
2009 ISDA Operations Benchmarking Survey

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INTRODUCTION

The ISDA Operations Benchmarking Survey identifies and tracks operations processing trends in privately-negotiated, over-the-counter (OTC) derivatives. The results provide individual firms with a benchmark against which to measure the promptness and accuracy of their trade data capture, confirmation, and settlement procedures, as well as staffing and the level of automation of their operational processes.

This year, sixty-nine ISDA member firms responded, compared with seventy-nine last year; all major derivatives houses responded. Appendix 1 lists the respondents, and Table 1 shows some sample characteristics. The Survey classifies respondents into three size groups based on monthly event volumes across products; for some questions, the Survey reports separate results for the G16 dealer group. Of the sixty-nine firms that responded, sixty-three are banks or securities firms and two are energy trading firms; the others include an asset manager, an export financing agency, an insurer, and a multilateral financial institution. The regional breakdown is as follows: thirty-five are from Europe, seventeen from North America, nine from Japan, four from Australia, three from Asia outside Japan, and one from South Africa. Of the sixty-nine respondents, sixty-two had participated in the 2008 Survey.

Table 1
Firms responding to ISDA Operations Benchmarking Survey

Numbers of firms

Size	Monthly volume	2001	2002	2003	2004	2005	2006	2007	2008	2009	Responded 08 & 09
Large	≥5,000	17	20	20	19	18	17	18	22	17	17
Medium	≥600	26	23	22	25	22	18	19	22	22	20
Small	<600	18	22	22	23	26	32	29	35	30	25
Total		61	65	64	67	66	67	66	79	69	62

Appendix 2 contains a list of definitions of terms used in this year's Survey. The 2009 Survey refers to respondents' activities from January 1 through December 31, 2008. All amounts are in U.S. dollars. Each firm that responds to the Survey receives an individual confidential feedback report that compares the firm's results with the results for respondents of similar size.

The first section of this Survey reports monthly volumes for five OTC derivatives product groups, namely, interest rate derivatives, credit derivatives, equity derivatives, currency options, and commodity derivatives; Appendix 2 describes the product categories in detail. The next three sections summarize the responses to questions about trade capture, confirmation, and settlement. Next, the Survey provides data on the level of automation by process and product. And the last section reports information on staffing levels for front office, trade capture, confirmation, and settlement staff.

Markit and the Derivatives Consulting Group (DCG) served as consultants to the Operations Benchmarking Survey; the consultants collected and aggregated individual responses to the Survey. All data obtained from Survey responses are kept in strict confidence. Access by ISDA, Markit, and DCG staff is strictly limited, and the data are not shared with employees of other member firms or with any other outside party.

2009 ISDA OPERATIONS BENCHMARKING SURVEY

SUMMARY

- OTC derivative monthly event volumes grew by 2 percent during 2008, compared with 38 percent in last year's Survey. Interest rate, commodity, and credit derivative volumes increased, while equity derivatives and currency options decreased.
- Credit derivatives show a high degree of electronic processing of confirmations, with 97 percent eligible for electronic processing and 92 percent actually processed electronically. Equity derivatives show the lowest degree of eligibility at 40 percent, with 23 percent electronically confirmed. There are significant differences between dispatch times for electronic and non-electronic confirmations, although dispatch times for both types have improved over those reported last year.
- Outstanding confirmations, measured in days' worth of business, are lower than last year for all products except currency options. Outstanding credit, interest rate, and equity derivatives confirmations all fell significantly. Respondents also report low numbers of confirmations outstanding more than thirty and 180 days for credit and commodity derivatives, but report higher numbers for equity derivatives.
- Over 60 percent of respondents report that they routinely perform an affirmation of key trade details, compared with about 50 percent last year. Almost all large firms perform an affirmation process.
- Average monthly settlement volumes increased for interest rate and credit derivatives and for currency options, and decreased slightly for equity and commodity derivatives. Nostro breaks are less common for credit derivative and currency options than for other products and more common for equity derivatives. Times to nostro break resolution have improved over last year for all products, most notably in the reduction of breaks taking over four weeks to resolve.
- Credit derivatives show the highest degree of process automation and equity derivatives the lowest. The differences in automation levels are largely the result of the simple, standardized nature of most credit derivatives transactions on the one hand and the relatively complex, customized nature of equity derivatives transactions on the other. Despite the challenges, 90 percent of respondents plan to increase equity derivatives automation in the coming year. With regard to functions, data transfer is the most automated and settlement pre-matching the least automated.
- Confirmation and settlement processes are more likely to be outsourced or performed in a low cost location than are trade capture processes, and interest rate and credit derivatives are more outsourced than other products. The degree of outsourcing of confirmation and settlement processes has risen compared with last year. Members of the G16 dealer group tend to rely more on outsourcing than do the full sample.

SURVEY RESULTS

SECTION 1 – VOLUMES

The 2009 ISDA Operations Benchmarking Survey asked respondents to report their monthly event volumes, where events include such actions as new trades, novations, and terminations but exclude intra-company trades and tear-ups; Appendix 2 provides a more detailed definition. Charts 1.1 and 1.2 show the results for all respondents. Chart 1.1 shows that overall OTC derivative volume continued to rise during 2008 but at a markedly lower rate (2 percent) than in the previous year (38 percent). Chart 1.2 shows the results by product. Over all respondents without regard to firm size, commodity derivatives grew the most (33 percent), followed by interest rate derivatives (28 percent) and credit derivatives (10 percent). In contrast, currency option event volume decreased by 30 percent and equity derivatives by 11 percent.

