The top five firms by deal volume account for 40% of the total average weekly volume for all respondents.

Most respondents expect volumes for most products to increase by up to 25% in the next year, though many expect no increase in FRAs and strong growth in credit derivatives.

Customers and Master Agreements

Respondents report, on average, over 2,000 (external) customers with whom they transact OTC derivatives business. They report overall that they consider around 40% of their customers to be professional counterparties and 60% end-users. At any given moment, they indicate a Master Agreement has either been signed (85%) or else is under negotiation.

Staffing

Given firms' sensitivities in providing staffing data for last year's survey, this year's asked for ratios rather than outright numbers. Respondents were asked to make adjustments to exclude staff requirements for processing internal deals. It may, however, be that not all response data is fully comparable. Nevertheless, respondents suggest that interest rate derivatives have, on average, just over 2 front office staff (dealers/marketers etc) to each member of operations/support staff compared with 4 front office staff per operations/support staff member for currency options.

Furthermore, the data indicates that for each operations/support staff member, respondents can average nearly 9 OTC interest rate derivative trades compared to over 38 currency option deals.

Large firms are able to process a greater volume of OTC interest rate derivatives per operations/support staff member than medium or small firms (large firms averaged 12.9 compared with 9.1 for medium firms and 4.1 for small).

The staff turnover figure of 21% is slightly higher than for last year. Most firms (86%) give up to 6 days training per year.

Part 2 – Organisational Structure

This part is intended to give a point-in-time 'snapshot' of whether firms centralise their operations departments or keep them decentralised (which generally means located geographically close to their front office). It should be remembered that, at some firms, centralisation may vary by product line and

that, within a given firm, the various operations functions (eg, payments and confirmations) may be handled in different regions.

Part 3 – Operations Processing

Trade tickets (FRAs and vanilla swaps only)

All trade details are available for processing the same day and nearly nine-tenths of trades reach the back office by 5pm on trade date. Medium and small firms do slightly better than the large firms.

Medium-sized firms are the least likely to track error rates (48%, against 82% for small and 94% for large) and they have the highest estimated error rates (14%, against 8% for small and 11% for large).

The three types of data that firms most commonly have to add in the back office are: i) dates; ii) counterparty data; and iii) standard settlement instructions (SSI) details.

Confirmation production

Firms will typically set a frame time within which they ‘normally’ dispatch confirmations (though this can vary by product line). Within two days of trade date, firms report that they have sent out confirms for: all FRAs; 95% of vanilla swaps; and 73% of non-vanilla swaps.

The percentage of confirmations that do not meet a firm’s normal dispatch time grows with the size of the firm and with the sophistication of the product. For example, large firms report that 15.7% of their non-vanilla IR and currency swaps do not meet their target dispatch time, and small firms that only 0.6% of their FRAs do not. The reasons most often cited for the delays are:

- the requirement to process new or non-standard products;
- documentation awaiting approval from traders or marketers;
- (for large firms) awaiting approval from the legal and the compliance area.

On a volume-weighted basis (for the three product categories), around 40% of trades are confirmed by both parties sending out a confirmation that is reviewed and acknowledged by the other party, but not signed or returned.

Commercial auto-matching systems are used mainly for FRAs (34% of trades) and to some extent for vanilla IR and currency swaps (only 9% of trades). For FRAs, medium and large firms use auto-matching for similar volumes (37% for medium, 34% for large). Small firms only auto-match 9% (perhaps because the volume they trade does not warrant investment in automation).

Outstanding confirmations

The average number of confirmations that are outstanding (that is, they have been sent but are not finalised) increases with the sophistication of the product. For FRAs, the average number outstanding is 7.6 days worth of trade volumes; for non-vanilla swaps, it is 12.1 days. As regards the resolving of discrepancies, the more standardised the product, the quicker the process.

All large firms have a formal escalation procedure in place to deal with outstanding confirmations. Slightly fewer small firms do (89%, compared with 85% of medium firms), but they appear to activate their escalation procedures earlier.

Errors attributable to the confirmations area are less commonly tracked than those attributable to the front office. The error rate for FRAs in small firms is double that in medium or large firms. This may reflect higher levels of FRA automation among medium and large firms.

Payments and settlement

The 61 respondent firms make an average 7,633 settlements per month, with large variations across firm size (large firms report an average of 20,520 settlements per month compared with 3,488 for medium firms and 1,219 for small firms). Across all respondents around two-thirds send and receive payment advices (67% sent; 61% received), with large firms sending out considerably more than medium or small firms.

For small firms, phone confirmation tends to constitute an alternative to a payment advice. For other firms, phone confirmation is more often an additional check.

Prioritisation of nostro breaks is based primarily on the dollar amount involved, followed by age as a risk factor. While new nostro breaks per day run at an average of 4.0% of average daily settlements, small firms fare best (with 1.4% compared with 4.9% for medium and 5.4% for large).

Part 4 – Automation

This part focuses mainly on FRAs and vanilla and non-vanilla swaps. Other products are dealt with in more summary fashion.

Current automation

As expected, the more sophisticated the product, the less automation there is. Functions with a high degree of automation are:

- the transfer of trade data from the front office to the operations system;
- the transfer of data from the operations systems to the general ledger;
- the addition of data to the front office trade record, notably SSI and trade details.

Plans for further automation

For vanilla IR and currency swaps, the focus is on the transfer of trade data from the operations system to the general ledger. Nearly four-fifths of the respondents say that, for this aspect of processing, 90% or more of their deal volume is handled in an automated fashion. And of those with no automation, four-fifths plan to introduce at least some in the coming year.

Matching of details on confirmations is the function where the highest number of firms (52) have no automation. But nearly half of these 52 plan to introduce this in the coming year.

Part 5 – Trends in Market Practice

The majority of firms suggest they have a flexible approach to the signing of counterparty confirmations. Large firms are the least likely to agree to sign counterparty confirmations.

Part 5 also elicits firms' understanding of novations and assignments and the allocation of responsibilities for producing and signing of the relevant documentation. (Following the 2000 Survey, ISDA formed a group to work on a new universal template for these agreements.)

It also touches on:

- (criteria for) use of rate reset notices;
- policies with regards to swaption straddles;
- the use of termination agreements;
- actual/planned use of internet portals, and their benefits and applications.

Section 3: Survey Results

The full survey results are presented below in five parts, as follows:

- Part 1 - Volumes, customers and staffing
- Part 2 – Organisational structure
- Part 3 – Operations processing
- Part 4 – Automation
- Part 5 – Trends in market practice

Part 1 – Volumes, Customers and Staffing

Part 1 is concerned with volumes of OTC derivatives, customer numbers and types, and staffing issues.

The following paragraphs cover:

- OTC derivatives volumes
- Average weekly deal volumes
- Brokered trades
- Expectation about future volumes
- Customers and master agreements
- Staff numbers
- Staff numbers for interest rate derivatives
- Staff turnover
- Staff training

OTC derivatives volumes

Survey participants were asked to give weekly volumes of all their OTC derivatives deals averaged over the 12 months to the end of March 2001. They were asked to exclude internal and intra-company deals, and to count a deal as ‘1’ even if it generates several separate tickets that need to be processed.

The data, as shown in the table below, suggests an average weekly deal volume of 689, with OTC currency options and vanilla¹ IR and currency swaps contributing the largest proportions.

	Number of respondents giving data	Average reported weekly deal volume
FRAs	50	59
Vanilla¹ IR and currency swaps	61	209
Non-vanilla IR and currency swaps	54	80
IR options	58	33
Currency options	43	251
Equity derivatives	39	149
Credit derivatives	38	26
Commodity derivatives	19	120
Total OTC derivatives	61	689

¹ For the purposes of this survey, ‘vanilla’ is taken to mean an OTC contract which is *capable* of being electronically matched by a commercially available auto-matching engine.

Average weekly deal volume by size

The average weekly deal volumes for the first three product groups in the above table are here recast by size categories to give an indication of the differences between the three tiers.

Av number of weekly deals	All respondents	Large firms	Medium firms	Small firms
FRA s	59	117	39	7
Vanilla IR and currency swaps	209	571	96	30
Non-vanilla IR and currency swaps	80	241	16	7
Total OTC derivatives	689	1,975	286	57

The range of answers within size categories varies quite widely. To put this in context, across all OTC derivative products the top five answers accounted for over 50% of the total average weekly volume of large firms, and over 40% of the total average weekly volume across all respondents.

Brokered Trades

Respondents indicate that quite substantial portions of their OTC derivatives dealing are brokered, although this varies across product. FRAs and vanilla IR and currency swaps are the products with the greatest brokered volumes overall, although commodity derivatives also feature strongly on a volume-weighted basis.

	Number of respondents giving data	Volume-weighted percentage of brokered trades
FRA s	47	56%
Vanilla IR and currency swaps	54	46%
Non-vanilla IR and currency swaps	47	13%
IR options	55	38%
Currency options	40	37%
Equity derivatives	32	11%
Credit derivatives	33	29%
Commodity derivatives	18	47%

Expectation about future volumes

Most respondents for most products indicate that they expect volumes next year to increase by up to 25%. The exception is FRAs, where nearly half the respondents expect volumes to remain at current levels. Overall, credit derivatives are expected to show the greatest increase in volumes.

(% respondents with expectation about future volumes)	Volumes expected to increase			Stay the same	Volumes expected to decrease			Number of respondents
	more than 50%	25%-50%	up to 25%		up to 25%	25%-50%	more than 50%	
FRAs	-	4%	44%	48%	-	4%	-	46
Vanilla IR and currency swaps	5%	18%	57%	18%	2%	-	-	56
Non-vanilla IR and currency swaps	10%	20%	56%	14%	-	-	-	50
IR options	4%	11%	57%	24%	2%	-	2%	54
Currency options	7.5%	12%	54%	24%	-	-	2.5%	41
Equity derivatives	16.5%	28%	39%	16.5%	-	-	-	36
Credit derivatives	32.5%	24%	35%	5.5%	3%	-	-	37
Commodity derivatives	15%	10%	40%	35%	-	-	-	20

Customers and master agreements

Respondents report, on average, over 2,000 customers with whom they transact OTC derivatives business. Using each institution's own criteria, they consider 40% of their customers to be professional counterparties, and 60% to be end-users, although this varies by size of firm.

