ISDA 2006 Operations Benchmarking Survey

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INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, INC.

INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION

The International Swaps and Derivatives Association, Inc. (ISDA) is the leading global trade association representing professional market participants in privately negotiated derivative transactions. Privately negotiated derivative transactions include interest rate, currency, equity, commodity and credit swaps, options, and forward transactions, as well as related products comprising forward rate agreements, caps, floors, collars, and swaptions.

ISDA, chartered in 1985, numbers over 700 members in 50 countries. Its members include most of the world's major commercial, universal and investment banks as well as other companies and institutions active in swaps and other privately negotiated derivatives transactions.

INTRODUCTION

The ISDA Operations Benchmarking Survey collects performance data on operations processing of privately-negotiated derivatives, more commonly known as 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 procedures, and settlement. Each firm that responds to the Survey receives an individual feedback report that compares that firm's own results with the results for respondents of similar size and with the results for the entire respondent population.

A total of 67 institutions responded to the 2006 Survey (see Appendix); all of the largest derivatives houses responded. Regional mixes are shown in Table 1. The Survey classifies responding firms as large, medium, or small according to weekly derivatives volume.

Table 1
Profile of firms responding to 2006 Survey
Numbers of firms

							2006 Survey regions			
	2001	2002	2003	2004	2005	2006	North America	Europe-Africa	Asia - Pacific	Japan
Large(>1,500 deals/week)	17	20	20	19	18	17	8	9	1	0
Medium (300-1,500)	26	23	22	25	23	18	6	12	3	2
Small (0-300)	18	22	22	23	26	32	7	11	0	8
Total	61	65	64	67	67	67	21	32	4	10

Of the 67 responding institutions, 52 are depository institutions (banks), ten are investment banks or securities firms, and two are energy firms. The other respondents are an insurance company, a government sponsored enterprise, and a governmental entity. Of the 67 that responded, 47 are repeat participants from last year.

This year's Survey is similar to last year's in terms of product coverage and number of questions. The criterion for classification as vanilla is the same as in past years, namely, that a vanilla trade is one that is capable of being matched electronically by a commercially available auto-matching engine. All data obtained from the Survey responses are kept in strict confidence and are not shared with employees of other member firms or with any other outside party. Access by ISDA staff is strictly limited.

For questions or comments on the Survey results or to offer suggestions on how the Survey might be further improved, please contact Julian Day (Policy Director, jday@isda.org) or David Mengle (Head of Research, dmengle@isda.org).

SUMMARY

All 2006 Survey results are based on data for calendar year 2005

- Over-the-counter (OTC) derivatives volumes increased for all product categories during 2005. The largest increase was for credit default swap volumes, which doubled at all sizes of firm.
- Ratios of front office to processing staff are decreasing for most product categories, especially credit derivatives. This decrease could reflect increased hiring of processing staff to resolve confirmation backlogs and other operational challenges.
- Trade data capture, measured as front office error rate and percent of trades rebooked, showed mixed results. Credit derivatives error rates increased at large firms, but appear to be following a downward trend since 2003. Rebookings increased significantly, which might be the result of intensified efforts to reduce confirmation backlogs.
- Confirmation dispatch times are lowest for simple transactions such as FRAs, vanilla swaps, and currency options; and are highest for non-vanilla interest rate and equity derivatives and for credit derivatives. For credit derivatives, however, dispatch improved significantly from last year. The most common reason for failure to meet normal dispatch times is that the transaction involves a new or non-standard product.
- Confirmation backlogs decreased significantly for credit derivatives, reflecting increased industry and regulatory attention. Backlogs increased for both vanilla and non-vanilla equity derivatives. Respondents point to counterparty non-responsiveness as the most common reason for unsigned confirmations.
- Trade data capture, posting to general ledger, and nostro reconciliation are the most automated operational functions; matching of confirmation details and of settlements are the least automated. FRAs, vanilla swaps, and currency options are the most automated products; non-vanilla swaps, equity derivatives, and commodity derivatives are the least automated; and credit derivatives lie about midway between the two.
- Looking to future automation efforts, respondents expect to focus automation efforts more on credit derivatives than on other products. Among functions, respondents expect to focus on confirmation dispatch and on confirmation detail matching.