Chart 1.1
Average monthly event volume, all products
Number of events

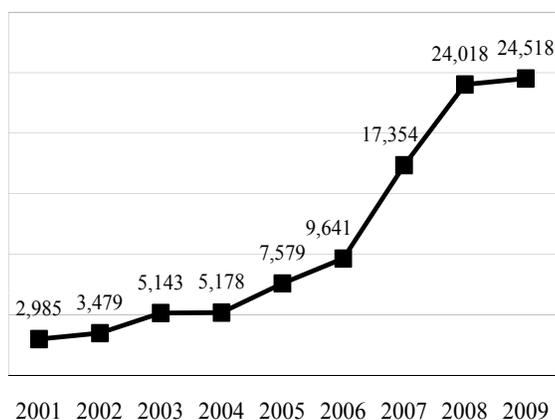


Chart 1.2
Average monthly event volume by product
Number of events

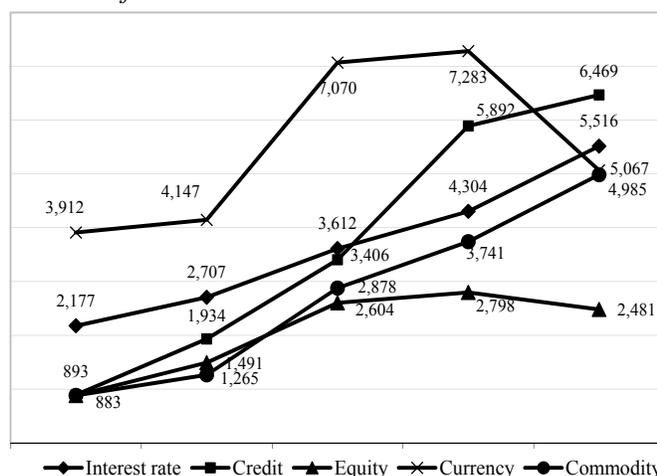


Table 1.1 shows that, at large firms, commodity derivative volumes grew by 63 percent from the previous year, followed by interest rate derivatives at 57 percent and credit derivatives at 44 percent; the corresponding growth rates at G16 firms (Appendix 2) were less pronounced, at 32 percent, 49 percent, and 32 percent. Equity derivatives at large firms grew but at a lower rate, namely, 7 percent (2 percent for G16), while currency options decreased noticeably at 19 percent (26 percent at G16 firms). At medium firms (next page), there were divergences from trends in the overall sample, with significant increases in equity derivatives and currency options and slight decreases in credit and commodity derivatives. And at small firms, interest rate and commodity derivatives increased while equity and credit derivatives and currency options decreased.

Table 1.1
Average monthly event volume, by size group

	Large firms					G16	
	2005	2006	2007	2008	2009	2008	2009
Interest rate	5,890	7,631	9,903	12,677	19,881	12,328	18,369
Credit	2,790	6,281	9,359	17,547	25,313	17,982	23,648
Equity	2,328	4,522	5,237	6,595	7,025	6,520	6,666
Currency options	11,252	10,998	16,183	19,955	16,153	20,150	14,935
Commodity	2,495	3,968	5,953	8,346	13,600	9,574	12,593
Total OTC	25,739	32,256	47,345	65,121	81,972	66,554	76,210

Table 1.1 (cont.)

	Medium firms					Small firms				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Interest rate	928	1643	1862	2060	2674	282	369	400	335	418
Credit	145	392	415	680	663	13	39	120	87	64
Equity	328	769	1334	703	1366	52	70	140	255	138
Currency options	700	1177	1439	1392	2702	134	499	842	315	269
Commodity	149	505	424	1042	969	82	41	64	130	174
Total OTC	2093	3966	4179	5878	8374	433	1191	1043	1122	1063

Table 1.2 gives summary statistics for volumes by product and firm size. The summary statistics show the dispersion in volumes within size classes, and help explain some differences between the growth rates for size groups and those for the overall sample. In medium firms, for example, the mean (average) volume for currency options is significantly larger than the median and in fact larger than the third (75 percent) quartile, suggesting that high volumes at a few respondents dominate the average for that size group despite a decrease in volume for the full sample. As a general matter, variation within size groups, as reflected by the difference between median and mean, is more noticeable in the medium and small groups than in the large group.

Table 1.2
Monthly event volume summary statistics, by size group

Large	Average	Median	25% Quartile	75% Quartile	Maximum
Interest rate	19,881	18,242	13,831	26,447	40,078
Credit	25,313	18,308	11,319	35,966	60,557
Equity	7,025	7,443	3,018	8,575	23,705
Currency options	16,153	9,819	6,652	26,790	45,000
Commodity	13,600	14,299	1,816	23,426	31,984

Medium	Average	Median	25% Quartile	75% Quartile	Maximum
Interest rate	2,674	1,918	1,200	3,318	9,367
Credit	663	264	46	850	3,160
Equity	1,366	441	137	600	13,924
Currency options	2,702	939	310	2,091	25,474
Commodity	969	170	67	730	10,200

Small	Average	Median	25% Quartile	75% Quartile	Maximum
Interest rate	418	264	64	791	1,428
Credit	64	23	3	77	400
Equity	138	89	14	210	526
Currency options	269	145	33	406	951
Commodity	174	36	15	141	1,262

Table 1.3 shows the percent of volume transacted with members of the G16 dealer group. The results are not appreciably different from those of the previous year. G16 percent is high for credit and interest rate derivatives, reflecting the importance of inter-dealer hedging. The percent is generally lower for equity and commodity derivatives and currency options, in contrast, reflecting the relative importance of client business and hedging in underlying cash, physical, and futures markets.

Table 1.3
Percent of volume transacted by respondents with G16 firms

	All	G16	Large	Medium	Small
Interest rate	59	49	52	47	73
Credit	76	73	73	79	75
Equity	45	36	37	46	50
Currency	36	31	31	30	45
Commodity	34	25	24	29	60

SECTION 2 - TRADE CAPTURE

The Survey asked respondents to report the percent of trade records that have to be amended in front or back office systems because of errors. Table 2.1 shows the results for the past two years. Error rates fell slightly for credit derivatives and held steady for interest rate derivatives but rose for the other products. The percent of errors attributable to front office staff rose for all products, and is now over half for most products. This increase might reflect increasing automation of trade capture functions, so that an increasing proportion of errors occur at the point of input, that is, front office.

Table 2.1
Amendment rates

By product

	Interest rate		Credit		Equity		Currency		Commodity	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
Percent of trade records containing errors	18	18	13	12	12	16	7	10	8	10
Percent of errors attributable to front office	37	54	34	49	29	53	35	51	25	54

The Survey also asked participants to rank error types from most common to least common; Table 2.2 shows the rankings for the five product categories. This year's results are virtually identical to those reported last year. For most products, the most common errors are associated with payment or termination dates and with counterparty names, although for credit derivatives the most common errors are associated with specifying the reference entity or obligation. Errors regarding business day conventions are significant for interest rate derivatives, as are those involving notional amounts for currency options and commodity derivatives.

Table 2.2
Rankings of common sources of errors

By product

Cause	Interest rate	Credit	Equity	Currency	Commodity
Payment dates / Termination date	1	3	1	2	1
Counterparty name	2	4	3	1	2
Business day convention	3	7	7	7	6
Trade date / Effective date	4	5	2	4	4
Notional amount	5	6	4	3	3
Miscellaneous fees ¹	6	2	5	5	7
Underlying ²	7	1	6	8	4
Language / elections	8	10	8	9	9
Buy / sell	9	8	9	5	8
Legal agreement date ³	10	9	10	10	10

¹Initial margins, assignment fees, upfront fees, etc.

²Reference obligation, reference entity, rate option, index or share, etc.

³Master agreement, master confirmation agreement

SECTION 3 - CONFIRMATIONS

The Survey asked respondents to report the share of event volume that is eligible for electronic confirmation as well as the share actually confirmed electronically. Chart 3.1 show the results for the full sample, arranged by degree of electronic confirmation. Credit derivatives are well ahead of other products, with 97 percent eligible for electronic confirmation and 92 percent actually confirmed electronically. Equity derivatives are at the other end of the spectrum, with only 40 percent eligible and 23 percent confirmed electronically. The industry drive to standardize templates and facilitate Master Confirmation Agreement formulation should increase the proportion of equity derivatives trades that are eligible for electronic confirmation over the coming year.