	All firms	Large firms	Medium firms	Small firms
Average number of customers/counterparties who transact OTC derivatives business	2,060	4,588	1,707	605
Ratio of end-users to professional customers/counterparties²	1.5	1.2	2.1	0.9

Over all respondents, 85% of OTC derivative customers have a signed master agreement in place.

Staff numbers

In order to get a sense of the processing cost of different OTC derivative products, survey participants were asked for data relating to staff numbers and costs. In order to avoid any sensitivities arising from asking for outright numbers of staff, the survey sought ratios of two forms:

- firstly, the number of front office traders and marketers (that is, business generators) to the number of staff which process, confirm and settle them; and

² In each tier, this is calculated as the total number of end-user customers divided by the total number of professional counterparties.

- secondly, the average number of weekly deals to the number of staff which process, confirm and settle them.

The survey requested staff numbers expressed as full-time-equivalents for ease of comparison, and for adjustments to exclude staff requirements for processing of internal deals. Staff costs were requested on an all-in basis, including basic salary, bonus and overheads.

	Average number of front-office staff per operations/support staff member	Average of new weekly deals per operations/support staff member	Average all-in cost of an operations professional (rounded to nearest US\$1,000)
All IR derivatives	2.1	8.9	87,000
Currency options	4.0	38.6	74,000
Equity derivatives	2.8	12.6	102,000
Credit derivatives	2.3	3.5	108,000
Commodity derivatives	2.2	10.5	72,000

Staff numbers for interest rate (IR) derivatives

In order to compare data across size categories, the following table relates only to IR derivatives. It suggests that large firms are able to process greater volumes of trades for a given number of back office staff than medium and small firms.

	All firms	Large firms	Medium firms	Small firms
Average number of front-office/marketers per operations/support staff member	2.1	1.3	2.9	1.8
Average number of weekly deals per operations/support staff member	8.9	12.9	9.1	4.1

Staff turnover

The reported annual staff turnover rates range between 0% and 50%, with an overall average of 21% (slightly higher than last year).

	Less than 10%	Between 10% and 25%	Between 25% and 50%	Over 50%	Number of respondents
% respondents with average turnover rates in range	22%	44%	34%	0%	55
Comparative data from 2000 survey	29%	52%	13%	6%	-

Not all turnover results in operations staff leaving the organisation, and the survey asked respondents for data on the percentage that move internally into other roles. Their response indicates that around 43% stay within their firm, and that 57% move externally. Where staff leave the organisation altogether, respondents were asked to estimate how many join a competitor firm; they suggest this to be around 43%.

	All firms	Large firms	Medium firms	Small firms
Average annual turnover	21%	21%	24%	17%
Operations staff which move internally within organisation	43%	45%	36%	52%
Operations staff which move outside organisation	57%	55%	64%	48%
Of those operations staff who leave, how many join a competitor organisation	43%	53%	48%	22%

Staff training

The survey suggests that large firms are much more likely to have in place a formal training programme for operations staff. Across all respondents the average cost of training an operations professional is reported as just over US\$ 2,000.

		All respondents	Large firms	Medium firms	Small firms
A formal training programme is in place for operations professionals		43%	71%	31%	33%
Amount of training operations professional receive each year	0-3 days	44%	23%	60%	40%
	3-6 days	42%	65%	36%	27%
	6-10 days	9%	12%	-	20%
	Over 10 days	5%	-	4%	13%

Part 2 – Organisational Structure

This part analyses the extent to which firms favour centralised or localised processing, albeit they may constantly review this balance. Centralised processing has the potential to offer certain efficiencies, while decentralised processing can facilitate communications with front offices and customers. To gain some insight, the survey asked participants to describe in broad terms the relationship between their front offices and processing locations.

Specifically, survey respondents were asked this year to relate deal volumes generated in three different regions to the percentage of back office staff – that is staff who process, confirm and settle - located in those three regions. The three regions are Asia Pacific, Europe (which included Africa), and America (both North and South).

The first table below shows the number of back office regions and the number of front office regions as reported by respondents, with no regard to the percentage of staff in those regions. It shows that the two predominant structures of survey participants are:

- 3 front office regions supported by three back office regions (reported by 23 firms), and
- 1 front office region supported by a back office in that same region (reported by 17 firms).

		Front office OTC derivatives activity in		
		1 region	2 regions	3 regions
Back office processing, confirming, settling OTC derivatives in -	1 region	1 large firm 7 medium firms <u>9 small firms</u> 17	2 medium firms <u>2 small firms</u> 4	1 large firm 2 medium firms <u>2 small firms</u> 5
	2 regions	<u>1 small firm</u> 1	1 medium firm <u>1 small firm</u> 2	<u>1 medium firm</u> 1
	3 regions	-	-	14 large firms 8 medium firms <u>1 small firm</u> 23

Perhaps of more interest, however, is the degree to which back office activities to process, confirm and settle trades are centralised. For example, an institution may have front office deal generation in all three regions and back office activities also in all three regions; nevertheless it might be that the substantial majority of those back office activities are carried out in one place. The table below recasts the data to throw more light on this. (This table is reproduced in the Appendix with additional columns to give more information on size categories of firms and processing regions).

Degree of centralization of processing locations (% of processing/confirmation/settlement staff in single region)	Front office description (deals generated in...)
all (100%): 26 firms	all 3 regions: 5 firms 2 regions: 4 firms 1 region: 17 firms
predominantly (ie over 75%): 12 firms	all 3 regions: 9 firms 2 regions: 2 firms 1 region: 1 firm
the majority (ie 50%-70%): 11 firms	all 3 regions: all 11 firms
evenly split between 2 regions (together =85% of back office staff): 4 firms	all 3 regions: all 4 firms

Part 3 - Operations Processing

Part 3 looks at a range of issues concerned with capturing trade details, processing confirmations, and payments and settlement. The following paragraphs cover:

- Ticket details
- Front office error rates
- Causes of front-office errors
- Completing ticket data
- Error rates incurred by the addition of trade details
- Rebooking trades
- Production of confirmations
- Methods of confirming trades
- Processing incoming confirmations
- Outstanding confirmations
- Escalation procedure for outstanding confirmations
- Tracking error rates attributable to confirmations area
- Trade discrepancies
- Profile of outstanding confirmations
- Prioritising work
- Payments and settlement
- Payment advices
- Payment break resolution
- Nostro breaks
- Payment failures

Ticket details

Survey participants were asked about the normal time period before trade details are available from the front office for operations processing. Responses for FRAs on the one hand and, on the other, vanilla interest rate (IR)³ and currency swaps are very similar, so only the averaged data for the latter is shown here. (Missing data is shown in Appendix 1).

Vanilla IR and currency swaps		All respondents	Large firms	Medium firms	Small firms
Trade details available for processing	- within 1 hour	28%	24%	31%	28%
	- same day	72%	76%	69%	72%
	- next day	-	-	-	-
Number of respondents		61	17	26	18
Percentage of trades which reach the back-office by 5pm (in the trading location) on the trade date		89%	85%	91%	91%

³ For the purposes of this survey, ‘vanilla’ is taken to mean an OTC contract which is *capable* of being electronically matched by a commercially available auto-matching engine.

Front office error rates

This year's survey asked more detailed, focused questions on error rates than that of 2000, given the high rates reported last year, and the nature of their causes. This year, respondents were asked specifically about FRAs and vanilla IR and currency swaps (whereas last year the question was general).

The results show that firms more often, in general, track error rates for FRAs than vanilla IR and currency swaps, and the error rates are lower for FRAs.

FRAs	All respondents	Large firms	Medium firms	Small firms
Trader-originated errors are tracked	71%	94%	48%	82%
Number of respondents	51	17	23	11
Average estimated front-office error rate	11%	10%	14%	8%

Vanilla IR and currency swaps	All respondents	Large firms	Medium firms	Small firms
Trader-originated errors are tracked	64%	94%	50%	56%
Number of respondents	61	17	26	18
Average estimated front-office error rate	16%	18%	19%	10%

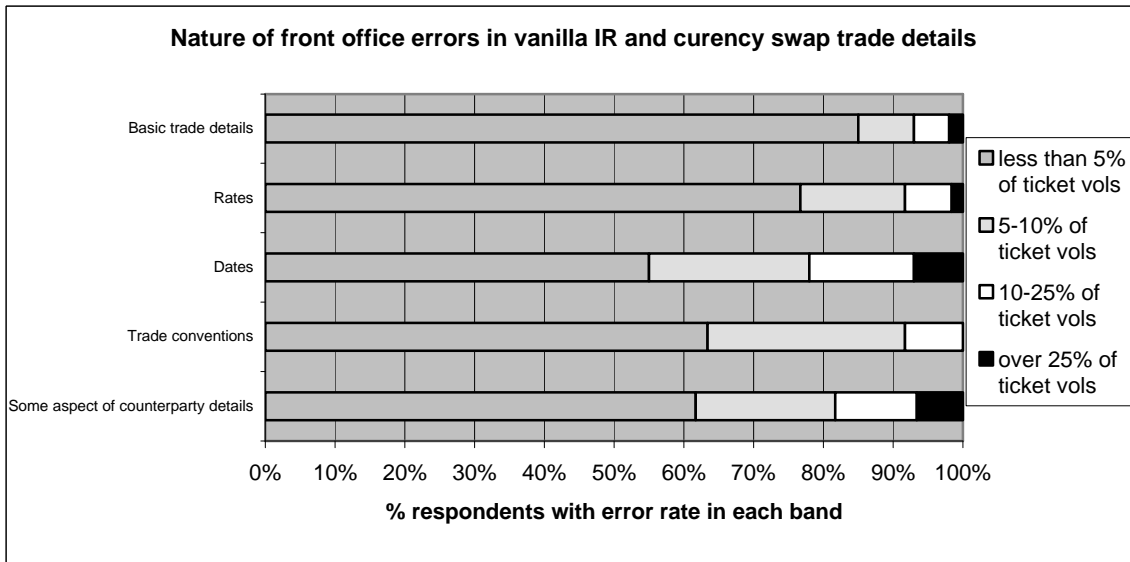
Causes of front office errors

In terms of the nature of errors incurred by the front office, firms were given five broad categories (which were based on their responses to last year's survey) and asked to indicate, for errors incurred, the percentage of those errors which they expect to see in each. Error rates were divided into four bands – less than 5%, 5% and above but less than 10%, 10% or above but less than 25%, and 25% or over.

