ISDA 2008 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 the level of automation of their operational processes.

A total of 79 ISDA member firms responded to the 2008 Operations Benchmarking Survey, compared with 66 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 deal volumes across products. Of the 79 firms that responded, 66 are banks or securities firms, three are asset managers, two are energy firms, and two are export finance agencies; the others include a service provider, an insurer, a government-sponsored entity, a government, a corporate, and a multilateral financial institution. The regional breakdown is as follows: 39 are from Europe or South Africa, 24 from North America, nine from Japan, five from Australia, and two from Asia outside Japan.

Table 1
Firms responding to ISDA Operations Benchmarking Survey
Numbers of firms

Size	Monthly volume	2001	2002	2003	2004	2005	2006	2007	2008	Responded 07 & 08
Large	≥15,000	17	20	20	19	18	17	18	22	20
Medium	≥1,500	26	23	22	25	22	18	19	22	14
Small	<1,500	18	22	22	23	26	32	29	35	21
Total		61	65	64	67	66	67	66	79	55

Appendix 2 contains a list of definitions of terms as used in this year's Survey. The 2008 Survey refers to respondents' activities from January 1 to December 31, 2007. All amounts are in U.S. dollars. Each firm that responds to the Survey receives an individual feedback report that compares the firm's results with the results for respondents of similar size. The preparation of the 2008 Survey involved extensive rewriting of the questionnaire, in large part to achieve consistency with the operational data assembled by the G18 dealer group. The G18 group, which is defined in Appendix 2, overlaps substantially but not completely with the large firm category: some large firms are not in the G18, while some G18 firms are in the medium size category.

This report begins by reporting monthly volumes for five OTC derivatives product groups: interest rate derivatives, credit derivatives, equity derivatives, currency options, and commodity derivatives. The Survey then reports the results for the following processes: trade capture, confirmation and affirmation, and settlement. Next, the Survey provides automation data by process and product. And the last section reports information on staffing levels for 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 were 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.

ISDA Operations Benchmarking Survey 2008

Summary

- OTC derivative monthly volumes grew 38 percent during 2007. Credit derivatives grew the most at 73 percent, while currency options grew the least at 3 percent.

- Electronic dispatch of confirmation increases speed of dispatch significantly. Over 90 percent of interest rate and credit derivative confirmations can normally be dispatched electronically on the day after trade date (T+1). The corresponding figure for non-electronic confirmations is 40 percent. Equity derivatives lag other products in dispatch times.

- Outstanding confirmations, measured in days worth of business, are down for most products. The slight increase shown by credit derivatives was the result of an abrupt increase in volume during the summer, which led to an increase in business days outstanding during the same period. This temporary increase raised the yearly average even though the trend was downward at year end.

- Over 50 percent of respondents report that they routinely perform an affirmation of key trade details in addition to the normal confirmation process. Among large firms, approximately 80 percent run such a separate affirmation process.

- Settlement volumes increased significantly for all products except currency options, reflecting high current year trade volumes along with maintenance of transactions from previous years.

- Automation varies across products, functions, and firms. Interest rate, credit, and currency derivative processing is more automated than that for equity and commodity derivatives. Data transfer functions are the most automated functions and confirmation matching and settlement pre-matching the least automated overall. Finally, the G18 firms reflect the above differences, but report higher automation of products and functions than the full sample.

Survey Results

Section 1 – Volumes

The ISDA 2008 Operations Benchmarking Survey modified the wording of the question on OTC derivatives monthly volume. While previous surveys measured volume as average number of trades per month, excluding intra-company trades, the 2008 Survey asked instead for number of events, which includes such actions as new trades, novations, and terminations but excludes intra-company trades and tear-ups. Appendix 2 provides a more detailed definition. The reason for the change was to provide a measure that accurately reflects the output of the operations functions.

The results for all respondents are shown in Charts 1.1 and 1.2. Chart 1.1 shows the growth of all OTC derivative volumes during calendar year 2007; considered in the aggregate, OTC derivative volumes grew by 38 percent. Chart 1.2 breaks out the results by product. Taking all respondents together without regard to firm size, credit derivative volumes grew the most, at 73 percent; the chart shows the steep growth of credit derivatives compared with other products over the last several years. Next, growing at a slower but still significant rate were commodity derivative (30 percent), and interest rate derivative (19 percent) volumes. And finally, relatively low growth rates characterized the changes in volumes for equity derivatives (7 percent) and currency options (3 percent).