SURVEY RESULTS

PART 1 – VOLUMES AND STAFFING

Volumes. Table 1.1 shows weekly volumes of OTC derivatives deals averaged over calendar year 2005 for various product categories. Average weekly deal volume refers to number of trades entered into by an institution and not to number of separate tickets needed to process; respondents were instructed to count a deal as a single transaction even if it generates several separate tickets that need to be processed. Further, the numbers refer to deals with external counterparties only and exclude internal and intra-company deals. Note that individual product volumes do not add up to total OTC derivatives volumes because respondents could report individual and total volumes separately without requiring that the two be tied.

According to Table 1.1, credit derivative volumes more than doubled for all size classes of firm, and pulled ahead of vanilla swap volumes at large firms and for the sample as a whole. The growth is likely concentrated in products such as credit default swaps referenced to credit indexes and to tranches of indexes.

Most other products experienced growth as well, most notably commodity derivatives at large and medium firms and equity derivatives at all firm size categories.

Table 1.1
Average reported weekly deal volume
Number of trades

	All respondents				Large Firms				Medium Firms				Small Firms			
	2003	**2004**	**2005**	**2006**	**2003**	**2004**	**2005**	**2006**	**2003**	**2004**	**2005**	**2006**	**2003**	**2004**	**2005**	**2006**
FRAs	66	62	55	59	106	120	126	154	61	47	36	44	12	12	5	9
Vanilla swaps	236	288	306	383	564	749	842	1,072	127	134	129	233	32	33	41	52
Non-vanilla swaps	51	58	77	101	122	141	199	304	19	26	29	50	8	12	10	12
IR options	51	61	64	82	126	162	192	232	18	25	20	51	8	6	9	13
Currency options	427	559	905	957	1,191	1,555	2,597	2,538	96	132	162	272	33	21	31	115
Equity derivatives- Vanilla	291	153	153	223	606	364	395	626	102	64	64	149	22	21	9	11
Equity derivatives- Non-vanilla			50	121			143	417			12	29			3	5
Credit derivatives	79	103	206	446	191	283	644	1,450	15	13	33	91	8	7	3	9
Commodity derivatives	245	312	204	292	462	568	576	916	15	35	34	117	5	62	19	9
Total OTC derivatives	1,187	1,195	1,749	2,225	3,248	3,704	5,940	7,444	378	414	483	915	86	79	100	275

Note: Individual products do not sum to totals.

Staffing. Table 1.2 contains two staffing ratios, where all numbers are full-time equivalents and exclude staff required to process internal deals. The first staffing ratio is that of front office traders and marketers to trade capture staff; the second is of front office to trade processing staff. Trade capture staff includes employees whose function is to enter trade data into operations systems, while trade processing staff includes employees involved in trade confirmation, settlement, reset, and reconciliation.

Most of the staffing ratios in Table 1.2 have fallen since last year, although interest rate derivatives have remained steady. This fall can be interpreted in two ways. On the one hand, if one interprets the ratios as measures of back office productivity in that they show how many operations professionals are used to support each trader, the falling ratios would indicate lower productivity. But on the other hand, the falling ratios could reflect the hiring of additional operations professionals in response to understaffing in past years. Given the current attention to credit derivatives confirmations backlogs, the falling staff ratios in Table 1.2 can be seen as a positive indication of increased attention to operations issues.