In all categories the most common response is 'less than 5%', but there are some significant instances of error rates much higher than this. For both FRAs and vanilla IR and currency swaps the highest error rates are attributable to:

- dates (trade date, payment dates, maturity dates, settlement dates, rollover dates, etc.); and
- some aspect of counterparty details.

The chart below shows how respondents answered this question for vanilla IR and currency swaps. The corresponding chart for FRAs, which is very similar, is shown in the Appendix.



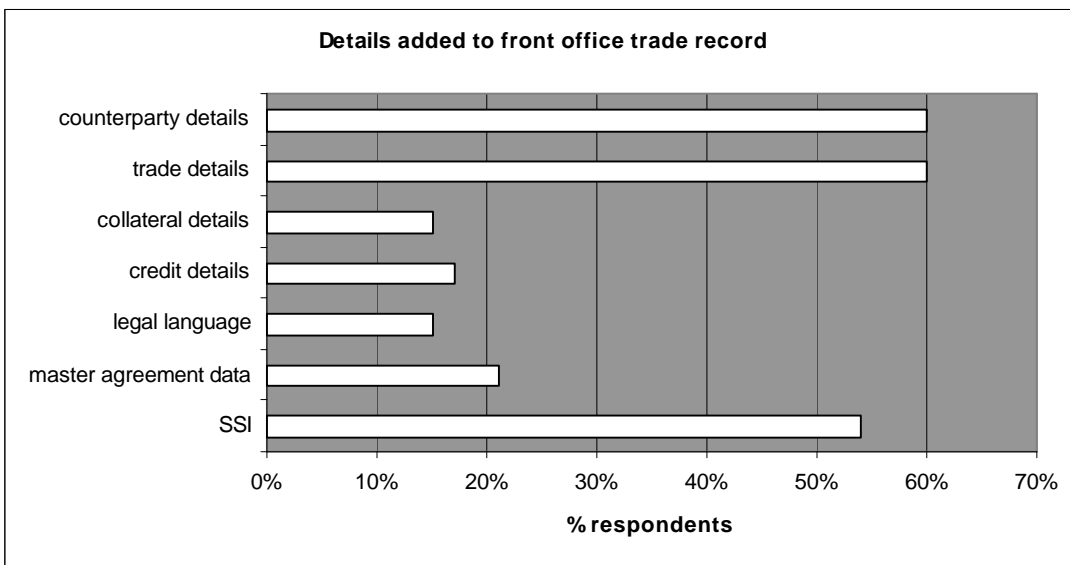
Completing ticket data

Survey participants were asked about the trade details that are, as a matter of course, added to the front office trade record in order for deals to be processed. On average they report that, notwithstanding errors, 91% of FRA trade tickets and 87% of vanilla IR swap tickets arrive in the back office with all the data necessary for processing.

Where details are added downstream, for both FRAs and vanilla IR and currency swaps, they are most likely to be:

- standard settlement instructions;
- trade details; and
- counterparty details.

The results for FRAs and vanilla IR and currency swaps are very similar, so only data for the latter is shown here.



Error rates incurred by the addition of trade details

In respect of FRAs, 31% of respondents (of 49 that answered the question) say they track error rates incurred in adding these details to the trade record, with an overall average error rate of nearly 4%. For vanilla IR and currency swaps, 34% respondents (of 59 that answered the question) say they track, with a much higher average error rate emerging of 7.4%.

FRAs	All respondents	Large firms	Medium firms	Small firms
% respondents who track error rate from addition of trade details	31%	38%	22%	40%
Average error rate	3.9%	5.1%	3.2%	3.25%

Vanilla IR and currency swaps	All respondents	Large firms	Medium firms	Small firms
% respondents who track error rate from addition of trade details	34%	50%	23%	35%
Average error rate	7.4%	8.9%	5.2%	9%

Rebooking trades

Survey participants were asked the percentage of trade records which need to be rebooked, whether as a result of an error or a change in trade details, and regardless of materiality. The average across all respondents is 6.5% for FRA, and 12.2% for vanilla IR and currency swaps. For both products the number who track the number of such rebookings is around 40%.

There are some differences in response across size category, as shown in the table below for vanilla IR and currency swaps, with large firms more likely to track, and having a higher instance of rebookings. The results for FRAs, which are broadly similar, are shown in the Appendix.

Vanilla IR and currency swaps	All respondents	Large firms	Medium firms	Small firms
Percentage of trade records which need to be rebooked	12.2%	20.1%	9.2%	8.4%
% respondents who track the number of rebookings per trade	40%	59%	39%	24%
Number of respondents	60	17	26	17

Production of confirmations

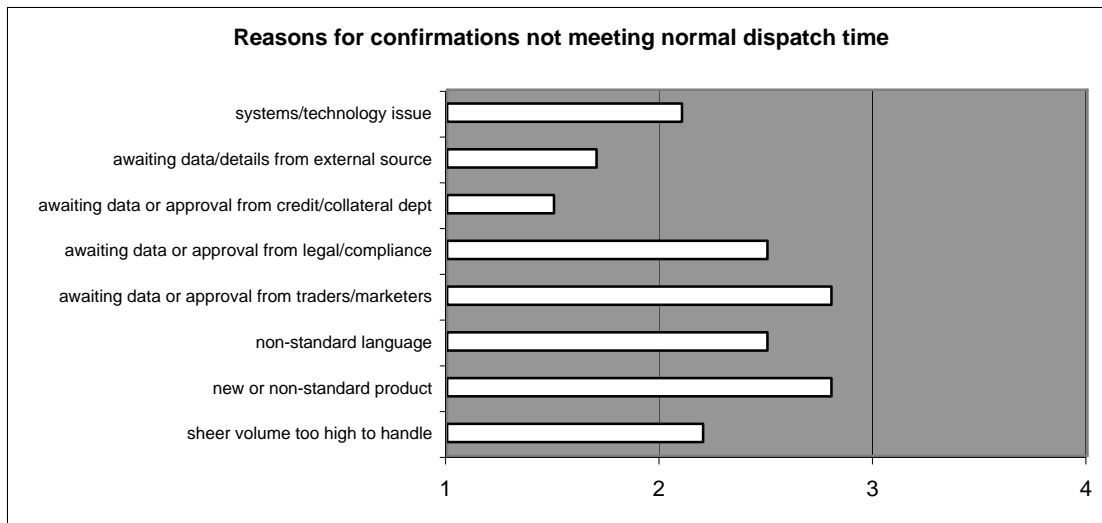
Respondents gave details on the time it takes them to prepare and process FRAs, vanilla IR and currency swaps and non-vanilla IR and currency swaps. Not surprisingly, confirmations for FRAs are generally dispatched faster than those for vanilla IR and currency swaps, which in turn are faster than those for non-vanilla swaps. For example, by two days after trade date, respondents suggest that 100% of FRA confirmations are sent, 95% of vanilla IR and currency swaps, and 73% of non-vanilla IR and currency swaps.

		FRA	Vanilla IR and currency swaps	Non-vanilla IR and currency swaps
% of respondents who normally dispatch confirmations -	- on trade date	49%	29%	22%
	- within 1 day of trade date	92%	76%	45%
	- within 2 days of trade date	100%	95%	73%
	- within 3 days of trade date	-	95%	82%
	- within 4 days of trade date	-	95%	85%
	- within 5 days of trade date	-	98%	91%
	- more than 5 days after trade date	-	100%	100%
Number of respondents		49	59	55

Notwithstanding these dispatch times, firms report that 4.1% of FRA trades do not meet their norm, 8.6% of vanilla IR and currency swaps, and 13.5% of non-vanilla IR and currency swaps. Large firms show greater dispersion around their norms than medium and small firms (although there are fewer data points for small firms, reflecting the fact that they are more likely, than large or medium firms, to await confirmations from their counterparties rather than produce their own).

	All respondents	Large firms	Medium firms	Small firms
Average % of FRA confirmations not meeting the firm's normal dispatch time	4.1%	5.8%	4.0%	0.6%
Average % of vanilla IR swap confirmations not meeting the firm's normal dispatch time	8.6%	12.1%	7.5%	6.7%
Average % of non-vanilla IR swap confirmations not meeting the firm's normal dispatch time	12.0%	15.7%	11.7%	7.0%

Firms were asked to weight, from 1 to 4, a number of reasons why confirmations may not meet their normal dispatch time. A weighting of 1 signifies that the reason is of little or no significance, and 4 indicates it is a critical factor. The categories which score highest across all tiers are, firstly, the need to process new or non-standard products and, secondly, awaiting documentation approval from the traders or marketers. Furthermore, large firms also ranked awaiting data from legal/compliance highly. In general large firms tend to give higher weightings in all categories than medium or small firms.



Methods of confirming trades

Survey participants were given four methods, which broadly represent the choices available for confirming OTC derivatives trades with counterparties. Respondents gave, for three OTC product sets, the percentage volumes that are generally confirmed by each of the four methods. The summary data is shown in the following table.

Method of confirmation	Average of responses across all respondents		
	FRAs	Vanilla IR and currency swaps	Non-vanilla IR and currency swaps
(a) We send out a confirmation and expect our counterparty to sign it and return it to us	30%	36%	47%
(b) Our counterparty sends us a confirmation which we sign and return to them	19%	35%	31%
(c) Both parties send out a confirmation which is reviewed by the other, and acknowledged, but not signed and returned	34%	25%	22%
(d) Trades are matched by a commercial auto-matching system	17%	4%	N/a

Certain features of the results are worthy of particular note:

(i) If the data is volume-weighted, the results look rather different, with the averaged percentage confirmed by method (b) falling sharply. The following table reproduces the one above but with volume-weighted averages.

Method of confirmation	Average of volume-weighted responses across all respondents		
	FRAs	Vanilla IR and currency swaps	Non-vanilla IR and currency swaps
(a) We send out a confirmation and expect our counterparty to sign it and return it to us	23%	39%	45%
(b) Our counterparty sends us a confirmation which we sign and return to them	5%	14%	13%
(c) Both parties send out a confirmation which is reviewed by the other, and acknowledged, but not signed and returned	38%	38%	42%
(d) Trades are matched by a commercial auto-matching system	34%	9%	N/a

(ii) The volume-weighted averages indicate prominent differences across products, particularly between FRAs and IR swaps. For example, around one-third of FRAs are confirmed by commercial matching systems, but less than 10% of vanilla IR and currency swaps are confirmed in this way.