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

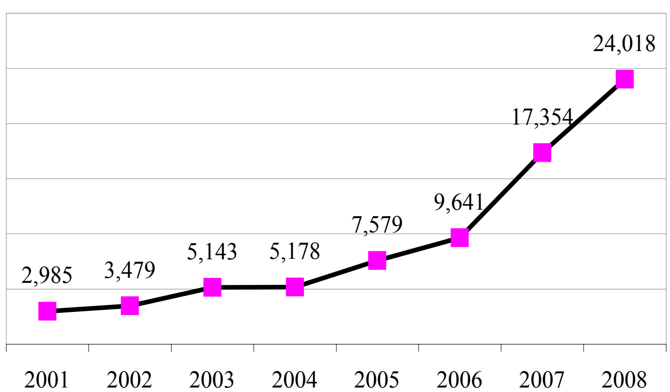


Chart 1.2
Average monthly event volume by product
Number of events

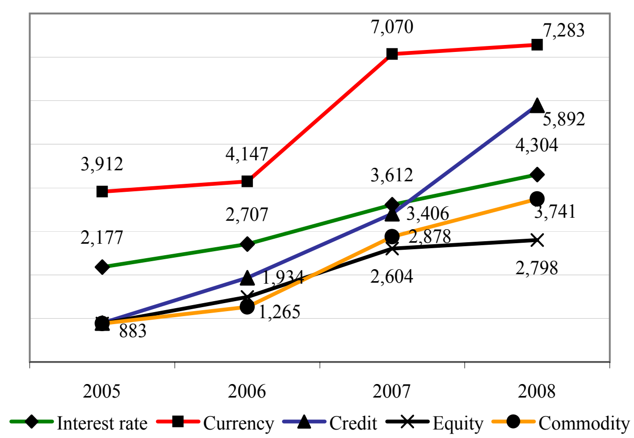


Table 1.1, which contains the results over the last four years by product and firm size, shows how changes in volumes vary across size classes. First, at large firms, credit derivative volumes grew 87 percent during 2007 and commodity derivative volumes grew 40 percent; both growth rates are higher than those for the full sample. Second, equity derivative volumes grew at large and small firms, but the growth was largely offset by decreases at medium firms. Third, commodity derivative volumes at medium and small firms grew significantly, although the growth may be partly the result of sample variation from last year's Survey. Table 1.2 gives summary statistics for volumes by product and firm size.

Table 1.1
Average monthly event volume, by size group

	Large firms				G18	Medium firms				Small firms			
	2005	2006	2007	2008	2008	2005	2006	2007	2008	2005	2006	2007	2008
Interest rate	5,890	7,631	9,903	12,677	12,328	928	1,643	1,862	2,060	282	369	400	335
Credit	2,790	6,281	9,359	17,547	17,982	145	392	415	680	13	39	120	87
Equity	2,328	4,522	5,237	6,595	6,520	328	769	1,334	703	52	70	140	255
Currency	11,252	10,998	16,183	19,955	20,150	700	1,177	1,439	1,392	134	499	842	315
Commodity	2,495	3,968	5,953	8,346	9,574	149	505	424	1,042	82	41	64	130
Total OTC	25,739	32,256	47,345	65,121	66,554	2,093	3,966	4,179	5,878	433	1,191	1,043	1,122

Table 1.2
Monthly event volume summary statistics, by size group

Large	Average	Median	25% Quartile	75% Quartile	Maximum
Interest rate	12,677	11,978	8,676	14,893	33,497
Credit	17,547	16,336	8,580	24,042	46,120
Equity	6,595	6,452	2,795	8,723	22,221
Currency options	19,955	6,338	4,514	23,568	101,600
Commodity	8,346	3,222	859	14,855	36,506

Medium	Average	Median	25% Quartile	75% Quartile	Maximum
Interest rate	2,060	1,857	1,167	2,275	5,676
Credit	680	286	28	693	3,132
Equity	703	338	181	647	3,298
Currency options	1,392	916	315	1,668	4,517
Commodity	1,042	390	30	1,324	7,300

Small	Average	Median	25% Quartile	75% Quartile	Maximum
Interest rate	335	214	50	556	1,129
Credit	87	31	5	65	600
Equity	255	96	15	378	1,000
Currency options	315	128	70	472	1,225
Commodity	130	31	5	65	600

Table 1.3 shows the percent of volume transacted by respondents with major dealers that are members of the G18 dealer group (see definitions in Appendix 2). The table shows that the percent of volume transacted with a G18 firm is noticeably higher for credit derivatives than for other product, reflecting the importance of the intermediation function provided by these major dealers.

Table 1.3
Percent of volume transacted by respondents with G18 firms

	All	G18	Large	Medium	Small
Interest rate	55	44	50	46	63
Credit	73	63	66	72	80
Equity	48	28	38	42	61
Currency	45	40	46	29	55
Commodity	37	29	27	29	56

SECTION 2 - TRADE CAPTURE

In order to measure the accuracy of trade data 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. Respondents were also asked to specify what percent of errors were attributable to front office staff. Table 2.1 shows the results. Although previous surveys asked similar questions, the table does not include historical data because the question differs sufficiently from its predecessors as to make comparability with previous years difficult.

Table 2.1
Amendment rates
By product

	Interest rate	Credit	Equity	Currency	Commodity
Percent of trade records containing errors	18	13	12	7	8
Percent of errors attributable to front office	37	34	29	35	25

The Survey also asked participants to rank various causes of errors from most common to least common; Table 2.2 shows the rankings for the five product categories. For most products, errors are most commonly associated with payment or termination dates and with counterparty names. But for credit derivatives, the most common source of errors is in specifying the reference entity or obligation. Notional amounts are a significant source of errors 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	4	1	2	1
Counterparty name	2	3	2	1	2
Business day convention	3	6	6	8	7
Miscellaneous fees[1]	4	2	4	5	4
Trade date / Effective date	5	4	3	6	8
Underlying[2]	6	1	7	7	4
Notional amount	7	7	5	3	3
Buy / sell	8	8	9	4	6
Legal agreement date[3]	9	9	10	9	9
Language / elections	10	10	8	10	10

[1]Initial margins, assignment fees, upfront fees, etc.
[2]Reference obligation, reference entity, rate option, index or share, etc.
[3]Master agreement, master confirmation agreement