Chart 3.1
Electronic confirmation of event volume, all firms

Percents

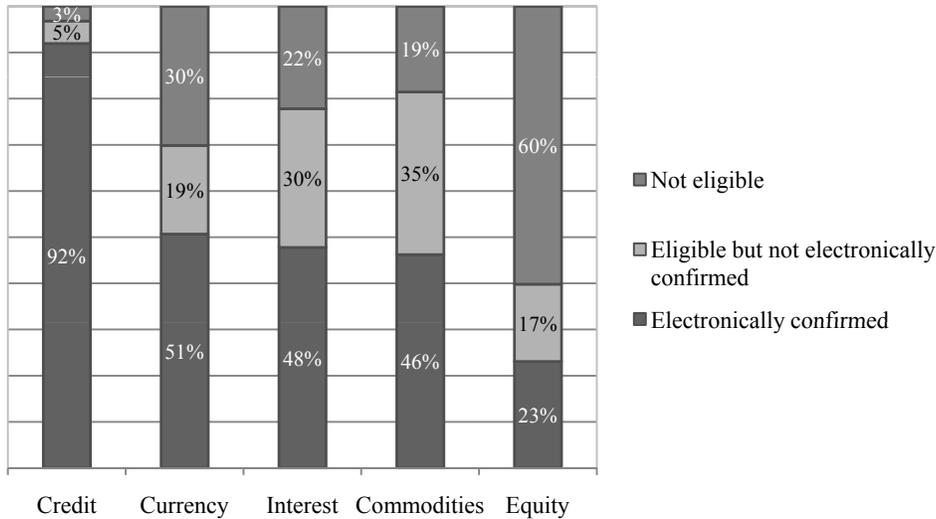


Table 3.1 shows the results by size group. As one might expect because of G16 electronic processing targets, large firms process a greater percent of their trades electronically than do small and medium sized firms. It is likely that, over the next twelve months, small and medium firms will begin to close the gap with large firms as the major dealers encourage their counterparties to embrace electronic processing.

Table 3.1
Electronic confirmation of event volume, by size group

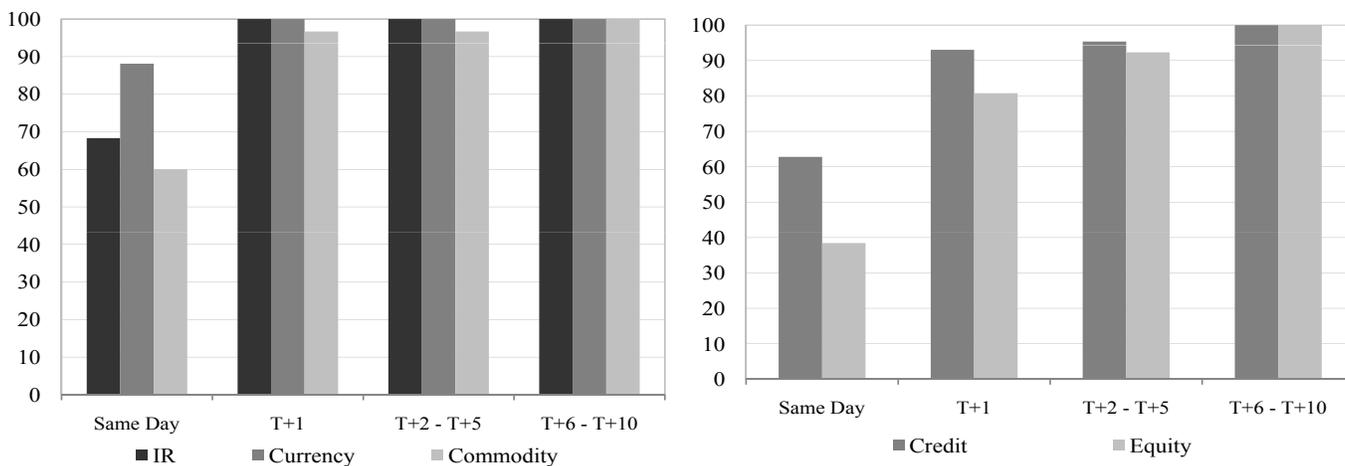
Percents

		Electronically eligible		
		Electronically confirmed	Not electronically confirmed	Not electronically eligible
Large	Interest	52	30	18
	Credit	92	5	3
	Equity	24	16	60
	Currency	55	19	27
	Commodities	51	34	15
Medium	Interest	24	26	50
	Credit	87	2	10
	Equity	16	14	70
	Currency	26	25	49
	Commodities	2	50	49
Small	Interest	18	46	37
	Credit	80	6	15
	Equity	6	41	52
	Currency	20	16	64
	Commodities	36	31	34

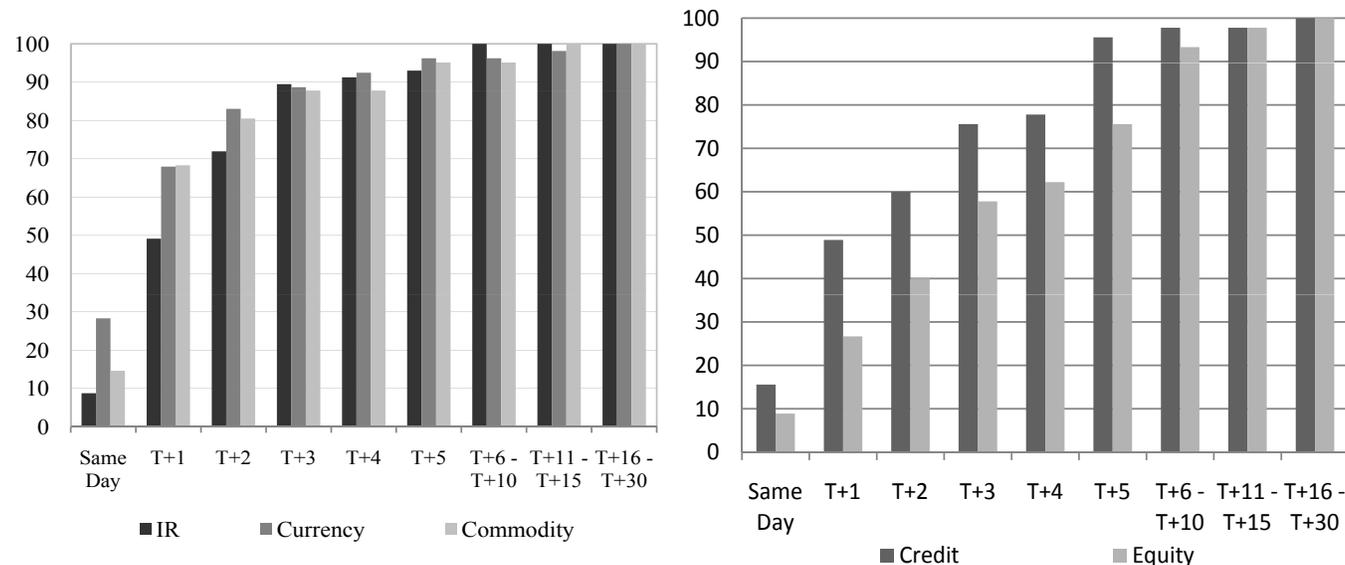
Production of confirmations. The four parts of Chart 3.2 distinguish between electronic and non-electronic confirmations, where electronic confirmations are those submitted to an electronic platform for matching (Appendix 2). Among electronic confirmations, 68 percent of interest rate derivative confirmations are dispatched on the Trade Date and all by the day after (T+1); for credit derivatives, 63 percent are dispatched on Trade Date and over 90 percent by T+1. Both products show improved performance compared with last year. Among non-electronic confirmations, only about 9 percent of interest rate and 16 percent of credit derivatives are normally dispatched on Trade Date and about half by T+1, although again these numbers are an improvement on last year. The charts also show that equity derivatives lag behind other products, although those equity derivatives that are confirmed electronically have shown marked improvement from last year while non-electronic equity derivative confirmations show only slight improvement.