(iii) There are differences in confirmation methods across size categories. Using FRAs as an example, small firms confirm few FRAs using commercial matching systems, preferring to exchange confirmations with their counterparties. By comparison large and medium firms confirm around one-third of FRAs using auto-matching.

	Average of volume-weighted responses for FRAs			
	All respondents	Large firms	Medium firms	Small firms
(a) We send out a confirmation and expect our counterparty to sign it and return it to us	23%	22%	27.5%	15%
(b) Our counterparty sends us a confirmation which we sign and return to them	5%	4%	8%	19%
(c) Both parties send out a confirmation which is reviewed by the other, and acknowledged, but not signed and returned	38%	40%	27.5%	57%
(d) Trades are matched by a commercial auto-matching system	34%	34%	37%	9%

The full data is shown in the Appendix.

Processing incoming confirmations

If a firm signs confirmations received from counterparties, they were asked the average time it takes to process, from the time the confirmation is received to the time it is sent out again.

	All respondents	Large firms	Medium firms	Small firms
Average time to process incoming FRA confirmations	2.3 days	2.3 days	2.4 days	2.1 days
Average time to process incoming vanilla IR and currency swaps confirmations	3.0 days	3.1 days	3.2 days	2.6 days
Average time to process incoming non-vanilla IR and currency swaps confirmations	4.1 days	4.2 days	4.3 days	3.7 days

Outstanding confirmations

Survey participants were asked, if they send out confirmations, the average number at any one time that are outstanding – that is, the confirmations have been sent to the counterparty but are not finalised, perhaps because there are discrepancies that have not yet been resolved. This question was asked in relation to FRAs, vanilla IR and currency swaps, and non-vanilla IR and currency swaps. Expressed as days' worth of average confirmation volumes, where days are counted from the date the confirmation is dispatched, the average number of outstanding confirmations was lowest for FRAs, at 7.6 days, and highest for non-vanilla IR and currency swaps, at 12.1 days.

	All respondents	Large firms	Medium firms	Small firms
Average number of FRA confirmations which are sent but not finalised	7.6 days	7.5 days	8.3 days	5.9 days
Average number of vanilla IR swap confirmations which are sent but not finalised	10.1 days	11.7 days	11 days	6.2 days
Average number of non-vanilla IR swap confirmations which are sent but not finalised	12.1 days	12.1 days	13.6 days	9.1 days

Escalation procedure for outstanding confirmations

Respondents gave information on their escalation procedures for outstanding confirmations. Their responses are similar across the three product sets, so only the data for vanilla IR and currency swaps is shown here (full data is shown in the Appendix)

Vanilla IR and currency swaps escalation procedure		All respondents	Large firms	Medium firms	Small firms
No, there is no formal escalation procedure		10%	0%	15%	11%
Yes, there is a formal escalation procedure which kicks in if confirmation is outstanding for -	- 5 days	29.5%	18%	31%	39%
	- 10 days	29.5%	29%	23%	39%
	- 30 days	29.5%	53%	27%	11%
	- 90 days	1.5%	0%	4%	0%
Number of respondents		61	17	26	18

Tracking error rates attributable to confirmations area

Survey participants were asked about errors generated by those that process and produce confirmations. Error rates were estimated as being twice as high for non-vanilla IR and currency swaps as FRAs.

FRAs	All respondents	Large firms	Medium firms	Small firms
% respondents that track error rates for FRAs attributable to the confirmations area	33%	47%	27%	30%
Average error rate for FRAs	2.4%	1.9%	2.2%	4%

Vanilla IR and currency swaps	All respondents	Large firms	Medium firms	Small firms
% respondents that track error rates for vanilla IR and currency swaps attributable to the confirmations area	30%	41%	27%	28%
Average error rate for vanilla IR and currency swaps	3.8%	4.1%	3.8%	3.2%

Non-vanilla IR and currency swaps	All respondents	Large firms	Medium firms	Small firms
% respondents that track error rates for non-vanilla IR and currency swaps attributable to the confirmations area	28%	41%	24%	27%
Average error rate for non-vanilla IR and currency swaps	4.8%	6.1%	4.1%	4.3%

Trade discrepancies

Survey participants were asked about the length of time it normally takes to resolve trade discrepancies when they come to light during the confirmation process, regardless of the source of the error. Their responses indicate that, in general, discrepancies in FRA trades are resolved and trades are rebooked faster for FRA deals than vanilla IR and currency swaps. Non-vanilla IR and currency swaps take longer to resolve and rebook.

All respondents		FRA	Vanilla IR and currency swaps	Non-vanilla IR and currency swaps
Time to resolve trade discrepancies and rebook Trade	- same day	32%	16%	5%
	- next day	22%	28%	19%
	- 2-5 days	38%	49%	62%
	- more than a week	8%	7%	14%
Number of respondents		50	61	57

The full data is given in the Appendix.

Profile of outstanding confirmations

For three product groups – i) FRAs, ii) vanilla IR and currency swaps, and iii) all other OTC derivatives - respondents were asked for the risk profile of confirmations which have been sent to the counterparty, but as yet remain unsigned (that, is, the paperwork has not been finalised). Three age bands were defined – 30 days or less; 31-90 days; and over 90 days. Also, respondents were asked to break down their data according to whether or not there had been an acknowledgement of the trade by the counterparty (even if certain trade details may be in dispute), and proof of that acknowledgement exists, perhaps in the form of broker note, or a telephone tape.

On this basis, the profile of outstanding FRAs, compared with that of vanilla IR and currency swaps, shows a greater percentage in the shorter age buckets, and also a greater percentage which are acknowledged by the counterparty, and proof of this exists. On the other hand, the profile for vanilla IR and currency swaps was very similar to that for other OTC derivatives. (Data in each column of each matrix sum to 100.)

FRAs		All respondents	Large firms	Medium firms	Small firms
% outstanding confirmations where proof of counterparty acknowledgement exists	0-30 days	79%	65%	81%	98%
	31-90 days	4.5%	10%	3%	-
	Over 90 days	1%	2%	-	-
% outstanding confirmations where no proof of counterparty acceptance exists	0-30 days	13%	18%	14%	2%
	31-90 days	2%	4%	1.5%	-
	Over 90 days	0.5%	1%	0.5%	-

Vanilla IR and currency swaps		All respondents	Large firms	Medium firms	Small firms
% outstanding confirmations where proof of counterparty acknowledgement exists	0-30 days	68%	43%	71%	88.5%
	31-90 days	7%	12%	6%	2%
	Over 90 days	4%	7%	4%	0.5%
% outstanding confirmations where no proof of counterparty acceptance exists	0-30 days	16%	28%	14%	8%
	31-90 days	4%	8%	4%	1%
	Over 90 days	1%	2%	1%	-

Other OTC derivatives		All respondents	Large firms	Medium firms	Small firms
% outstanding confirmations where proof of counterparty acknowledgement exists	0-30 days	67%	45%	74%	85%
	31-90 days	11%	17%	8%	7%
	Over 90 days	4%	8%	2.5%	2.5%
% outstanding confirmations where no proof of counterparty acceptance exists	0-30 days	13%	23%	10%	5%
	31-90 days	4%	5%	5.5%	0.5%
	Over 90 days	1%	2%	-	-

Prioritising work

In managing outstanding confirmations, organisations need to make considered judgements about priorities, and where to use their resources. In order to better understand how these kinds of judgements are made, the survey included a section which posed pairs of conflicting scenarios and asked respondents to indicate the one that, everything else being equal, their firm would consider to be of higher priority. The pairs were chosen to be evenly balanced in terms of risk factors; they are listed in the table below, along with the number of ticks that each option scored.

Scenario 1:	A bank in an emerging market jurisdiction	29	or	15	An OECD corporate
Scenario 2:	A trade with a high mark-to-market where there is a master agreement in place	18	or	27	A trade with low mark-to-market where a master agreement is not in place
Scenario 3:	A trade with a bank where the confirmation has been outstanding for 90 days	25	or	24	An identical trade with a corporate where the confirmation has been outstanding for 30 days
Scenario 4:	A trade where the confirmation has been sent and is unsigned, but the trade has been orally acknowledged by the counterparty, although a master agreement is not in place	13	or	37	An identical trade where the confirmation has been sent, but the trade has not been acknowledged by the counterparty, but there is a master agreement in place
Scenario 5:	A trade with an OECD counterparty where the current mark-to-market is high	22	or	21	A trade with a counterparty in an emerging market where the current mark-to-market is low
Scenario 6:	A trade with a corporate where a master agreement is in place	22	or	26	An identical trade with a bank where no master agreement is in place
Scenario 7:	A trade transacted over 90 days ago where the mark-to-market is low	35	or	12	A trade recently transacted which has a high current mark-to-market

This table is designed to illustrate which issues firms are, as a matter of policy, more likely to focus on for the purposes of routine, day-to-day management of their OTC derivatives confirmations business. Its value is as a *relative* indicator of where resources are likely to be concentrated in the normal course of events. Accordingly, it is not possible to say that any priority indicated is fixed or absolute; in their responses, firms have stressed that they actively monitor the full range of risks to which their firms are exposed, whether market, credit or operational. Firms have also commented that they remain flexible as to priorities, depending on prevailing or particular circumstances.

The responses appear consistent with this approach. Thus, there are some scenarios where a clear majority will typically prioritise in one particular way, but where a significant minority will take a different line. For example, Scenario 4 examines whether trades where there is no counterparty acknowledgement are considered of higher priority than those where the master agreement is not signed. Here, 37 of 50 respondents indicate they generally prioritise securing the counterparty acknowledgement, though 13 do not (perhaps reflecting the findings elsewhere in this survey [ref. Part I, Customers and master agreements] that, while the incidence of unsigned masters is low across a still growing industry, it is nevertheless an issue in a limited number of instances). Moreover, as the responses to Scenario 2 show, a majority clearly believes that ensuring master agreements get signed is important, even though there is also judgement to be made as to the importance of the mark-to-market amount.

A further insight can be gained from examining the differences in the way that large, medium and small firms assigned priorities. For example, in Scenario 2, which considers the competing demands of a high mark-to-market against having no master agreement yet in place, nearly 90% of small firms afforded the higher priority to the latter compared to around 40% of large firms. In a similar vein, Scenario 4 examines the competing demands of oral trade acknowledgement against having no master agreement in place. Here, all large firms voted that gaining counterparty acknowledgement is generally of higher priority compared with around 62% of small firms.