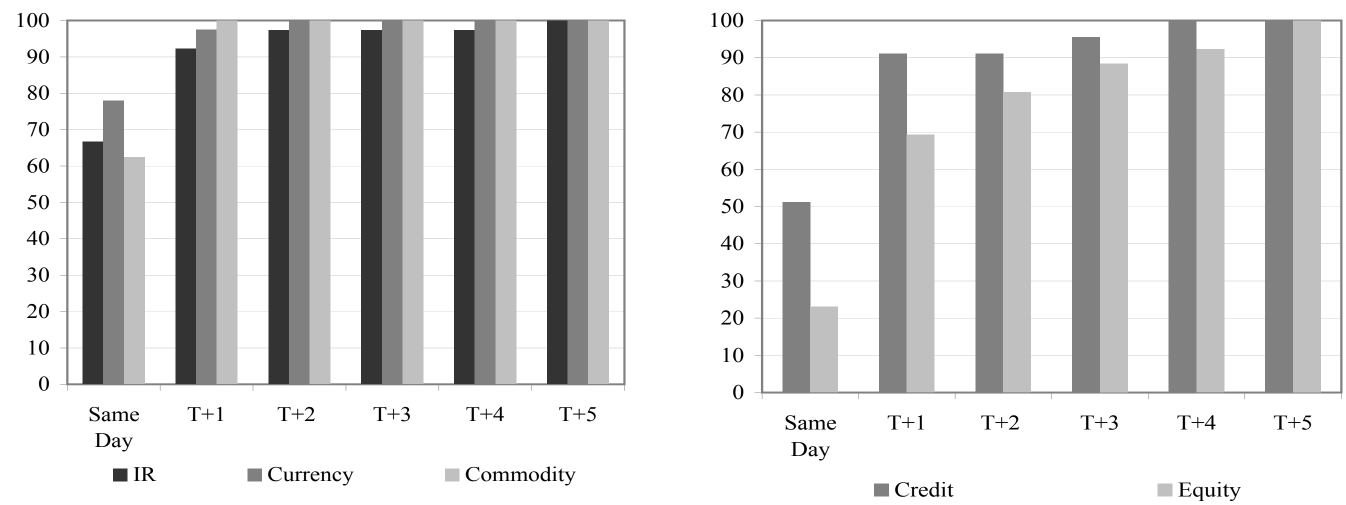
Section 3 - Confirmations

Production of confirmations. The size of the interval between the trade date and the time the confirmation is dispatched is a closely watched measure of operational efficiency; the Operations Benchmarking Survey has reported these dispatch times since its inception. But this year's survey goes farther than previous surveys by asking respondents to distinguish between dispatch times for electronic and non-electronic confirmation, where electronic confirmations are those submitted to an electronic platform for matching (Appendix 2). The four parts of Chart 3.1 consists of four charts, which distinguish between electronic and non-electronic and for interest rate, currency, and commodity derivatives in one set and for credit and equity derivatives in the other.

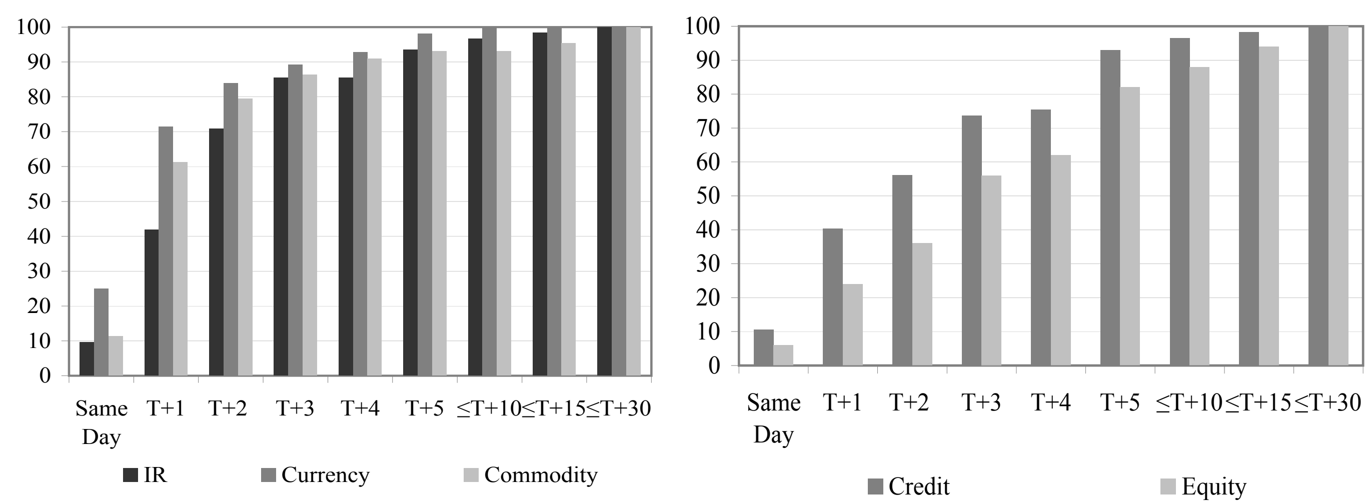
The results support the important role of automation in reducing confirmation dispatch times (automation will be discussed in Section 5). Among electronic confirmations, for example, over 90 percent of interest rate and credit derivative confirmations are normally dispatched the day after trade date (T+1). Among non-electronic

Charts 3.1
Confirmations normally sent by given time, all firms
Cumulative percentages

Electronic



Non - electronic



confirmations, in contrast, only about 40 percent of interest rate and credit derivatives are normally dispatched by T+1. The charts also show that equity derivatives lag behind the other products; this result reflects the low level of automation of equity derivatives relative to other products (Section 5).