Charts 3.2
Confirmations normally sent by given time, all firms
Cumulative percentages

Electronic



Non - electronic



The Survey asks respondents to rank by importance the factors that affect normal dispatch times. The results (Table 3.2) are virtually identical to those from last year and fairly uniform across products: New or non-standard products, high volumes, and awaiting data or approval from front office are the most significant factors affecting normal dispatch times.

Table 3.2
Factors affecting confirmation dispatch times
Ranked by importance

	Interest rate	Credit	Equity	Currency	Commodity
New or non-standard product	1	1	1	1	1
High volumes	2	2	2	2	2
Awaiting data or approval from front office	3	3	3	3	3
Non-standard language	4	4	4	5	4
Systems/Technology issues	5	6	6	6	6
Awaiting data or approval from legal/compliance	6	4	5	4	5
Awaiting data/details from external source ¹	7	7	7	7	7
Awaiting data or approval from credit or collateral function	8	8	8	8	8

¹KYC documentation, static data, etc.

Outstanding confirmations. Survey respondents report the average monthly level of outstanding confirmations (Appendix 2) over 2008. And beginning this year, respondents also report outstanding confirmations aged over thirty days and over 180 days. In keeping with past practice and with regulatory reporting requirements, these reported amounts are converted to days' worth of business outstanding.¹ Table 3.3 presents the results, and shows that outstanding confirmations have been reduced in all products except currency options. Credit, interest rate, and equity derivative outstanding confirmations fell significantly at large firms, due largely to the G16 targets. Chart 3.3 (next page) shows the results for confirmations outstanding longer than thirty days and longer than 180 days compared with total outstanding confirmations. Equity derivatives still have more outstanding confirmations aged over thirty days and 180 days than other asset classes. The most plausible explanation is that, because equity derivative transactions tend to be complex and bespoke compared with other asset classes, the equity derivative confirmation process is taking longer to streamline.

¹ The conversion formula is the following:

$$\text{Days worth of business} = \frac{(\text{Average number of outstanding confirmations}) \times 22}{\text{Monthly event volume}}$$

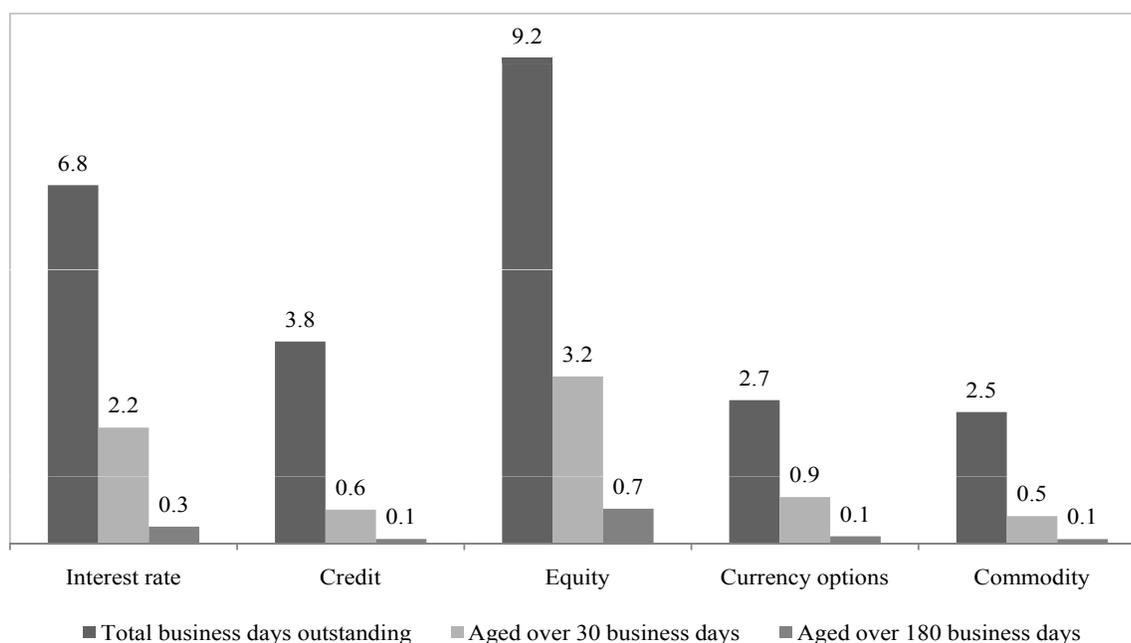
where 22 is a standard number of business days per month.

Table 3.3
Average monthly levels of confirmations outstanding
Business days

	All							G16	
	2003	2004	2005	2006	2007	2008	2009	2008	2009
Interest rates	9.2	8.9	9.5	9.3	10.7	9.9	6.8	11.2	6.9
Credit	21.1	17.8	13.3	12.9	4.9	6.6	3.8	7	3.5
Equity derivs	10.8	9.4	9.9	15.1	13.7	13.3	9.2	15.5	9.7
Currency options	8.2	7.6	6.2	5.1	4.8	2.3	2.7	1.6	2.6
Commodity	9.5	12.1	10.0	12.5	6.2	3.0	2.5	3.1	2.6

	Large firms					Medium firms					Small firms				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Interest rate	11.4	14.1	13.9	10.3	6.8	6.9	7.2	9.4	7.5	4.7	10.4	6.6	8.0	4.8	5.4
Credit	23.5	16.2	5.6	6.4	3.5	7.8	12.7	6.6	4.7	2.4	5.3	8.2	3.6	5.6	3.6
Equity	16.7	24.6	22.6	13.9	9.7	9.7	10.3	10.8	11.2	3.0	1.6	6.4	7.0	3.5	9.8
Currency	5.3	7.9	6.1	2.1	2.6	12.1	2.3	7.1	4.4	1.8	4.2	4.4	2.3	6.2	6.4
Commodity	20.2	23.3	7.5	3.2	2.4	4.3	7.0	4.5	1.4	1.5	4.1	6.5	4.1	4.1	2.9

Chart 3.3
Confirmations outstanding, by age
Business days



The Survey also asked respondents to rank by importance a set of risk mitigation criteria used to prioritize the chasing of outstanding confirmations. Table 3.4 shows the results. The rankings are similar across products, with either business days outstanding or unrecognized trade occupying first place. One change from last year is that net present value has risen in the prioritization table in every asset class: it is now ranked third for interest rate, credit, and commodity derivatives. Last year, in contrast, net present value was ranked seventh, sixth, and fifth for those same products.