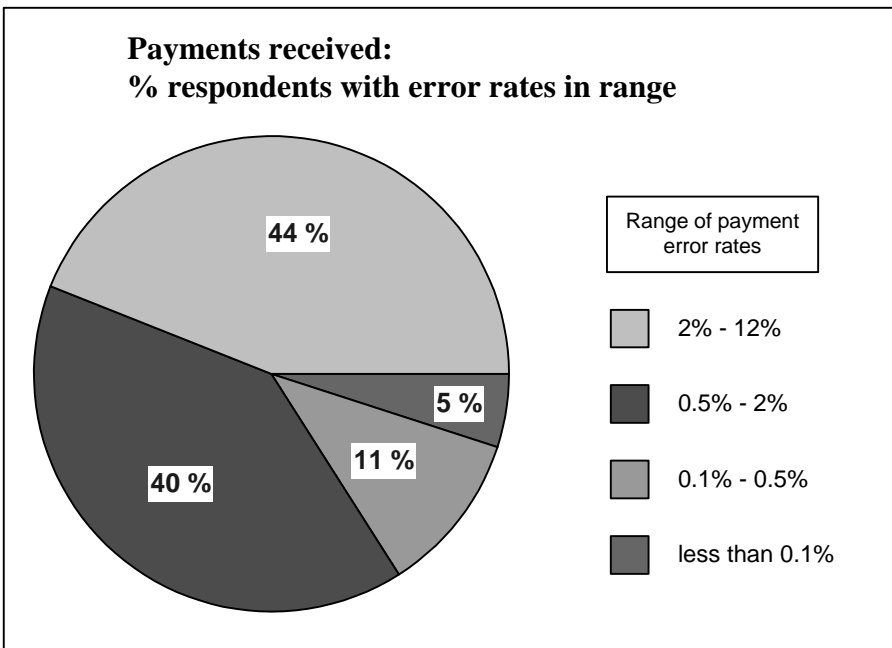
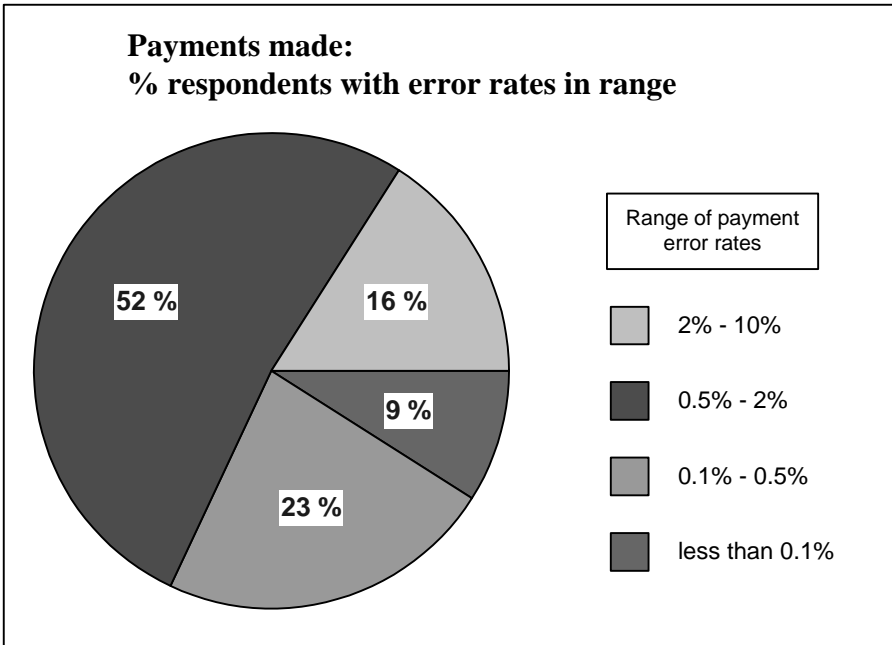
Scenario 5 compares the jurisdiction of the counterparty with mark-to-market. Here, although the options score evenly overall, nearly 70% of small firms assign higher priority to the jurisdiction versus nearly 80% of large firms who chose the mark-to-market.

Payments and settlements

The average number of settlements in respect of OTC derivatives in an average month is reported as 7,633, with large firms settling many more, on average, than medium and small firms. Firms report a much higher incidence – nearly double – of errors incurred in payments received than payments made. The exact explanation for this was not immediately apparent.

	All respondents	Large firms	Medium firms	Small firms
Average number of settlements on OTC derivative trades per month	7,633	20,520	3,488	1,219
Average error rate on payments made	1.4%	2.0%	1.3%	0.9%
Average error rate on payments received	2.7%	3.8%	3.0%	1.4%

The range of error rates reported are quite similar for payments made and received – from zero to ten percent for payments made and from zero to 12% for payments received. But a much greater percentage of respondents report error rates in the top of these ranges if payments are received rather than made.



Payment advices

An emerging trend is for firms not to send out payment advices for all payments, and survey participants were asked for the percentage of payments made, and the percentage of payments received, for which they do typically send out advices. Answers ranged from zero to 100%, and averaged 67% for payments made, and 61% for payments received. Data varied widely across size categories. For example:

- of the 17 large firms, nine say they send out advices for all payments made and seven say they send out advices for all payments received;

- of 23 medium firms that gave data, nine say they send out advices for all payments made and six that they send out advices for all payments received; and
- of 15 small firms that gave data, three send out advices for all payments made and four for all payments received.

	All respondents	Large firms	Medium firms	Small firms
% of payments made for which payment advices sent out	67%	92%	63%	46%
% of payments received for which payment advices sent out	61%	82%	55%	45%

Survey participants were also asked the percentage of payments (made or received) which they confirm by telephone. The average across all respondents is 32%, but the answers varied widely, with nearly half the respondents saying they phone confirm less than 20% of payments.

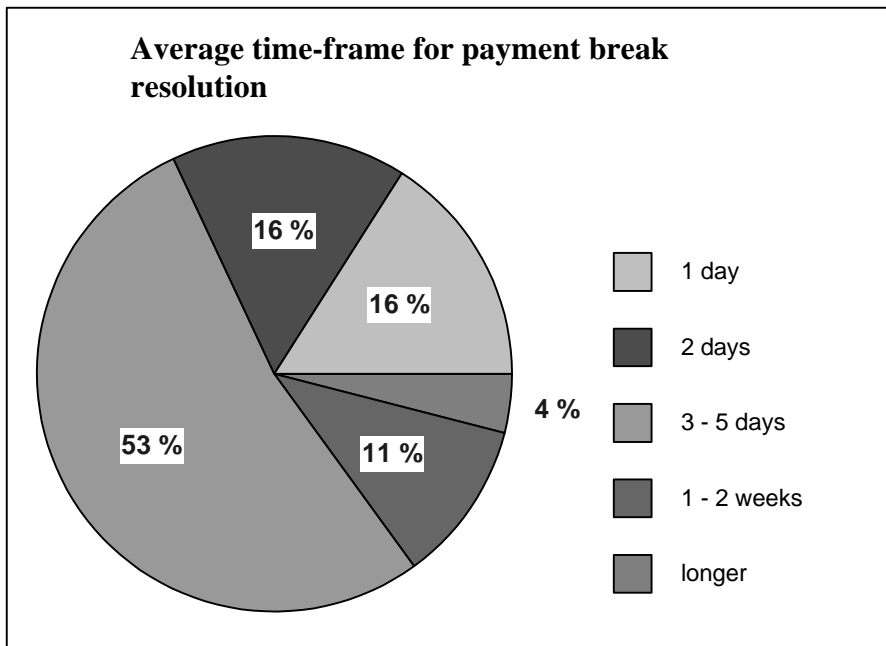
	80% or more of payments	50% or more, but less than 80%	20% or more, but less than 50%	Less than 20%
% respondents that phone confirm payments in range	12%	20%	20%	48%

In determining whether or not to phone confirm, respondents indicated which criteria they use from three given (they could tick more than one).

		All respondents	Large firms	Medium firms	Small firms
Criteria in deciding whether to phone confirm payment	Nature of client or counterparty	60%	81%	74%	20%
	Size of payment	48%	88%	42%	13%
	Whether checked the settlement notice received from counterparty	46%	25%	32%	87%

Payment break resolution

The majority of respondents report that it takes, on average, three to five days to resolve payment breaks.

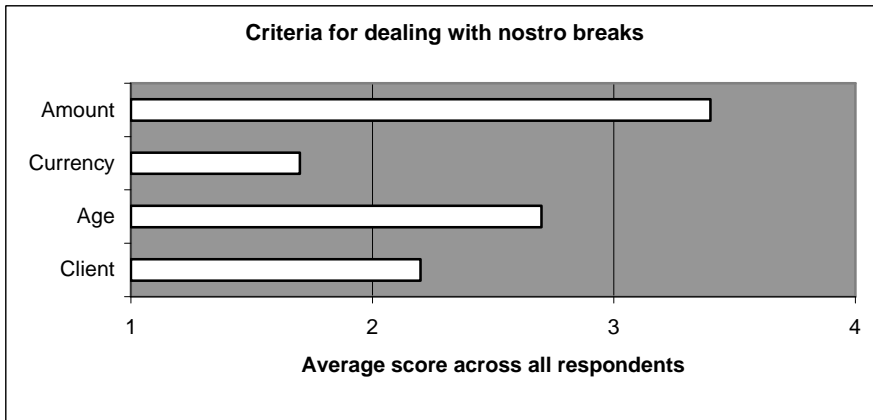


Nostro breaks

Survey participants were asked how many new nostro breaks per day they normally have (ie, discrepancies between expected and actual cash settlements), expressed as a percentage of average daily settlement. The average across all respondents is 4%, although large firms systematically report higher rates than medium and small firms.

	All respondents	Large firms	Medium firms	Small firms
Average number of new nostro breaks per day, expressed as a % of average daily settlements	4.0	5.4	4.9	1.4

Firms were asked about the criteria they generally use when dealing with nostro breaks. They were given four criteria and asked to rank them in order of importance, assigning 4 to the most critical and 1 to the least. They report that the size of the payment is generally the most critical factor, followed by age, and the nature of the counterparty. Currency was considered the least important of the four criteria.