The Survey listed a number of factors that affect normal dispatch times and asked respondents to rank the factors by importance. Table 3.1 shows that new or non-standard products are the most significant factor affecting normal dispatch times, followed by high volumes and non-standard language. Commodity derivative dispatch times are also subject to the time it takes to receive data or approval from Legal or Compliance.

Table 3.1
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	3
Non-standard language	3	3	3	4	3
Awaiting data or approval from front office	4	5	4	3	5
Systems/Technology issues	5	6	6	6	6
Awaiting data or approval from Legal/Compliance	6	4	5	5	2
Awaiting data/details from external source such as KYC documentation, static data, etc.	7	7	7	7	7
Awaiting data or approval from credit or collateral function	8	8	8	8	8

Outstanding confirmations. The volume of outstanding confirmations is another important measure of operational efficiency, where outstanding confirmations are those that have not been fully executed as of month-end. Table 3.2 reports historical data on outstanding confirmations expressed as days worth of business, which is measured by multiplying number of outstanding confirmations by a standard number of 22 business days and then dividing by monthly event volume. This year's measure of outstanding confirmations is subject to two possibly offsetting changes in survey definitions compared with previous years (Appendix 2). First, the numerator of the measure might be somewhat larger than in previous years because previous surveys asked only for confirmations that were sent but not returned; this year's survey, in contrast, includes outstanding confirmations regardless of whether sent or unsent. Second and possibly offsetting, the denominator of the measure might be somewhat larger than in previous years because the measure of volume covers events instead of deals. It is not possible to gauge the relative significance of the two changes with any degree of accuracy.

Table 3.2
Confirmations outstanding
Business days

All firms	2003	2004	2005	2006	2007	2008
Interest rate	9.2	8.9	9.5	9.3	10.7	9.9
Credit	21.1	17.8	13.3	12.9	4.9	6.6
Equity	10.8	9.4	9.9	15.1	13.7	13.3
Currency	8.2	7.6	6.2	5.1	4.8	2.3
Commodity	9.5	12.1	10.0	12.5	6.2	3.0

	Large firms				G18	Medium firms				Small firms			
	2005	2006	2007	2008	2008	2005	2006	2007	2008	2005	2006	2007	2008
Interest rate	11.4	14.1	13.9	10.3	11.2	6.9	7.2	9.4	7.5	10.4	6.6	8.0	4.8
Credit	23.5	16.2	5.6	6.4	7.0	7.8	12.7	6.6	4.7	5.3	8.2	3.6	5.6
Equity	16.7	24.6	22.6	13.9	15.5	9.7	10.3	10.8	11.2	1.6	6.4	7.0	3.5
Currency	5.3	7.9	6.1	2.1	1.6	12.1	2.3	7.1	4.4	4.2	4.4	2.3	6.2
Commodity	20.2	23.3	7.5	3.2	3.1	4.3	7.0	4.5	1.4	4.1	6.5	4.1	4.1

The results show that outstanding confirmations are down for most products. The slight increase in credit derivative outstanding confirmations is associated with the bulge in volume that occurred with the onset of the credit crunch at the end of Summer 2007. Two charts, drawn from monthly metrics data submitted by the G18 firms, help illustrate this point. Chart 3.2 shows monthly G18 CDS volumes over 2007, including the abrupt increase in volume during the summer. Chart 3.3 shows business days of outstanding CDS confirmations, which increased along with volumes. Both volumes and outstanding confirmations fell back to normal levels by year-end, but the result in Table 3.2, which shows outstanding confirmations averaged over all of 2007, was to mask to downward trend among the large firm and G18 group.

Chart 3.2
Monthly CDS deal volumes at G18 firms
Source: Markit (used by permission)

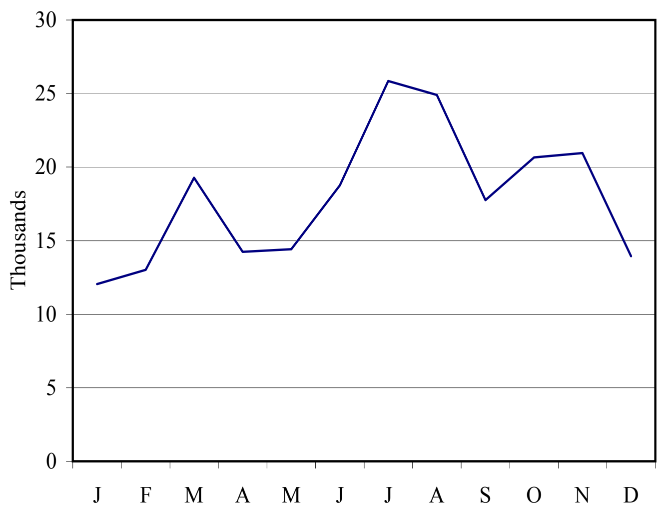
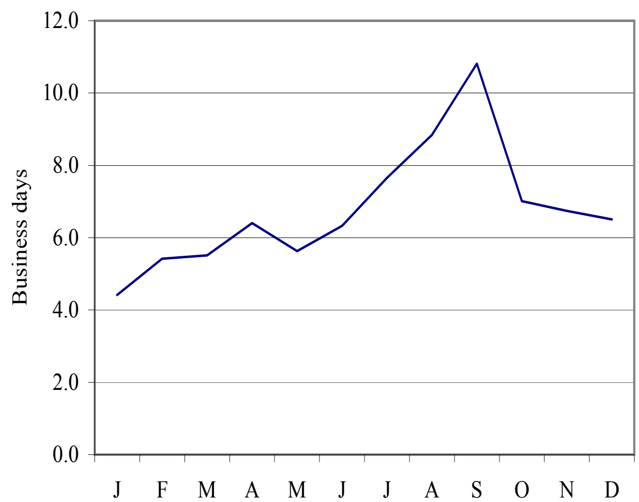