Table 3.4
Criteria used to prioritize outstanding confirmations
Rankings

	Interest rate	Credit	Equity	Currency	Commodity
Unrecognized trade	1	1	2	2	2
Business days outstanding	2	2	1	1	1
Net present value	3	3	6	5	3
Type of counterparty	4	4	3	3	5
Master Agreement signed	5	5	4	6	7
Type of transaction	6	6	5	4	4
Credit rating of counterparty	7	7	7	7	6
Broker confirmation checked	8	9	8	8	8
Positive feedback from settlement function	9	8	10	9	10
Collateral held / Collateral agreement signed	10	10	9	10	9
Other	11	11	11	10	12
Positive feedback from collateral function	12	12	12	12	11

Affirmation. Finally, an increasing percentage of respondents report that they have an affirmation process in place by which they agree on the key economic details of a trade. Table 3.5 shows the extent to which respondents affirm trades and the methods used. Among large firms, almost all now affirm in some way. For the full sample, there is an increase in the proportion of firms that routinely affirm trades; the only exception is equity derivatives. And even for equity derivatives there is an increase in the percent reporting that they affirm when contacted by the counterparty. Table 3.6 shows the times by which respondents aim to complete the affirmation process, with separate results for affirmation of electronic and of non-electronic confirmations. A notable change from last year is the virtual elimination of expected affirmation times beyond T+10.

Table 3.5
Trade affirmation
Percents

All	Interest rate		Credit		Equity		Currency		Commodity	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
<i>Respondent performs separate affirmation of key economic details of a trade</i>										
Yes	54	64	51	64	55	55	58	69	48	52
No	18	13	30	18	26	18	19	10	27	16
Only when contacted by counterparty	28	23	20	18	19	27	23	22	25	32
<i>Method of affirmation</i>										
Phone	40	38	37	35	32	21	46	51	54	45
Electronic message	60	62	63	65	68	79	54	49	46	55
Large	Interest rate		Credit		Equity		Currency		Commodity	
	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
<i>Respondent performs separate affirmation of key economic details of a trade</i>										
Yes	82	93	79	93	84	93	78	100	82	75
No	12	7	21	7	11	7	17	0	12	6
Only when contacted by counterparty	6	0	0	0	5	0	6	0	6	19
<i>Method of affirmation</i>										
Phone	28	21	28	20	25	16	57	59	57	50
Electronic message	72	79	72	80	75	84	43	41	43	50

Table 3.6
Expected affirmation times, all respondents
Percents

	Interest rate	Credit	Equity	Currency	Commodity
Electronic					
T+0	33	28	8	40	14
T+1	37	28	50	32	57
T+2 - T+5	26	45	38	20	21
T+6 - T+10	4	0	4	8	7
> T+10	0	0	0	0	0
Non-Electronic					
T+0	7	11	0	17	0
T+1	21	18	20	37	43
T+2 - T+5	65	66	77	40	39
T+6 - T+10	7	5	3	6	14
> T+10	0	0	0	0	4

SECTION 4 - SETTLEMENTS

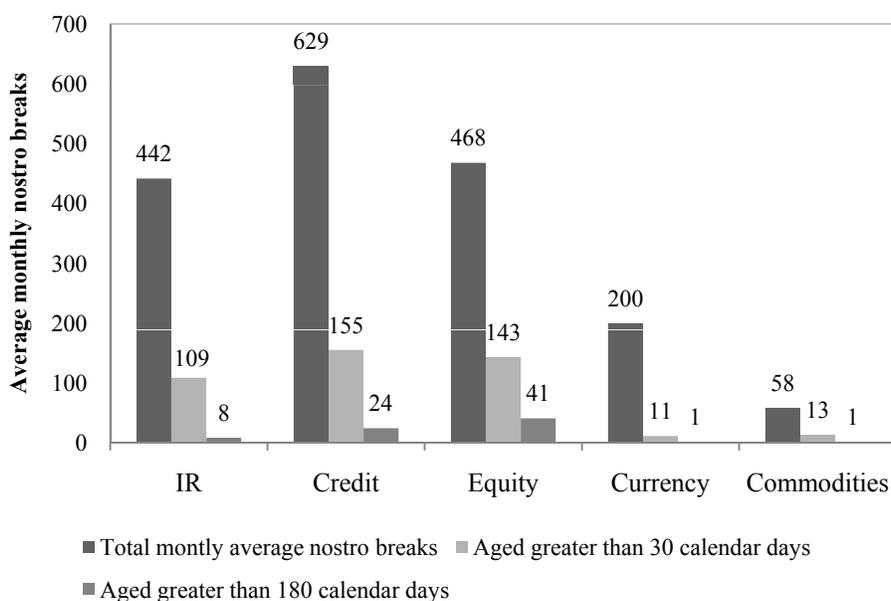
Average monthly settlement volumes increased for interest rate and credit derivatives and for currency options, and decreased slightly for equity and commodity derivatives (Table 4.1). The increase in settlements for interest rate and credit derivatives is likely related to the increase in volumes for the two products.

Table 4.1 also shows the percent of settlement volume that involves nostro breaks, that is, mismatches of expected and actual cash flows between paying and receiving institutions. Equity derivatives show the highest percent of nostro breaks, followed by commodity derivatives. Chart 4.1 shows nostro breaks by product along with breaks aged more than thirty calendar days and more than 180 days. Although interest rate and credit derivatives show high numbers of nostro breaks, the numbers should be considered in the context of high volumes; the relatively low nostro break rates in Table 4.1 reflect this context. Equity derivatives, in contrast, have lower volumes than other products but show a high number of nostro breaks, both total and aged.