Payment failures

78% of respondents report that they have in place a formal escalation procedure for payment failures. Where such a procedure is in place, 70% say that it kicks in within five days (or earlier) of the break, 17% that it does so within 10 days, and 13% that a payment is outstanding longer than 10 days for the procedure to be initiated.

73% of the 60 firms who responded say that there is an amount that their firm is generally prepared to waive before making an interest claim on a nostro break. 44 respondents gave their firm's indicative amount, and their answers average US\$190. This varies across tiers – large firms reported an average of US\$ 250 (across 17 respondents), medium firms US\$ 160 (across 18 firms) and small firms US\$ 140 (across nine firms).

Part 4 - Automation

The survey looked in detail at the level of automation employed in processing, confirming and settling OTC derivatives, with particular emphasis on IR products. A number of key functions in the process chain were explicitly described and respondents were asked for the percentage volume of their OTC derivatives that each function handles in an automated fashion, with no (or minimal) manual intervention. For ease of administration, the responses were banded into four groups – none (that is, the process is entirely manual), up to 50%, 50% or over but less than 90%, and 90% or over.

Three product groups were defined for the detailed exercise – FRAs, vanilla IR and currency swaps⁴, and non-vanilla IR and currency swaps – on the basis that they would, between them, describe where the market sits in terms of the amount of automation which currently exists, and the priorities which firms attach to future development. Much broader questions were asked in relation to other product groups in order to get a general feel for these areas.

The following paragraphs cover:

- Current automation of FRAs, vanilla IR and currency swaps, and non-vanilla IR and currency swaps
- Plans for further automation
- Automation of other OTC products

Current automation of FRAs, vanilla IR and currency swaps, and non-vanilla IR and currency swaps

The table below shows how respondents answered the detailed questions relating to FRAs, vanilla IR and currency swaps, and non-vanilla IR and currency swaps. For each function, the *table* shows the number of respondents that ticked each of the four bands, as a percentage of the total number of respondents that answered. The *bands* represent the volume of OTC derivatives that are processed automatically.

⁴ For the purposes of this survey, ‘vanilla’ is taken to mean an OTC contract which is *capable* of being electronically matched by a commercially available auto-matching engine.

<i>(Number of respondents per volume band)</i>	FRAs		Vanilla IR and currency swaps		Non-vanilla IR and currency swaps	
Trade data transferred from the front office to operations for processing (that is, no handwritten trade tickets)	None	16%	None	19%	None	20%
	Up to 50%	4%	Up to 50%	5%	Up to 50%	18%
	50%-90%	2%	50%-90%	10%	50%-90%	10%
	90% or over	78%	90% or over	66%	90% or over	52%
Trade data transferred from the operations system to the general ledger	None	12%	None	10%	None	11%
	Up to 50%	6%	Up to 50%	7%	Up to 50%	8%
	50%-90%	4%	50%-90%	5%	50%-90%	6%
	90% or over	78%	90% or over	78%	90% or over	75%
Additional data added to front office trade record in order to process						
(i) SSI	None	22%	None	25%	None	25%
	Up to 50%	4%	Up to 50%	4%	Up to 50%	10%
	50%-90%	7%	50%-90%	13%	50%-90%	10%
	90% or over	67%	90% or over	58%	90% or over	55%
(ii) Master agreement data	None	28%	None	36%	None	38%
	Up to 50%	4%	Up to 50%	5%	Up to 50%	6%
	50%-90%	7%	50%-90%	9%	50%-90%	10%
	90% or over	61%	90% or over	50%	90% or over	46%
(iii) Legal language	None	30%	None	38%	None	40%
	Up to 50%	11%	Up to 50%	9%	Up to 50%	16%
	50%-90%	15%	50%-90%	23%	50%-90%	17%
	90% or over	44%	90% or over	30%	90% or over	27%
(iv) Credit details	None	33%	None	44%	None	41%
	Up to 50%	12%	Up to 50%	10%	Up to 50%	13%
	50%-90%	6%	50%-90%	10%	50%-90%	8%
	90% or over	49%	90% or over	36%	90% or over	38%
(v) Collateral details	None	46%	None	53%	None	51%
	Up to 50%	14%	Up to 50%	12%	Up to 50%	13%
	50%-90%	6%	50%-90%	7%	50%-90%	8%
	90% or over	34%	90% or over	28%	90% or over	28%
(vi) Trade details	None	15%	None	19%	None	19%
	Up to 50%	2%	Up to 50%	2%	Up to 50%	15%
	50%-90%	10%	50%-90%	19%	50%-90%	25%
	90% or over	73%	90% or over	60%	90% or over	41%
Signature applied electronically to confirmation	None	49%	None	59%	None	59%
	Up to 50%	-	Up to 50%	2%	Up to 50%	7%
	50%-90%	7%	50%-90%	10%	50%-90%	11%
	90% or over	44%	90% or over	29%	90% or over	22%
Confirmation sent	None	37%	None	43%	None	57%
	Up to 50%	16%	Up to 50%	20%	Up to 50%	20%
	50%-90%	6%	50%-90%	12%	50%-90%	7%
	90% or over	41%	90% or over	25%	90% or over	16%
Imaging of outgoing confirmation	None	53%	None	48%	None	53%
	Up to 50%	4%	Up to 50%	7%	Up to 50%	11%
	50%-90%	6%	50%-90%	12%	50%-90%	6%
	90% or over	37%	90% or over	33%	90% or over	30%
Imaging of incoming confirmation	None	67%	None	75%	None	73%
	Up to 50%	4%	Up to 50%	9%	Up to 50%	-
	50%-90%	8%	50%-90%	4%	50%-90%	12%
	90% or over	21%	90% or over	12%	90% or over	15%
Matching of details on confirmation	None	74%	None	85%	None	100%
	Up to 50%	12%	Up to 50%	15%	Up to 50%	-
	50%-90%	8%	50%-90%	-	50%-90%	-
	90% or over	6%	90% or over	-	90% or over	-

<i>(Number of respondents per volume band)</i>	FRA s		Vanilla IR and currency swaps		Non-vanilla IR and currency swaps	
Outgoing notification of rate resets	None	20%	None	15%	None	24%
	Up to 50%	4%	Up to 50%	6%	Up to 50%	21%
	50%-90%	21%	50%-90%	23%	50%-90%	23%
	90% or over	55%	90% or over	55%	90% or over	32%
Incoming advices relating to rate resets, SSIs etc	None	86%	None	88%	None	90%
	Up to 50%	6%	Up to 50%	4%	Up to 50%	4%
	50%-90%	2%	50%-90%	5%	50%-90%	4%
	90% or over	6%	90% or over	3%	90% or over	2%
Settlement advice	None	36%	None	33%	None	42%
	Up to 50%	7%	Up to 50%	7%	Up to 50%	20%
	50%-90%	11%	50%-90%	15%	50%-90%	12%
	90% or over	46%	90% or over	45%	90% or over	26%
Settlement	None	24%	None	24%	None	30%
	Up to 50%	12%	Up to 50%	12%	Up to 50%	21%
	50%-90%	12%	50%-90%	12%	50%-90%	11%
	90% or over	52%	90% or over	52%	90% or over	38%
NOSTRO reconciliation	None	17%	None	24%	None	23%
	Up to 50%	6%	Up to 50%	9%	Up to 50%	9%
	50%-90%	23%	50%-90%	22%	50%-90%	25%
	90% or over	54%	90% or over	45%	90% or over	43%

A number of observations are worthy of note:

Product differences

- (a) Much as expected, higher volumes of FRAs are handled by automated processes than vanilla IR and currency swaps volumes, and in turn higher volumes of vanilla IR and currency swaps are automatically processed than non-vanilla. For example, 78% of respondents say that FRA trade tickets are generated from the front-office system for 90% or more of trade volumes. This compares with 66% of respondents who can process 90% or more of their vanilla IR and currency swaps in an automated fashion, and 52% who can process 90% or more of their non-vanilla IR and currency swaps.

Volume differences

- (b) The two categories which systematically attract the vast majority of votes are ‘none’ and ‘90% or more’. That is, where a firm has an automated capability, high percentage volumes are processed automatically.

Differences between size categories

- (c) In general, large firms have more automated functions than medium, and medium firms more than small. To illustrate this, the following table shows the average number of functions (of the 18 in the full table below) that automatically process 90% or more of vanilla IR and currency swaps, and the average number of functions that automatically process none.

Vanilla IR and currency swaps	Large firms	Medium firms	Small firms
Average number of functions that automatically process 90% or more of firm’s deals	9	7	4
Average number of functions that cannot process any of the firm’s deals in an automated fashion	3.5	7	10

Function differences

(d) (Using vanilla IR and currency swaps as an example – all three products groups show similar trends). The functions which systematically appear to be most often automated by respondents are:

- the transfer of trade data from the front office to operations for processing;
- the transfer of trade data from the operations system to the general ledger;
- the addition of trade details to the front office trade record in order to process; and
- the outgoing notification of rate resets.

For each of these four functions over 75% of respondents indicate that 50% or more of their vanilla IR and currency swaps volumes are automated.

On the other hand, the functions that are least often automated are:

- imaging of incoming confirmations (where 75% of respondents have no automation at all for vanilla IR and currency swaps);
- auto-matching of trade confirmations (where 85% of respondents have no automation for vanilla IR and currency swaps); and
- receipt of incoming advices (where 88% of respondents have no automated capability for vanilla IR and currency swaps).

The other functions are split more evenly between the number of respondents that can handle 50% or more of volumes automatically, and those that can handle less than 50% of volumes.

Auto-matching

(e) Much work has been undertaken across the industry as a whole to facilitate the process to confirm OTC derivatives trades between market counterparties, with the introduction of commercial auto-matching engines which allow electronic comparison of trade details (such as SWIFT Accord). The survey indicates that relatively few firms are yet able to take advantage of this technology, (although the 2000 survey clearly indicated that there is widespread intention to do so). Thirty-seven respondents this year say they are unable to auto-match any of their FRA trades, and at the other end of the scale, three can auto-match 90% or more of their FRA volumes.

For vanilla IR and currency swaps (and remembering that, for the purposes of this survey, these are explicitly defined as trades which are capable of being auto-matched), 52 respondents are as yet unable to use a commercially available engine and, moreover, no firm can auto-match more than 50% of its volumes.