Table 1.2
Staffing ratios
Percents

	Front office / trade processing staff				Front office / trade capture staff			
	2003	2004	2005	2006	2003	2004	2005	2006
All IR derivatives	1.0	1.0	1.2	1.2	3.2	3.1	4.7	4.8
Currency options	1.7	1.9	1.5	1.4	2.6	3.6	3.0	2.1
Equity derivatives	1.9	2.1	2.1	1.7	3.4	5.0	5.0	2.1
Credit derivatives	1.3	1.5	1.1	0.8	2.2	2.1	2.9	1.6
Commodity derivatives	1.8	2.3	1.7	1.4	5.6	3.3	8.1	1.7

PART 2 - OPERATIONS PROCESSING

Trade data capture

The Survey asked respondents to report the percent of deal ticket volume that involves errors by front office (Table 2.1). In this year's Survey, credit derivatives error rates increased from last year at large firms and for the sample as a whole, but appear to be following a downward trend when viewed over the last four years. Equity derivatives at large firms also experienced higher error rates. Despite these increases, it is difficult to discern an overall pattern in error rates. This is not surprising given that the individual reported numbers are subject to wide variation across firms.

The Survey also asked participants for the percentage of trade records that need to be rebooked, whether as a result of an error or of a change in trade details (Table 2.2). Rebooking is significant from a risk management point of view because it implies that the trade data entered into the accounting and risk management systems are in error and therefore give an inaccurate picture of risk exposure. This year's Survey showed an increase in the need to rebook trades for credit derivatives, especially at large firms. This increase could be linked to increased attention to credit derivatives confirmation backlogs at the largest dealers. Rebookings also increased for non-vanilla interest rate swaps and equity derivatives.

Table 2.1
Average front-office error rates
Percents

	All respondents				Large firms				Medium firms				Small firms			
	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006
FRAs	9	5	3	6	10	7	3	9	10	4	3	3	6	3	3	3
Vanilla swaps	13	8	9	9	19	12	13	12	9	6	8	7	10	6	7	8
Non-vanilla swaps	14	13	14	15	20	17	19	21	10	13	8	8	13	9	17	14
Interest rate options	12	8	8	9	17	12	11	14	9	6	6	5	11	7	8	7
Currency options	8	6	8	8	8	9	12	12	6	6	4	6	9	3	10	4
Credit derivatives	20	18	9	17	28	26	11	20	11	17	8	14	20	9	8	16
Equity derivatives- Vanilla	13	13	11	12	18	16	15	18	8	18	11	8	13	8	6	6
Equity derivatives- Non-vanilla			7	16			9	19			7	14			4	6
Commodity derivatives	10	10	5	9	8	14	7	6	15	7	3	8	6	12	4	7

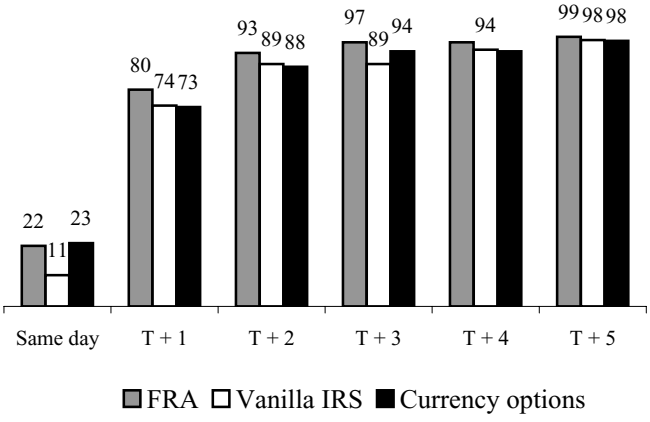
Table 2.2
Percent of trades that need to be rebooked