Chart 3.3
Outstanding CDS confirmations at G18 firms
Source: Markit (used by permission)



The Survey also listed a set of risk mitigation criteria used to prioritize the generation and execution of outstanding confirmations and asked respondents to rank the criteria from very significant to insignificant. Table 3.3 shows the results. The rankings are similar across product, with business days outstanding occupying first place followed by unrecognized trade.

Table 3.3
Criteria used to prioritize outstanding confirmations
Rankings

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

Affirmation. Finally, a new set of questions cover trade affirmation, which is the process by which two counterparties verify that they agree on the key economic details of a trade. Table 3.4 shows the extent to which respondents affirm trades and the methods used to affirm trades; the chart shows the results for all respondents and for large firms. For the full sample, over half of respondents report that they affirm trades, with the remainder roughly divided equally between those that affirm only when contacted by their counterparty and those that do not affirm at all. Among large firms, however, the practice is far more common. The results also suggest that it is mainly the smaller firms that affirm only when contacted by the counterparty. Table 3.5 shows the times by which respondents aim to complete the affirmation process, with separate results for affirmation of electronic and of non-electronic confirmations.

Table 3.4
Trade affirmation
Percents

	Interest rate		**Credit**		**Equity**		**Currency**		**Commodity**	
	All	**Large**	**All**	**Large**	**All**	**Large**	**All**	**Large**	**All**	**Large**
Respondent performs separate affirmation of key economic details of a trade										
Yes	54	82	51	79	55	84	58	78	48	82
No	18	12	30	21	26	11	19	17	27	12
Only when contacted by counterparty	28	6	20	0	19	5	23	6	25	6
Method of affirmation										
Phone	40	28	37	28	32	25	46	57	54	57
Electronic message	60	72	63	72	68	75	54	43	46	43

Table 3.5
Expected affirmation times, all respondents,
Percents

Electronic	**Interest rate**	**Credit**	**Equity**	**Currency**	**Commodity**
T+0	25	8	10	52	32
T+1	30	28	40	32	42
T+2	15	16	10	0	11
T+3	5	20	5	8	0
T+4	0	0	0	0	0
T+5	20	16	20	8	16
T+6 - T+10	5	12	10	0	0
T+11 - T+15	0	0	0	0	0
T+16 - T+30	0	0	0	0	0
> T+30	0	0	5	0	0
Non-Electronic					
T+0	14	10	8	18	3
T+1	21	20	22	38	52
T+2	9	8	8	15	13
T+3	14	18	14	5	10
T+4	0	3	0	0	0
T+5	16	23	28	13	13
T+6 - T+10	19	5	8	8	3
T+11 - T+15	5	5	3	3	0
T+16 - T+30	2	3	0	3	3
> T+30	0	8	8	0	3

Section 4 - Settlements

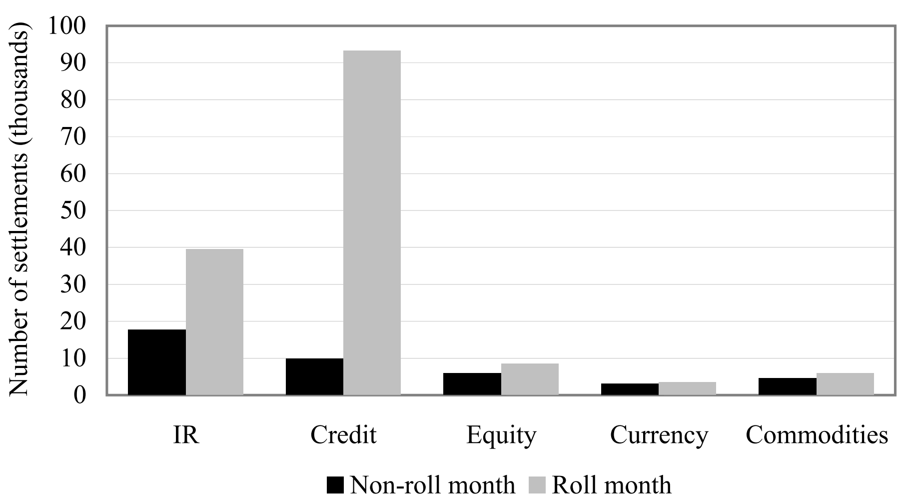
Average monthly settlement volumes increased significantly for most products. The increase is likely the result of two factors, namely, higher trade volumes as well as continuing trade maintenance obligations—rate resets and coupon payments, for example—from transactions agreed in previous years. Table 4.1 shows number of settlements for all respondents. The 2008 Survey also distinguishes between roll months, which are those corresponding to payment dates for major credit indexes and listed product expiries, and non-roll months (see definitions in Appendix 2). As expected, credit derivatives show by far the most variation: roll month exceed non-roll month volumes by a factor of almost ten (Chart 4.1). There is also some variation for interest rate and equity derivative volumes.