	FRA	Vanilla IR and currency swaps
Number of respondents that cannot auto-match any of their trades	37	52
Number of respondents that can auto-match up to 50% of trade volume	6	9
Number of respondents that can auto-match 50% or over but less than 90% of trade volume	4	0
Number of respondents that can auto-match 90% or more of trade volume	3	0

Plans for further automation

As firms are continually developing and improving their systems, the survey also asked respondents to indicate whether they have any current plans to introduce or extend automation (of the three products groups above) in the coming year. The following table gives a summary overview of the data, using vanilla IR and currency swaps. It shows, for those respondents that currently have no automation of a function, how many nevertheless have some planned for the coming year.

Vanilla IR and currency swaps	Number of respondents currently with no automation	% of these respondents that plan some automation in the coming year
Trade data transferred from the front office to operations for processing (that is, no handwritten trade tickets)	11	55%
Trade data transferred from the operations system to the general ledger	6	83%
Additional data added to front office trade record in order to process		
(i) SSI	14	33%
(ii) Master agreement data	20	18%
(iii) Legal language	21	16%
(iv) Credit details	18	20%
(v) Collateral details	23	45%
(vi) Trade details	11	40%
Signature applied electronically to confirmation	34	34%
Confirmation sent	26	52%
Imaging of outgoing confirmation	27	52%
Imaging of incoming confirmation	42	47%
Matching of details on confirmation	52	46%
Outgoing notification of rate resets	9	71%
Incoming advices relating to rate resets, SSIs etc.	51	31%
Settlement advice	18	27%
Settlement	16	50%
NOSTRO reconciliation	13	55%

Automation of other OTC products

The survey concentrated heavily on the automation of FRAs, vanilla IR and currency swaps, and non-vanilla IR and currency swaps. Other OTC derivative products were covered more broadly; fewer functions were identified, and respondents were asked to indicate whether any automation of that function exists (the degree of automation was not included for these products).

The following table shows, for each of the functions identified in the first column, the number of respondents that said some automation of that function exists, expressed as a percentage of those respondents that gave an answer. The data suggests that, in general, these OTC derivative products are less often automated than those that were covered in detail above.

	Interest rate options	Currency options	Equity derivatives	Credit derivatives	Commodity derivatives
Trade details transferred from the front office for operations processing	72%	81%	62%	60%	75%
Trade data transferred from the operations system to the general ledger	73%	73%	56%	65%	45%
Outgoing confirmation	57%	67%	39%	23%	30%
Outgoing notification of rate resets	69%	28%	23%	33%	38%
Settlement advice	54%	33%	26%	30%	40%

Part 5 – Trends in Market Practice

Part 5 looks at a number of items, covering:

- Signing counterparty confirmations
- Rate reset notices
- Novations and assignments
- Swaption straddles
- Termination agreements
- Communication media

Signing counterparty confirmations

The 2000 Survey highlighted issues surrounding firms' willingness to sign confirmations produced by their counterparties for OTC derivative trades. This year's survey asked a more defined question on this. It presented a number of statements and asked respondents to choose that which best reflects their policy. It was clear from some responses that the policy may well differ across products, and sometimes across jurisdiction. Nevertheless, on a firm-wide basis, the majority of respondents suggest that their firm has a flexible approach. A small number – three respondents – say that their firm simply does not sign confirmations produced by their counterparties. There were, however, stark differences in policy across size categories, with large firms generally appearing to be more rigid, and less likely to sign counterparty confirmations, than medium and small firms.

	Number of respondents who say that the statement best reflects their firm's policy			
	All respondents	Large firms	Medium firms	Small firms
My firm never signs counterparty confirms as a matter of policy	3	2	1	-
My firm will sign confirmations for certain counterparties only	8	3	4	1
My firm will sign confirmations only for certain products	2	1	1	-
My firm will sign confirmations only for certain counterparties and certain products	11	7	2	2
My firm has a flexible approach to signing counterparty confirmations – each trade/set of trades considered on its own merits	21	4	12	5
My firm always signs counterparty confirmations	15	-	6	9

Rate reset notices

56% of respondents (out of 59) say they send rate reset notices for *all* their OTC derivative trades (71% of large firms, 58% of medium firms and 39% of small firms).

17 of the 26 firms who do *not* send rate reset notices for all OTC derivative trades gave information on the criteria they use to determine which rate resets they will advise on:

- 13 say they consider the nature of the client/counterparty;
- none say they use the size of the payment;
- four decide based on whether they check the settlement notice received from the counterparty;
- two say they use both the nature of the counterparty, and the settlement notice received.

Where rate reset notices are sent, 83% of respondents say they include settlement details on the same advice.

Novations and assignments

Respondents were asked whether they differentiate between ‘novation’ and ‘assignment’. The answers are evenly split between those who do and those who do not. Where an institution only uses one of these techniques, eight indicate they use ‘novation’ and 20 that they use ‘assignment’.

Where a firm differentiates between novations and assignments, the criteria most often cited by respondents are:

- the law governing the agreement; and
- the technique used by the counterparty.

There is no accepted market practice for the production of documentation arising from novations, assignments and transfers, and survey participants were asked who they think should do this, given a choice of either the exiting party, the entering party, or both. Overall the answers were evenly balanced between the first and the last of these choices, with relatively fewer suggesting the second. However, the answers of large firms contrasted sharply with those of medium and small firms.

		All firms	Large firms	Medium firms	Small firms
% respondents who say the documentation should be produced by -	- the exiting party	39%	50%	32%	37%
	- the entering party	21%	6%	32%	19%
	- both	40%	44%	36%	44%

A further question on who respondents think should sign the documentation for assignments, novations and transfers produced a substantial vote in favour of both the exiting and entering party doing so. In addition respondents unanimously agreed that the constant party should also sign.

		All firms	Large firms	Medium firms	Small firms
% respondents who say the documentation should be signed by -	- the exiting party	2%	-	-	6%
	- the entering party	5%	6%	4%	6%
	- both	93%	94%	96%	88%

Swaption straddles

Of 54 institutions that trade swaption straddles, just over half say they send out a single confirmation covering both the purchase and the sale, and indeed, view a swaption straddle as a single trade. This is more likely to be the case for a large firm.

	All firms	Large firms	Medium firms	Small firms
% respondents who send out a single confirmation for swaption straddles, rather than two separate confirmations	52%	71%	43%	43%
% respondents who view a swaption straddle as a single trade rather than two separate ones	56%	82%	48%	36%

Termination agreements

Survey participants were asked about the manner in which they communicate with their counterparties about terminations; both full and partial unwinds. They were given four categories and asked to allocate the percentage of their OTC derivatives that fall into each category. The answers, averaged across all respondents, are shown in the table below.

		Full unwind	Partial unwind
You send out a termination agreement which	is signed by the counterparty and returned	49%	51%
	you match with an agreement you receive from your counterparty	18%	22%
	your counterparty does not respond to	11%	4%
or, you sign and return a termination agreement from your counterparty		22%	24%

Communication media

In terms of communicating with counterparties, six respondents say that they currently use internet portals. Furthermore, 30 institutions indicate that they have plans to build, or extend the use of portals. Of these 30 institutions, 16 were large firms, 11 medium and three small.

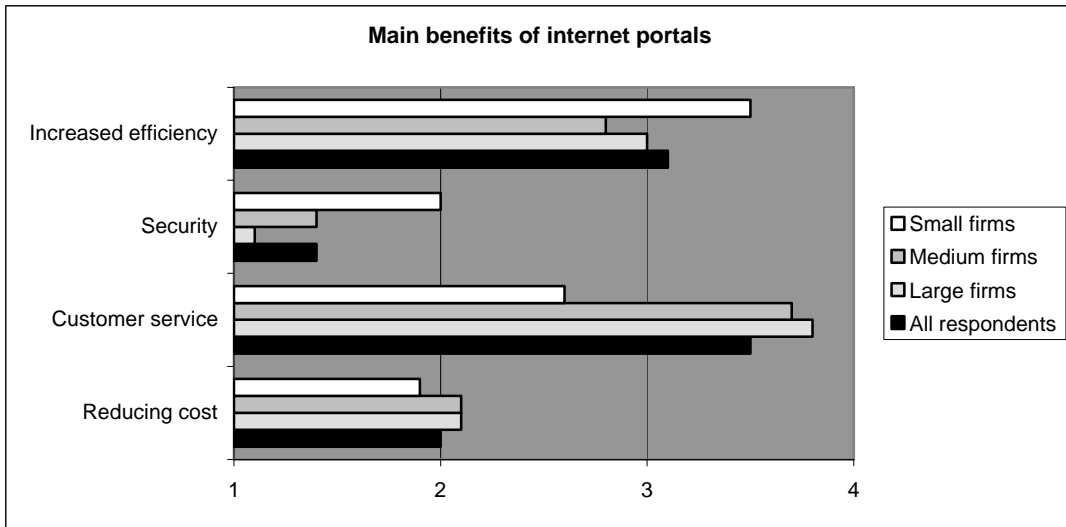
Where firms plan portals:

- 20 say that they will be offered to both corporate/end-users and professional counterparties;
- seven say they are intended for corporates/end-users; and
- three say they are intended for their professional counterparties.

Survey participants were asked to indicate what they see as the primary use of client portals, choosing a maximum of three categories. 37 institutions answered and suggest the main use to be as a data store for confirmations.

	Number of respondents
Data store for confirmations	25
Data store for term sheets	5
To provide portfolio valuation	20
A means to advise on rate resets	15
A means to advise on settlements	23
General correspondence	7

In terms of the main benefits of client portals, participants were asked to score four items in order, assigning 4 to that which they see as the biggest benefit, and 1 to the least important. On this basis, customer service emerged as the principal advantage of portals for large and medium firms, and increased efficiency scored the highest amongst small firms.