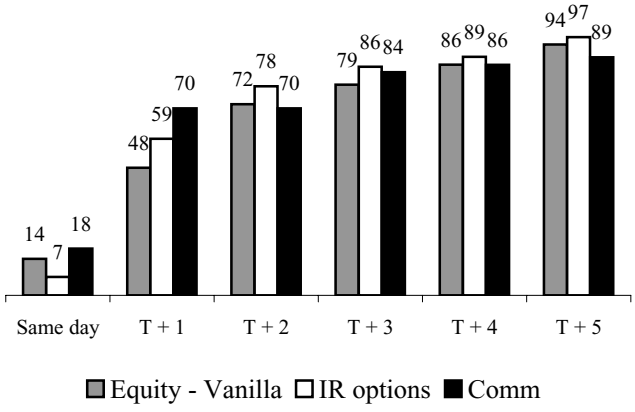
	All respondents				Large firms				Medium firms				Small firms			
	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006
FRAs	9	4	3	8	12	7	3	10	6	6	3	3	7	3	1	3
Vanilla swaps	12	5	8	12	17	12	15	12	8	8	7	7	11	6	5	8
Non-vanilla swaps	12	6	12	17	17	17	21	21	8	8	10	9	11	9	8	14
Interest rate options	11	7	6	12	14	12	13	14	6	6	5	6	12	7	2	7
Currency options	6	8	5	7	6	9	9	12	6	6	5	6	9	3	2	4
Credit derivatives	14	9	7	21	22	26	15	20	7	7	5	16	14	9	1	16
Equity derivatives-Vanilla	11	11	11	16	16	16	21	19	6	6	10	10	12	8	3	6
Equity derivatives- non-vanilla			7	20			13	20			7	18			1	6
Commodity derivatives	8	8	4	10	11	14	10	7	6	6	2	9	3	12	1	7

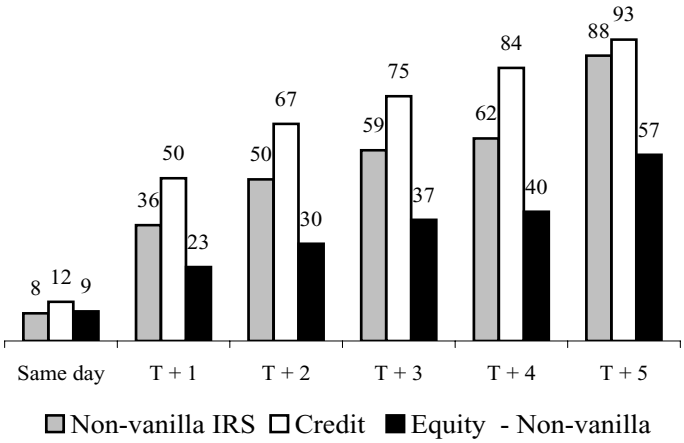
Confirmations

Production of confirmations. Charts 2.1 through 2.3 show times to dispatch of confirmations, grouped according to relative speed of dispatch. Each bar shows the cumulative percent of confirmations dispatched by the date indicated. As expected, vanilla products such as FRAs, vanilla interest rate swaps, and currency options take the least time to dispatch. Relatively new or more complex products, such as credit derivatives and non-vanilla interest rate and equity derivatives, have the slowest dispatch times.

Charts 2.1–2.3
Percent of confirmations sent by given time, 2006 Survey
Selected products

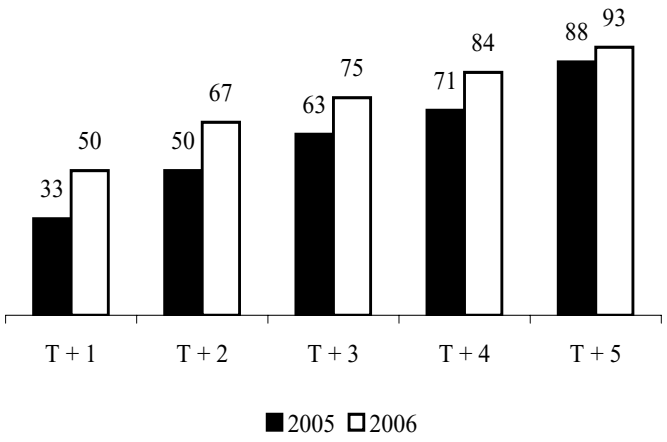






Credit derivatives confirmations have attracted particular concern in the past year, and Chart 2.4 compares dispatch times for credit derivatives from the 2005 Survey to the 2006 Survey. The results are encouraging in that they show decreasing dispatch times. The dispatch times for Chart 2.4 begin with T+1 because last year's Survey did not ask for percent of confirmations dispatched on the same day.