Table 4.1
Monthly settlements and nostro breaks, all respondents
By product

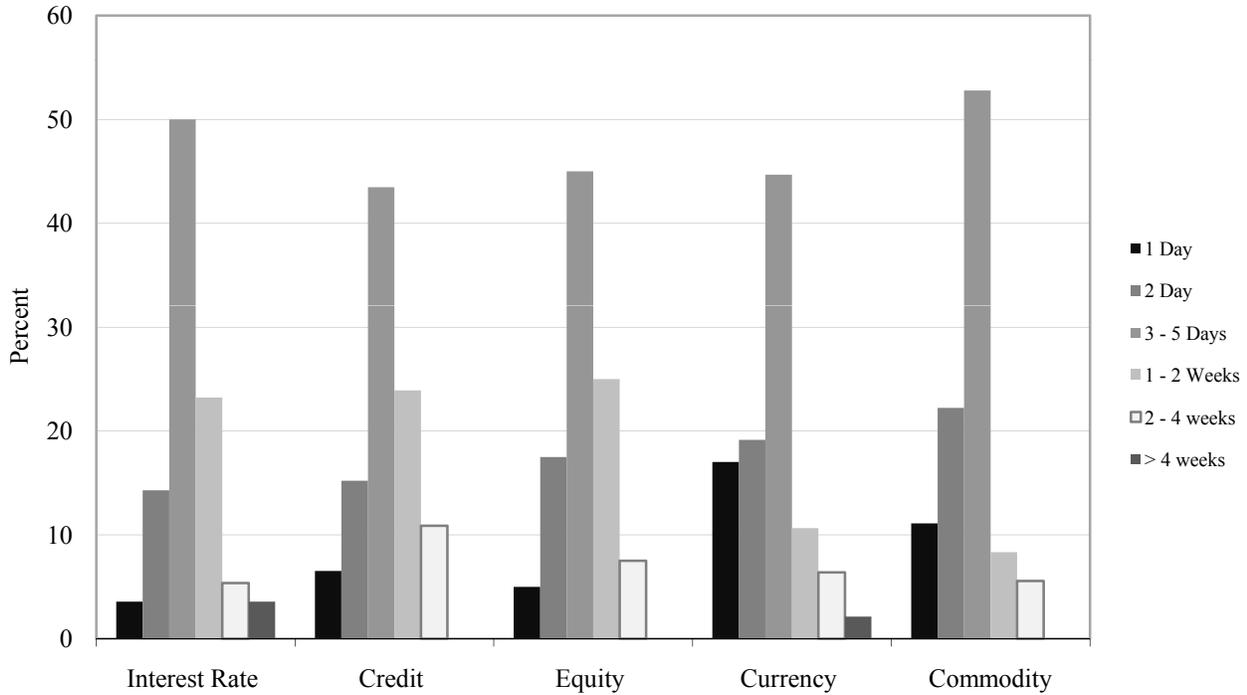
	2005	2006	2007	2008	2009	Nostro breaks (%)
Interest rate	12,826	12,183	15,341	25,017	29,389	9
Credit	4,960	9,641	18,450	37,669	44,327	6
Equity	1,139	2,797	3,421	6,771	6,648	15
Currency	3,983	3,643	7,752	3,246	4,226	6
Commodity	641	1,920	3,623	5,182	5,039	11

Chart 4.1
Monthly average and aged nostro breaks, all respondents
Average by product



Finally, the Survey asked respondents for their normal time frames for resolution of nostro breaks. Respondents were given choices ranging from one day to more than four weeks from the original settlement date. Chart 4.2 shows average results by product for all respondents. Commodity derivatives and currency options tend to be resolved the fastest, although all products follow roughly similar patterns. A major change from last year's results is the abrupt drop for all products in nostro breaks taking more than four weeks to resolve. Long resolution times were significant for all products last year, but this year are low for all products and zero for credit, equity, and commodity derivatives.

Chart 4.2
Times to nostro break resolution, all respondents
Percent resolved within specified time



SECTION 5 - AUTOMATION

The Survey questionnaire asked respondents for the percent of volume automated for twelve operational processes. Table 5.1 shows the results for all respondents and Table 5.2 shows the results for the G16 sample; the bottom row for each table shows average degree of automation for each product group and the far right column shows average automation by function. Table 5.3 rearranges by relative degree of automation in order to display a heat map going from more automated in the top left corner to less automated in the bottom right corner.

Eight of the questions are the same as in previous Surveys, but four have been added to reflect various evolving aspects of the automation of the confirmation process. The confirmation-related questions include the following. First, electronic confirmation matching refers to an automated process (DTCC, for example) of reconciling the terms of a transaction as reflected in the confirmations submitted by each counterparty. Second, affirmation (“checkout”) refers to the process by which two counterparties agree the economic details of a trade by means of telephone or email messages or by exchange of Excel spreadsheets. Third, affirmation and confirmation refers to services (Markit Wire, for example) that combine confirmation and affirmation into one solution. Fourth, documentation generation refers to the process of producing a physical—that is, non-electronic—confirmation, using either a vendor-provided automated solution such as Scrittura or an in-house solution. Finally, confirmation dispatch refers to the process of sending out a physical confirmation. The percentages in the tables refer to the degree to which all these processes have been automated.

Table 5.1
Degree of automation by product and function, all respondents
Average percent of volume automated

Function	Interest rate	Credit	Equity	Currency	Commodity	Average for function
Trade data transferred from front office to operations for processing	84	81	79	78	80	80
Trade data transferred from operations system to general ledger	86	83	81	82	74	81
Additional data added in order to process ¹	25	61	53	53	60	50
Affirmation/checkout (Excel, phone, or email exchange)	24	24	31	22	25	25
Electronic confirmation matching (e.g. DTCC)	22	88	45	31	24	42
Affirmation and confirmation (e.g. Markit Wire)	25	22	16	20	12	19
Documentation generation (e.g. Scrittura or in-house solution)	64	43	39	63	57	53
Confirmation dispatch (non-electronic confirmation only)	59	45	42	57	57	52
Imaging of outgoing confirmation	62	65	57	68	67	64
Imaging of incoming confirmation	49	53	52	57	59	54
Nostro reconciliation	75	73	76	73	65	72
Settlement pre-matching	29	49	27	23	24	30
Average for product	50	57	50	52	50	

Table 5.2
Degree of automation by product and function, G16
Average percent of volume automated

Function	Interest rate	Credit	Equity	Currency	Commodity	Average for function
Trade data transferred from the front office to operations for processing	93	95	81	87	90	89
Trade data transferred from the operations system to the general ledger	95	95	94	95	86	93
Additional data added in order to process	53	73	53	67	70	63
Affirmation/checkout	24	22	35	25	25	26
Electronic confirmation matching	54	92	48	66	55	63
Affirmation and confirmation	65	41	45	50	33	47
Documentation generation	70	61	52	79	74	67
Confirmation dispatch (non-electronic only)	73	68	60	76	77	71
Imaging of outgoing confirmation	84	92	85	92	80	87
Imaging of incoming confirmation	72	79	72	78	70	74
Nostro reconciliation	80	80	78	88	62	78
Settlement pre-matching	35	66	28	36	17	36
Average for product	67	72	61	70	62	

The tables highlight several Survey results. First, the percentages in the bottom row of the tables show that credit derivatives are the most automated product, followed by currency options, for both the full sample and the G16 group. Although currency options have been more automated than other products since the Operations Benchmarking Survey began tracking automation levels, credit derivatives have increased steadily since 2005 because of the efforts of the G16 group. Second, the percents in the right column suggest that data transfer and nostro reconciliation functions are the most automated. As in past Surveys, the settlement pre-matching function is the least automated. Third, credit derivatives make extensive use of electronic confirmation matching, especially within the G16 group. In addition, electronic matching of equity derivatives has increased compared with last year. Finally, it appears that there is still progress to be made in automating the affirmation process.