Appendix 1 – Additional data

Part 2 – Organisational Structure

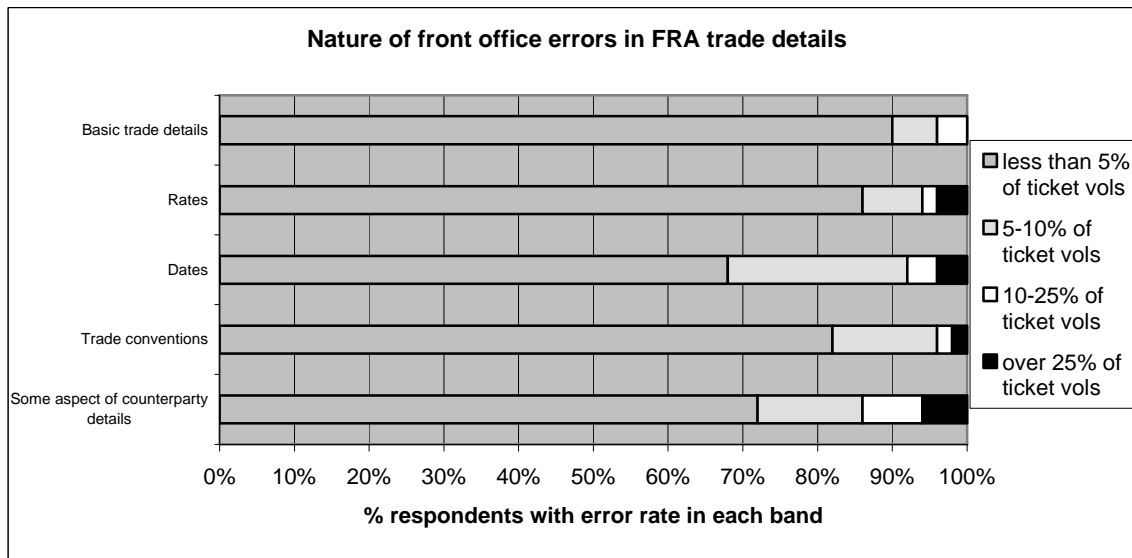
Degree of centralization of processing locations (<i>% of processing/confirmation/settlement staff in single region</i>)	Size description	Processing region	Front office description (<i>deals generated in...</i>)
all (100%): 26 firms	2 large firms 11 medium firms 13 small firms	6 Asia Pacific 14 Europe 6 America	all 3 regions: 5 firms 2 regions: 4 firms 1 region: 17 firms
predominantly (ie, over 75%): 12 firms	3 large firms 6 medium firms 3 small firms	3 Asia Pacific 5 Europe 4 America	all 3 regions: 9 firms 2 regions: 2 firms 1 region: 1 firm
the majority (ie, 50%-70%): 11 firms	7 large firms 4 medium firms 0 small firms	1 Asia Pacific 5 Europe 5 America	all 3 regions: all 11 firms
evenly split between 2 regions (together =85% of back office staff): 4 firms	4 large firms 0 medium firms 0 small firms	4 split between Europe and America	all 3 regions: all 4 firms

Part 3 – Operations Processing

Ticket details

FRAs		All respondents	Large firms	Medium firms	Small firms
Trade details available for processing	- within 1 hour	27%	18%	22%	55%
	- same day	73%	82%	78%	45%
	- next day	-	-	-	-
Number of respondents		51	17	23	11
Percentage of trades which reach the back-office by 5pm (in the trading location) on the trade date		91%	89%	92%	93%

Causes of front office errors



Rebooking trades

FRAs	All respondents	Large firms	Medium firms	Small firms
Percentage of trade records which need to be rebooked	6.5%	8.6%	5.2%	5.8%
% respondents who track the number of rebookings per trade	39%	56%	35%	20%
Number of respondents	49	16	23	10

Methods of confirming trades

FRAs	Average of responses (Average of volume-weighted responses) for FRAs			
	All respondents	Large firms	Medium firms	Small firms
(a) We send out a confirmation and expect our counterparty to sign it and return it to us	30%(23%)	37%(22%)	29%(27%)	22%(15%)
(b) Our counterparty sends us a confirmation which we sign and return to them	19%(5%)	10%(4%)	20%(8%)	30%(19%)
(c) Both parties send out a confirmation which is reviewed by the other, and acknowledged, but not signed and returned	34%(38%)	39%(40%)	30%(27%)	36%(57%)
(d) Trades are matched by a commercial auto-matching system	17%(34%)	14%(34%)	21%(37%)	12%(9%)

Vanilla IR and currency swaps	Average of responses (Average of volume-weighted responses) for vanilla IR and currency swaps			
	All respondents	Large firms	Medium firms	Small firms
(a) We send out a confirmation and expect our counterparty to sign it and return it to us	36%(39%)	40%(39%)	43%(43%)	20%(25%)
(b) Our counterparty sends us a confirmation which we sign and return to them	35%(14%)	10%(7%)	30%(32%)	66%(49%)
(c) Both parties send out a confirmation which is reviewed by the other, and acknowledged, but not signed and returned	25%(38%)	43%(43%)	22%(21%)	14%(26%)
(d) Trades are matched by a commercial auto-matching system	4%(9%)	7%(11%)	5%(4%)	0%(0%)

Non-vanilla IR and currency swaps	Average of responses (Average of volume-weighted responses) for non-vanilla IR and currency swaps			
	All respondents	Large firms	Medium firms	Small firms
(a) We send out a confirmation and expect our counterparty to sign it and return it to us	47%(45%)	52%(43%)	53%(58%)	32%(50%)
(b) Our counterparty sends us a confirmation which we sign and return to them	31%(13%)	12%(10%)	31%(30%)	53%(39%)
(c) Both parties send out a confirmation which is reviewed by the other, and acknowledged, but not signed and returned	22%(42%)	37%(47%)	16%(13%)	15%(11%)
(d) Trades are matched by a commercial auto-matching system	N/a	N/a	N/a	N/a

Escalation procedure for outstanding confirmations

FRA escalation procedure		All respondents	Large firms	Medium firms	Small firms
No, there is no formal escalation procedure		10%	0%	17%	10%
Yes, there is a formal escalation procedure which kicks in if confirmation is outstanding for -	- 5 days	36%	24%	39%	50%
	- 10 days	24%	29%	17%	30%
	- 30 days	28%	47%	22%	10%
	- 90 days	2%	0%	4%	0%
Number of respondents		50	17	23	10

Vanilla IR and currency swaps escalation procedure		All respondents	Large firms	Medium firms	Small firms
No, there is no formal escalation procedure		10%	0%	19%	11%
Yes, there is a formal escalation procedure which kicks in if confirmation is outstanding for -	- 5 days	30%	18%	31%	39%
	- 10 days	30%	29%	23%	39%
	- 30 days	30%	53%	27%	11%
	- 90 days	2%	0%	4%	0%
Number of respondents		61	17	26	18

Non-vanilla swaps escalation procedure		All respondents	Large firms	Medium firms	Small firms
No, there is no formal escalation procedure		12%	6%	16%	13%
Yes, there is a formal escalation procedure which kicks in if confirmation is outstanding for -	- 5 days	28%	18%	32%	33%
	- 10 days	28%	29%	20%	40%
	- 30 days	30%	47%	28%	13%
	- 90 days	2%	0%	4%	0%
Number of respondents		57	17	25	15

Trade discrepancies

FRAs		All respondents	Large firms	Medium firms	Small firms
Time to resolve trade discrepancies and rebook trade	- same day	32%	23%	43%	20%
	- next day	22%	12%	22%	40%
	- 2-5 days	38%	65%	26%	20%
	- more than a week	8%	0%	9%	20%
Number of respondents		50	17	23	10

Vanilla IR and currency swaps		All respondents	Large firms	Medium firms	Small firms
Time to resolve trade discrepancies and rebook trade	- same day	16%	0%	27%	17%
	- next day	28%	35%	27%	22%
	- 2-5 days	49%	65%	38%	50%
	- more than a week	7%	0%	8%	11%
Number of respondents		61	17	26	18

Non-vanilla IR and currency swaps		All respondents	Large firms	Medium firms	Small firms
Time to resolve trade discrepancies and rebook trade	- same day	5%	0%	4%	13%
	- next day	19%	12%	28%	13%
	- 2-5 days	62%	88%	52%	47%
	- more than a week	14%	0%	16%	27%
Number of respondents		57	17	25	15

Appendix 2 – ISDA Operations Benchmarking Survey Advisory Group

ISDA wishes to express its appreciation to the institutions listed below for their wholehearted support of this survey, from conception to delivery. The individuals named deserve particular thanks for the time they dedicated to the survey and for the insight they have brought to bear in helping to shape this final product.

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JP Morgan Chase

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Merrill Lynch

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UBS Warburg

Stewart Macbeth

Appendix 3 – Survey Participants

ISDA wishes to thank the following institutions for responding to the 2001 Operations Benchmarking Survey:

Abbey National Financial Products	Freddie Mac
AIG Financial Products Corp.	Goldman Sachs & Co.
Banco Santander Central Hispano S.A.	HSBC Holdings Plc
Bank of America, NA	Industrial Bank of Japan, Limited
Bank of Montreal	J.P. Morgan
The Bank of Tokyo Mitsubishi Ltd.	KBC Bank NV
Bank One NA	KeyBank National Association
Barclays Capital	Landesbank Hessen-Thueringen Girozentrale
Bayerische Landesbank Girozentrale	Lehman Brothers
Banco Bilbao Vizcaya Argentaria (BBVA)	Merrill Lynch
Bear, Stearns & Co. Inc.	Mizuho Capital Markets Corporation
BHF Bank (Berliner Handels-und Frankfurter)	Morgan Stanley & Co.
BNP Paribas	National Australia Bank Limited
Baden-Wuerttembergische Bank AG	National Bank of Canada
Caixa Geral de Depositos SA	NIB CAPITAL Bank NV
CDC IXIS Capital Markets	Norddeutsche Landesbank Girozentrale
Chuo Mitsui Trust and Banking Co. Ltd	Nordea AB(Denmark)
Canadian Imperial Bank of Commerce	Oversea-Chinese Banking Corporation Ltd.
The Chase Manhattan Bank	Royal Bank of Canada
Citigroup	Royal Bank of Scotland
Commonwealth Bank of Australia	The Sanwa Bank Ltd.
Credit Suisse First Boston International	Société Générale
The Dai-Ichi Kangyo Bank	Standard Bank of South Africa
The Daiwa Bank Limited	Svenska Handelsbanken
Daiwa Securities SMBC Europe Limited	The Tokai Bank Ltd.
Danske Bank A/S	Toyo Trust & Banking Company, Ltd.
Deutsche Bank	Tokyo-Mitsubishi International Plc
Dexia Bank Belgium SA	UBS Warburg
Dresdner Bank AG	Westdeutsche Landesbank Girozentrale(LB)
Eurobank Ergasias SA	Zurcher Kantonalbank
First Union National Bank	

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