Chart 2.4
Percent of credit derivatives confirmations sent by given time, 2005-6



The Survey asked respondents to rank a set of common reasons why confirmations do not meet their normal dispatch times. The choices were as follows:

- Sheer volume too high to handle
- New or non-standard product
- Non-standard language
- Awaiting data or approval from front office
- Awaiting data or approval from legal or compliance department
- Awaiting data or approval from credit or collateral department
- Awaiting data or details from external source
- Systems or technology issue

It is difficult to discern any common themes in respondents' rankings of the above factors. The few that did arise include the following. First, new or non-standard product was commonly ranked as "very significant" for non-vanilla interest rate swaps, credit derivatives, non-vanilla equity derivatives, and commodity derivatives. Second, non-standard language was ranked very significant for non-vanilla interest rate swaps and non-vanilla equity swaps; it has decreased in significance since last year for credit derivatives. Finally, awaiting data or approval from legal or compliance was ranked very significant for non-vanilla equity swaps. No factors stand out as significant for vanilla products such as FRAs, vanilla swaps, and currency options. But awaiting data from front office was assigned moderate importance for credit and equity derivatives and for non-vanilla interest rate swaps.

Outstanding confirmations. Of particular concern in the past year has been the volume of confirmations that have been sent to the counterparty but are not yet finalized or signed. Respondents reported outstanding confirmations expressed as days worth of business, which is measured by dividing number of outstanding confirmations by daily volume of new trades. For example, if a firm has 300 unsigned confirmations and 30 new trades per day, the firm's response is 10 days.

Table 2.3
Confirmations outstanding
Business days

	All respondents				Large firms				Medium firms				Small firms			
	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006
FRAs	7.1	6.0	4.6	6.1	7.0	6.1	7.4	9.1	6.2	6.4	2.8	4.5	8.5	5.3	3.6	4.6
Vanilla swaps	8.9	8.9	10.1	9.0	9.6	10.8	10.6	13.6	7.4	10.4	7.7	7.7	9.6	4.8	12.4	6.0
Non-vanilla swaps	12.1	11.3	11.6	11.3	12.9	12.4	16.4	18.0	12.4	12.6	8.5	7.2	10.9	7.7	9.8	8.1
Interest rate options	10.7	9.3	8.1	10.3	11.0	11.1	12.1	14.5	11.6	9.7	6.4	7.6	9.4	6.6	5.7	8.9
Currency options	8.2	7.6	6.2	5.1	8.4	5.8	5.3	7.9	9.4	8.3	12.1	2.3	6.5	8.4	4.2	4.4
Credit derivatives	21.1	17.8	13.3	12.9	25.6	25.0	23.5	16.2	18.0	14.8	7.8	12.7	16.9	12.6	5.3	8.2
Equity derivatives-Vanilla	12.6	12.5	9.3	12.3	12.0	13.9	15.3	20.7	15.6	13.3	9.9	8.9	10.6	9.5	1.6	4.2
Equity derivatives-non-vanilla			11.6	20.4			20.6	30.5			8.4	17.5			1.6	10.7
Commodity derivatives	9.5	12.1	10.0	12.5	9.6	13.5	20.2	23.3	5.1	11.4	4.3	7.0	19.5	3.0	4.1	6.5

Table 2.3 shows average responses. The most noticeable increases in backlogs are for non-vanilla equity derivatives for all firm categories; the result is consistent with the increases in volumes for the product in Table 1.1. Large firms experienced moderate increases in backlogs for interest rate swaps, equity derivatives, and commodity derivatives, which again might be associated with increases in volume.

Strikingly, credit derivatives at large firms showed significant improvement even as volumes increased, although backlogs increased for other size categories. Last year's improvement was attributed largely to intensified industry attention on the issue; for this year's Survey, one should add intensified regulatory attention as a significant factor. Given the current focus on credit default swap backlogs, next year's results should reflect further improvement.