Table 5.3 on the next page shows planned automation by function and product. Among products, over 90 percent of respondents plan to increase automation of equity derivative processing; among processes, about half plan to devote attention to electronic confirmation matching and documentation generation. In last year's Survey, in contrast, respondents looked to interest rate derivatives and confirmation generation for increased automation.

Table 5.3**Planned automation by product and function, all respondents***Percent responding that they plan to increase automation in coming year*

	Interest rate	Credit	Equity	Currency	Commodity	Average for function
Trade data transferred from front office to operations for processing	39	24	95	24	31	43
Trade data transferred from operations system to general ledger	22	15	94	19	21	34
Additional data added in order to process	19	19	94	25	25	37
Affirmation/checkout	21	18	85	10	23	31
Electronic confirmation matching	54	42	93	27	42	52
Affirmation and confirmation	55	24	92	15	27	43
Documentation generation	39	27	96	31	46	48
Confirmation dispatch (non-electronic only)	27	24	94	15	38	40
Imaging of outgoing confirmation	19	13	89	15	21	31
Imaging of incoming confirmation	16	15	89	17	23	32
Nostro reconciliation	24	24	88	17	19	34
Settlement pre-matching	21	26	80	10	15	30
Average for product	30	23	91	19	27	

SECTION 6 - STAFFING

The Survey collects data on the number of staff, expressed as full-time equivalents, employed to support OTC derivatives. The data include front office as well as trade capture, confirmations, and settlements staff. Table 6.1 shows the results, expressed as ratios of front office to operational staff. The historical data have different spans because, while ISDA has collected data on trade capture staff for several years, trade processing staff were divided into confirmations and settlement staff in 2008.

There is no discernible pattern of increases or decreases in the ratios. To the extent ratios increase over time, the cause might be either more traders or fewer support staff, and a smaller number of support staff might be the result of increasing automation. The low ratios for credit derivatives suggest a larger number of support staff relative to front office staff than other products, which might at first glance seem at odds with the higher degree of automation of credit derivatives than other products. The two are not necessarily in conflict, however: despite the high automation of credit default swaps, employees are still needed for such tasks as chasing outstanding confirmations and resolving nostro breaks. And as will be shown presently, a significant proportion of these confirmation and settlement tasks are outsourced.

Table 6.1
Ratio of front office to support staff, all respondents

	Front Office / Trade Capture					Front office / Confirmations		Front office / Settlements	
	2005	2006	2007	2008	2009	2008	2009	2008	2009
Interest rate	4.7	4.8	3.8	5.3	5.5	3.5	3.6	4.1	4.9
Credit	2.9	1.6	2.1	3.6	4.3	2.7	3.1	3.8	3.5
Equity	5.0	2.1	3.0	3.5	4.8	5.4	4.7	7.3	6.8
Currency	3.0	2.1	2.1	4.2	3.6	3.2	3.1	5.2	5.6
Commodity	8.1	1.6	2.3	5.2	6.8	5.1	4.8	5.4	4.6

Table 6.2 on the following page presents another staffing measure, trades per full-time equivalent staff. The results are similar to those from last year: the ratios suggest that equity derivatives continue to have the farthest to go in terms of increased efficiency, although medium and small firms show a more mixed picture. Currency options continue to show the highest ratios, reflecting historically high levels of automation compared with other products.

Finally, the Survey asked respondents about the percent of staff that is outsourced or in a low cost location (see Appendix 2); Table 6.3 on the next page shows the results for all respondents and for the G16 sample. As was true last year, there is little outsourcing of trade capture functions and relatively high outsourcing of confirmations and settlement functions, both for the G16 group and the full sample. Further, the outsourcing percentages for confirmation and settlement staff are uniformly larger than they were in last year's Survey.

Table 6.2
Transactions per full time equivalent staff

Large firms	Front office	Trade capture	Confirmation	Settlement
Interest rate	68	446	260	356
Credit	122	580	417	446
Equity	22	138	130	205
Currency	263	974	874	2,137
Commodity	124	1,095	728	701
G16	Front office	Trade capture	Confirmation	Settlement
Interest rate	72	460	254	354
Credit	120	573	417	447
Equity	25	136	129	205
Currency	255	975	862	2,053
Commodity	118	943	699	679
Medium firms	Front office	Trade capture	Confirmation	Settlement
Interest rate	52	292	305	375
Credit	31	212	212	218
Equity	41	276	363	344
Currency	158	628	565	767
Commodity	69	275	408	440
Small firms	Front office	Trade capture	Confirmation	Settlement
Interest rate	18	125	93	104
Credit	11	43	42	30
Equity	17	70	87	79
Currency	39	117	122	113
Commodity	27	120	134	112

Table 6.3
Percent of full time equivalent staff that is outsourced or in a low-cost location

All respondents	Interest rate	Credit	Equity	Currency	Commodity
Trade capture staff	8	7	3	7	3
Confirmation staff	19	17	13	20	10
Settlement staff	22	17	15	19	10
G16 only					
Trade capture staff	7	7	3	5	1
Confirmation staff	37	32	24	30	18
Settlement staff	38	34	28	28	20

APPENDIX 1 – 2009 SURVEY PARTICIPANTS

Abbey National Financial Products	Merrill Lynch
Aozora Bank	Mitsubishi UFJ Financial Group
Banco Bilbao Vizcaya Argentaria (BBVA)	Mizuho
Bank of America	Morgan Stanley
Bank of Montreal	National Australia Bank
Bank of New York Mellon	National Bank of Canada
Bank of Scotland Treasury	National Bank of Greece
Bank of Tokyo-Mitsubishi UFJ	Nationwide
Barclays Capital	NIBC Bank
Bayerische Landesbank Girozentrale	Nomura Securities International
BNP Paribas	Norddeutsche Landesbank Girozentrale
Caisse de dépôt et placement du Québec	Nordea Bank
Calyon	Norinchukin Bank
Ceska Sporitelna	Pacific Life Insurance
Cheyne Capital Management	PNC Bank
Chuo Mitsui Trust & Banking	Prudential Global Funding
Citigroup	Rabobank International
Commonwealth Bank	Royal Bank of Canada
Credit Suisse	Royal Bank of Scotland
Danske Bank	RWE Trading
Den Norske Bank	Santander Central Hispano
Deutsche Bank	SEB
Development Bank of Singapore	Shell International Trading and Shipping
Dresdner Bank	Shinko Securities
DZ Bank	Société Générale
Eksportfinans	Standard Bank of South Africa
European Bank for Reconstruction & Development	Standard Chartered Bank
Goldman Sachs	Sumitomo Trust & Banking
HSBC Bank	Toronto Dominion Bank Canada
JP Morgan	UBS
KBC Bank	United Overseas Bank
Kreditanstalt Fur Wiederaufbau	Wachovia
Landesbank Baden-Württemberg	Westpac Banking Corporation
Lloyds TSB Bank	Zürcher Kantonalbank
Macquarie Bank	

APPENDIX 2 – DEFINITIONS OF TERMS USED IN 2009 SURVEY QUESTIONNAIRE

Affirmation. The process by which two counterparties verify that they agree on the key economic details of a transaction.