The increase in settlement volumes points to the importance of settlement pre-matching and central settlement facilities. As will be shown in Section 5, settlement pre-matching is the least automated function for all products except credit derivatives.

Table 4.1
Monthly settlements, all respondents
By product

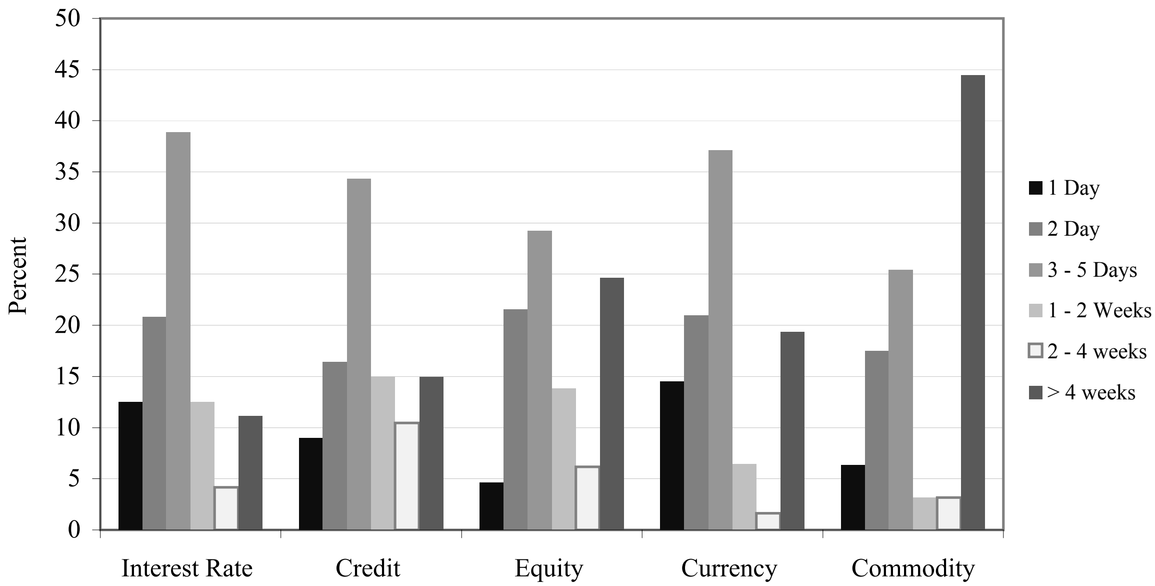
				2008		
	2005	**2006**	**2007**	Non-roll	Roll	Combined
Interest rate	12,826	12,183	15,341	17,725	39,602	25,017
Credit	4,960	9,641	18,450	9,860	93,288	37,669
Equity	1,139	2,797	3,421	5,909	8,496	6,771
Currency	3,983	3,643	7,752	3,153	3,432	3,246
Commodity	641	1,920	3,623	4,701	6,152	5,182

Chart 4.1
Roll month versus non-roll month settlements, all respondents
Average number of settlements, by product



The Survey also asked respondents for the normal time frames for resolution of nostro (payment) breaks, that is, mismatches of expected and actual cash flows between paying and receiving institutions. Respondents were given choices ranging from one day to more than four weeks from the original settlement date. Chart 4.3 shows average results by product for all respondents. For interest rate derivatives, for example, 15 percent of nostro breaks are resolved after one day, an additional 25 percent after two days, 46 percent more after 3 to five days, 4 percent within one to two weeks; 11 percent take longer than four weeks to resolve. Interest rate and credit derivatives tend to be resolved the fastest, and equity and commodity derivatives the slowest.

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



SECTION 5 - AUTOMATION

One of the major objectives of the Operations Benchmarking Survey is to gauge the extent to which firms are automating their derivatives processing functions. The survey questionnaire asked respondents for the percent of volume automated for eleven processes. Table 5.1 shows the results in process order for all respondents and Table 5.2 shows the results for the G18 sample; the far right column for each table shows average degree of 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.

The functions in the tables include two categories of confirmation generation, namely, fully automated and partially automated. For purposes of the Survey, fully automated refers to confirmation through SwapsWire, DTCC, Swift, and other external and in-house automation systems. In addition, electronic solutions offering generation and matching/affirmation are counted under confirmation generation and confirmation matching.

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 the front office to operations for processing	84	78	70	82	79	**79**
Trade data transferred from the operations system to the general ledger	81	80	79	83	67	**78**
Additional data added in order to process (SSIs legal information etc)	47	51	42	47	48	**47**
Imaging of incoming confirmation	55	52	52	58	51	**54**
Imaging of outgoing confirmation	70	64	65	70	66	**67**
Confirmation generation (partially automated)	36	17	34	27	37	**30**
Confirmation generation (fully automated)	51	59	33	65	49	**52**
Confirmation matching	31	62	22	48	38	**40**
Confirmation dispatch (for non-electronic confirmations only)	50	40	47	43	52	**46**
Settlement pre-matching	25	48	18	28	29	**29**
NOSTRO reconciliation	77	73	71	78	77	**75**

The tables highlight several survey results. First and not surprisingly, the G18 sample shows a higher degree of automation than the full sample for all products except commodity derivatives. Second, the data transfer and nostro reconciliation functions are the most automated and settlement pre-matching function is the least automated. Third, credit derivatives and currency options are the most automated products, while equity derivatives are the least automated. An examination of previous Operations Benchmarking Surveys would show that, while currency options have long been among the most automated products, the most significant improvement in credit derivatives has occurred since automated platforms were launched in late 2003.

Table 5.2

Degree of automation by product and function, G18

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	79	91	66	87	76	**80**
Trade data transferred from the operations system to the general ledger	94	89	92	93	57	**85**
Additional data added in order to process (SSIs legal information etc)	38	57	54	56	56	**53**
Imaging of incoming confirmation	86	82	69	77	39	**71**
Imaging of outgoing confirmation	86	83	83	82	54	**78**
Confirmation generation (partially automated)	27	12	39	23	38	**28**
Confirmation generation (fully automated)	60	83	39	69	47	**60**
Confirmation matching	57	86	36	52	34	**53**
Confirmation dispatch (for non-electronic confirmations only)	67	52	60	54	45	**56**
Settlement pre-matching	20	65	13	36	5	**28**
NOSTRO reconciliation	89	81	63	87	38	**72**

Table 5.3

Automation by product and function, all respondents

Heat map

Function	Currency	IR	Credit	Equity	Commodities	Average for function
Trade data transferred from the operations system to the general ledger	83	81	80	79	67	**78**
Trade data transferred from the front office to operations for processing	82	84	78	70	79	**79**
NOSTRO reconciliation	78	77	73	71	77	**75**
Imaging of outgoing confirmation	70	70	64	65	66	**67**
Confirmation generation (fully automated)	65	51	59	33	49	**52**
Imaging of incoming confirmation	58	55	52	52	51	**54**
Confirmation matching	48	31	62	22	38	**40**
Additional data added in order to process (SSIs legal information etc)	47	47	51	42	48	**47**
Confirmation dispatch (for Non - Electronic Confirmations only)	43	50	40	47	52	**46**
Settlement pre-matching	28	25	48	18	29	**29**
Confirmation generation (partially automated)	27	36	17	34	37	**30**

Table 5.4 shows planned automation by function and product. The averages show that respondents will devote the most attention to the automation of interest rate derivatives and of confirmation generation in the coming year.

Table 5.4
Planned automation by product and function, all respondents
Percent responding that they plan to increase automation

	Interest rate	Credit	Equity	Currency	Commodity
Trade data transferred from the front office to operations for processing	41	29	34	15	24
Trade data transferred from the operations system to the general ledger	28	23	24	18	23
Additional data added in order to process (SSIs legal information etc)	30	24	23	19	20
Imaging of incoming confirmation	34	29	33	22	23
Imaging of outgoing confirmation	29	19	24	18	15
Confirmation generation (partially automated)	59	38	44	32	30
Confirmation generation (fully automated)	41	28	38	27	28
Confirmation matching	22	29	13	13	13
Confirmation dispatch (for non-electronic confirmations only)	34	24	27	23	27
Settlement pre-matching	19	18	15	11	13
NOSTRO reconciliation	57	35	38	30	30

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 operations staff. Among operations staff, previous surveys distinguished between trade capture and trade processing staff; this year's survey distinguishes further between trade capture, confirmations, and settlements staff. Table 6.1 shows historical results using the old measures, while Table 6.2 shows the results for 2008 only using the new measures.

The increasing ratios over time in Table 6.1 can signify either more traders or fewer support staff; a smaller number of support staff might be the result of increasing automation. In addition, the low ratios for credit derivatives in Tables 6.1 and 6.2 suggest a larger number of support staff relative to front office staff.

Table 6.1
Staffing ratios, old measures, all respondents

	Front Office / Trade Capture				Front Office / Trade Processing			
	2005	2006	2007	2008	2005	2006	2007	2008
Interest Rate	4.7	4.8	3.8	5.3	1.2	1.2	1.1	1.9
Credit	2.9	1.6	2.1	3.6	1.1	0.8	0.8	1.6
Equity	5.0	2.1	3.0	3.5	2.1	1.7	1.8	3.1
Currency	3.0	2.1	2.1	4.2	1.5	1.4	1.2	2.0
Commodity	8.1	1.6	2.3	5.2	1.7	1.4	1.3	2.6

Table 6.2
Staffing ratios, new measures, all respondents

2008	Front office / Trade capture	Front office / Confirmations	Front office / Settlements
Interest rate	5.3	3.5	4.1
Credit	3.6	2.7	3.8
Equity	3.5	5.4	7.3
Currency	4.2	3.2	5.2
Commodity	5.1	5.1	5.4

Table 6.3 (on the following page) presents another staffing measure, namely, trades per full-time equivalent staff. The ratios in the table suggest that equity derivatives have the farthest to go in terms of increased efficiency, which likely reflects the relatively low degree of automation of equity derivatives combined with the highly customized nature of many such transactions. Currency options, in contrast, show the highest number of trades per staff resource, reflecting the high degree of automation of the product.

Table 6.3
Monthly trades per full-time equivalent staff, by product and size group

Large firms	Front office	Trade capture	Confirmation	Settlement
Interest rate	64	372	235	289
Credit	99	402	310	439
Equity	26	96	155	224
Currency	384	1,731	1,280	2,818
Commodity	98	503	474	525

Medium firms	Front office	Trade capture	Confirmation	Settlement
Interest rate	44	413	273	301
Credit	38	358	224	257
Equity	19	228	180	167
Currency	121	1,049	673	550
Commodity	60	352	492	432

Small firms	Front office	Trade capture	Confirmation	Settlement
Interest rate	15	96	79	85
Credit	18	61	34	32
Equity	22	158	120	108
Currency	50	130	117	108
Commodity	32	463	91	132

Finally, the Survey asked respondents about the percent of staff that is outsourced or in a low cost location (see Appendix 2); Table 6.4 shows the results for all respondents and for the G18 sample. Trade capture staff is the least outsourced of the three operations functions. For the full sample, confirmations staff and settlement staff show equal proportions of outsourcing, while the settlement staff is the most outsourced among the G18 dealer group.