Commodity derivatives. Over-the-counter (OTC) swaps, forwards, or options in which the underlying variable is a commodity price, basket of commodity prices, or commodity price index. Common underlying commodities include precious and base metals, crude oil and other petroleum products, natural gas, electric power, freight rates, and weather. Exchange-traded (listed) commodity derivatives are not included in the definition for purposes of the Operations Benchmarking Survey.

Confirmation matching. The process of reconciling the terms of a transaction as confirmed by each counterparty, either manually or on an electronic platform such as DTCC.

Confirmation staff. All employees involved in the confirmation of OTC derivatives trades, including drafting outgoing confirmations, chasing and reviewing incoming confirmations, investigating and reconciling confirmation discrepancies, and conducting the affirmation of key economic trade details.

Credit derivatives. OTC derivative products designed to transfer credit risk. For the purposes of the Survey, credit derivatives include but are not limited to credit default swaps, total return swaps, credit linked notes, and credit spread forwards and options. Underlying credits include single corporate or sovereign names, baskets, portfolios, credit indices, and obligations and indices of obligations such as asset backed securities, collateralized debt obligations, and leveraged loans.

Currency options. OTC options in which the buyer has the right but not the obligation to exchange money denominated in one currency for another currency at an agreed exchange rate on or until a specified date. For the purposes of the Survey, currency options include but are not limited to cross currency/FX puts, calls, range forwards, and corridors; average rate currency options; binary, barrier and rainbow options on currencies, and quanto options. Exchange-traded (listed) currency options are not included.

Electronic confirmation. A confirmation that is submitted for matching to an electronic platform such as Markit Wire, DTCC, or Swift.

Eligible for electronic confirmation. Refers to any transaction for which a facility exists to process the trade electronically, regardless of a particular counterparty's actual ability to process the trade electronically.

Equity derivatives. OTC derivative products with payments linked to the performance of equity shares or equity indices. For the purposes of the Survey, equity derivatives include but are not limited to: share and index swaps and options, equity forwards, equity options, equity linked notes, relative performance trades, correlation swaps, dividend swaps and options, and variance swaps and options. Exchange-traded (listed) equity derivatives are not included in the definition.

Event volume. The number of actions relating to OTC derivatives trades sent to operations for processing during a period. The following constitute events for the purpose of the Survey: new trades, confirmable amendments (i.e., any economic amendment that requires a new confirmation to be drafted), partial and full terminations, increases/decreases, and novations. Credit events do not constitute events for purposes of this definition. Excluded are internal, intra-company, and intra-group trades; terminations and partial terminations arising from Tri-Optima or other tear-up services; and one-way notices such as corporate action

notices. One structure is reported as one trade regardless of the number of tickets involved. Prime broker activity or intermediation is reported as two trades. Allocation splits are reported as the number of funds to which a block trade is allocated.

Front office staff. All employees that enter into OTC derivatives trades and that are on front office payroll, including traders, marketers, sales, trade assistants, structurers, and business managers. Front office also includes staff allocated to a proprietary desk if the activity handled by such a desk is otherwise reported within this Survey. Resources shared across different business lines are allocated according to percentage shares.

Full-time equivalents. The percent, represented as a decimal number, of time an employee works, whether permanent, temporary, or contractor. For example, a full-time employee is 1.0, an employee working three days per week is 0.6, and one dedicating 50 percent of his time to an activity is 0.5.

G16. A group of major OTC derivatives dealers that focuses on operational improvements in credit and equity derivatives. The G16 group consists of Bank of America, Barclays Capital, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Dresdner Bank, Goldman Sachs, HSBC, JPMorgan Chase, Merrill Lynch, Morgan Stanley, Royal Bank of Scotland, Société Générale, UBS, and Wachovia. Most but not all G16 firms are classified as large firms, and not all large firms are part of the G16 group.

Interest rate derivatives. OTC derivative products that involve the exchange of cash flows calculated on a notional amount using specified interest rates. For the purposes of the Survey, interest rate derivatives include but are not limited to interest rate swaps, including cross-currency swaps; forward rate agreements (FRA); inflation swaps; and interest rate options such as caps, floors, collars, swaptions, and exotic options. Exchange-traded (listed) interest rate derivatives are not included.

KYC documentation. Documents required to ensure that ‘Know Your Client’ requirements are adequately fulfilled.

Low cost location. An operating location selected for its lower operating cost. The definition includes onshore and offshore locations.

Non-electronic confirmation. A confirmation that is not submitted to an electronic platform for matching.

Nostro reconciliation. A process performed to ensure that the expected cash movements of a transaction or multiple transactions are the same as actual cash movements.

Outstanding confirmations. The total number of electronic and non-electronic confirmations not fully executed as of month end. It includes confirmations not yet drafted or issued, confirmations drafted but not yet issued, confirmations not yet received (where the counterparty is expected to draft the confirmations), confirmations issued but not yet returned, and confirmations with open queries.

Outsourcing. The contracting out to an external service provider of activities that could be performed within a company.

Reporting period. For purposes of this Survey, the period from 1 January 2008 to 31 December 2008.

Settlement. The process whereby obligations arising under a derivatives transaction are discharged by means of payment or delivery or both. For purposes of the Survey, *settlement volume* refers to the gross number of settlements, both payments and receipts, before applying any netting.

Settlement pre-matching. The process of comparing payments via an electronic platform (e.g., DTCC), on which counterparties can bilaterally match payments in advance of a settlement date.

Settlement staff. All employees performing settlement functions, including pre-matching, investigation, and reconciliation of settlement fails and breaks (including nostro breaks).

SSI. Standard Settlement Instructions, that is, standing payment instructions for a legal entity that specify bank account details for specific products and currencies.

Trade capture staff. All employees whose primary function is to book, amend, and blotter all trade events into trade capture and operations systems. Additional responsibilities may include coordinating with the front and back office to investigate queries and unrecognized trades, static data maintenance, options exercise and expiry monitoring, and calculating coupon and fee payments.

Unrecognized trade. A transaction that cannot be identified by the supposed counterparty to the trade; sometimes referred to as “Don’t Know” (DK).