Table 6.4
Staff that is outsourced or in a low-cost location
Percents

All respondents	Interest rate	Credit	Equity	Currency	Commodity
Trade capture staff	5	2	4	6	2
Confirmation staff	13	9	7	10	5
Settlement staff	13	8	7	12	6
Large Firms					
Trade capture staff	5	4	8	10	2
Confirmation staff	33	25	21	25	16
Settlement staff	32	26	21	29	15

Appendix 1 – 2008 Survey Participants

Abbey Financial Markets
ABN Amro
Aozora Bank
Banco Bilbao Vizcaya Argentaria (BBVA)
Bank of America
Bank of Montreal
Bank of Scotland Treasury
Bank of New York Mellon
Bank of Tokyo-Mitsubishi UFJ
Barclays Capital
Bayerische Landesbank Girozentrale
Bear Stearns
BHF-Bank AG
BNP Paribas
Calyon
Cheyne Capital
Chuo Mitsui Trust and Banking Company
Citadel
Citigroup
Commonwealth Bank of Australia
Credit Suisse
Daiwa Securities SMBC
Den Norske Bank
Deutsche Bank
Dresdner Kleinwort
DZ Bank
Eksportfinans ASA
Export Development Canada
Freddie Mac
GlobeOp Financial Services
Goldman Sachs
HSBC Bank
Inter-American Development Bank
Intesa Sanpaolo
Invesco
JP Morgan Chase
KBC Bank
KfW
Komerční banka
Landesbank Baden-Württemberg
Lehman Brothers
Lloyds TSB
Macquarie Bank
Merrill Lynch
Mitsubishi UFJ Financial Group
Mizuho Bank
Morgan Stanley
National Australia Bank
National Bank of Canada
National Bank of Greece
NIBC Bank N.V.
Nomura Securities International
Norddeutsche Landesbank Girozentrale
Nordea
Norinchukin Bank
Pacific Life Insurance Company
Province of British Columbia
Prudential Global Funding
Rabobank International
Royal Bank of Canada
Royal Bank of Scotland
RWE Trading
Santander Central Hispano
SEB
Shell International Trading and Shipping
Shinko Securities
Société Générale
St. George Bank
Standard Bank of South Africa
Standard Chartered Bank
Sumitomo Trust & Banking
Swedbank
TD Securities
UBS Investment Bank
United Overseas Bank
Volvo Treasury AB
Wachovia Bank
Westpac Banking Corporation
Zürcher Kantonalbank

Appendix 2 – Definitions of terms used in 2008 Survey questionnaire

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

Commodity derivatives – 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.

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 or Swapswire.

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 (CDS), 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 (ABS), collateralized debt obligations (CDO), 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 into another currency at a pre-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 in the definition.

Electronic confirmation - A confirmation which is submittedfor matching to an electronic platform such as Swapswire, DTCC, or Swift.

Equity derivatives – OTC derivative products with payments linked to the performance of equities 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 events relating to OTC derivatives trades sent to operations for processing during the period. The following constitute events for the purpose of this 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. Exclude (i) all internal, intra-company and intra-group trades, (ii) terminations and partial terminations arising from Tri-Optima or other tear-up services and (iii) one-way notices such as corporate action notices. One structure should be reported as one trade regardless of the number of tickets. Prime broker activity or intermediation should be reported as two trades. Allocation splits should be reported as the number of funds to which a block trade is allocated.

Front office staff – All employees that entering 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 of time an employee (whether permanent, temporary, or contractor) works, represented as a decimal. For example, a full-time employee is 1.0, an employee working 3 days per week is 0.6, and one dedicating 50 percent of his or her time to an activity is 0.5.

G18 – A group of major OTC derivatives dealers that focuses on operational improvements in credit and equity derivatives. It consists of the following firms: Bank of America, Barclays Capital, Bear Stearns, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Dresdner Bank, Goldman Sachs, HSBC, JPMorgan Chase, Lehman Brothers, Merrill Lynch, Morgan Stanley, Royal Bank of Scotland, Société Générale, UBS, and Wachovia Bank.

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 in the definition.

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

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

Non-electronic confirmation - A confirmation not included in the definition of electronic confirmation, i.e., not submitted to an electronic platform for matching.

Non-roll month – A calendar month that is not a roll month (defined separately) because it falls outside of the regular quarterly payment date or expiry months for the relevant product.

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.

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

Reporting period – Period from 1 January 2007 to 31 December 2007.

Roll month – Calendar month, normally March, June, September and December, corresponding to a regular quarterly payment date for a credit index (e.g. iTraxx or CDX) or expiry for a listed product (e.g. IMM dates).

Settlements – For purposes of the Survey, the gross number of settlements (both payments and receipts) before applying any netting.

Settlement pre-matching – The process of matching payments via an electronic platform such as DTCC, in 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).

SSIs - Standard Settlement Instructions, i.e., default payment instructions for the relevant legal entity and product.

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.