Respondents were asked to rank the causes of discrepancies and unsigned confirmations for various products. The choices were as follows:

- Counterparty non-responsiveness
- Counterparty preferences
- Counterparty internal discrepancy
- Disagreement on trade details
- Cash settlement method or language
- Legal or compliance advice
- Trader non-responsiveness
- Credit or collateral management non-responsiveness
- Non-standard language
- Volume demands

Counterparty non-responsiveness was ranked as very significant for all products except FRA. As was true last year, legal or compliance advice and counterparty preferences were also ranked as significant for non-vanilla equity derivatives, and non-standard language was ranked as significant for non-vanilla interest rate swaps.

Table 2.4 shows the responses to questions regarding the weighting of specific risk factors relating to outstanding confirmations. The second column shows the percentage of respondents that monitor a particular criterion, while the third shows the average ranking of the criterion's importance. The results are roughly similar to those from last year. Days outstanding and net present value again rank as important risk factors, although type of transaction and type of counterparty have overtaken Master Agreement signed and other factors for third and fourth place. "Other" factors decreased in importance from last year; when they were listed they included economic detail discrepancies or disagreements, verbal acknowledgement of a trade, counterparty denial of trade, and absence of a term sheet.

Table 2.4
Risk weightings used to priorize outstandings

Risk category	Percent monitoring	Average ranking*
Days Outstanding	88	6.8
Net Present Value	57	5.0
Type of Transaction	68	4.9
Type of Counterparty	66	4.6
Master Agreement signed	62	4.4
Credit Rating of Counterparty	46	4.3
Other	18	3.9
Collateral Held / Collateral Agreement signed	42	3.7

** 8 highest, 1 lowest*

Finally, the Survey asked for average monthly settlements of OTC trades (Table 2.5) and for the average time required for payment break resolution. The most commonly chosen time to payment break resolution was 3–5 days for most products, although the most common response for interest rate derivatives is 2 days.

Table 2.5
Average monthly settlements

	All firms			
	2003	2004	2005	2006
Interest rate derivatives	8,014	9,934	12,826	12,183
Currency options	1,858	2,457	3,983	3,643
Equity derivatives	1,444	819	1,139	2,797
Credit derivatives	1,503	2,042	4,960	9,641
Commodity derivatives	1,034	1,165	641	1,920

PART 3 - AUTOMATION

The Survey asked respondents for the level of automation of selected processes listed in Table 3.1 for each of the Survey product categories. Respondents had the following choices: none, less than 50 percent, 50–90 percent, and over 90 percent. The tables show the average percent reported. Respondents also reported their plans for further automation by function and product, and the results are in Table 3.2.

Table 3.1 shows how reported level of automation varies across functions and across products. Among functions, the most automated are data capture functions, namely, transfer of trade data to operations and transfer to general ledger. Among other function categories, nostro reconciliation is the most automated. The least automated tasks are confirmation detail matching and settlement matching. Table 3.2 shows that respondents intend to focus automation efforts in the coming year on confirmation dispatch and on confirmation detail matching.

Table 3.1
Automation of selected functions, 2006 Survey
Weighted average percents

	FRA	Vanilla swaps	Non-vanilla swaps	IR Options	Curr. Options	Credit	Equity - vanilla	Equity non-vanilla	Comm.	Avg
Trade data transferred from front office to operations for processing	88	82	67	78	81	74	64	57	61	**72**
Trade data transferred from operations system to general ledger	87	88	83	83	85	81	72	69	61	**79**
Additional data added to front office trade record in order to process	64	61	54	56	49	54	51	49	42	**53**
Confirmation sent	73	62	36	50	63	40	44	18	36	**47**
Imaging of outgoing confirmation	64	55	43	51	48	42	40	34	44	**47**
Imaging of incoming confirmation	44	38	37	41	41	41	44	41	32	**40**
Matching of details on confirmation	30	22	8	13	29	31	18	14	13	**20**
NOSTRO reconciliation	71	63	63	63	65	62	51	57	58	**61**
Automated settlement matching (via clearing house)	26	24	17	15	19	26	13	9	14	**18**
Average for product	**61**	**55**	**45**	**50**	**53**	**50**	**44**	**39**	**40**	

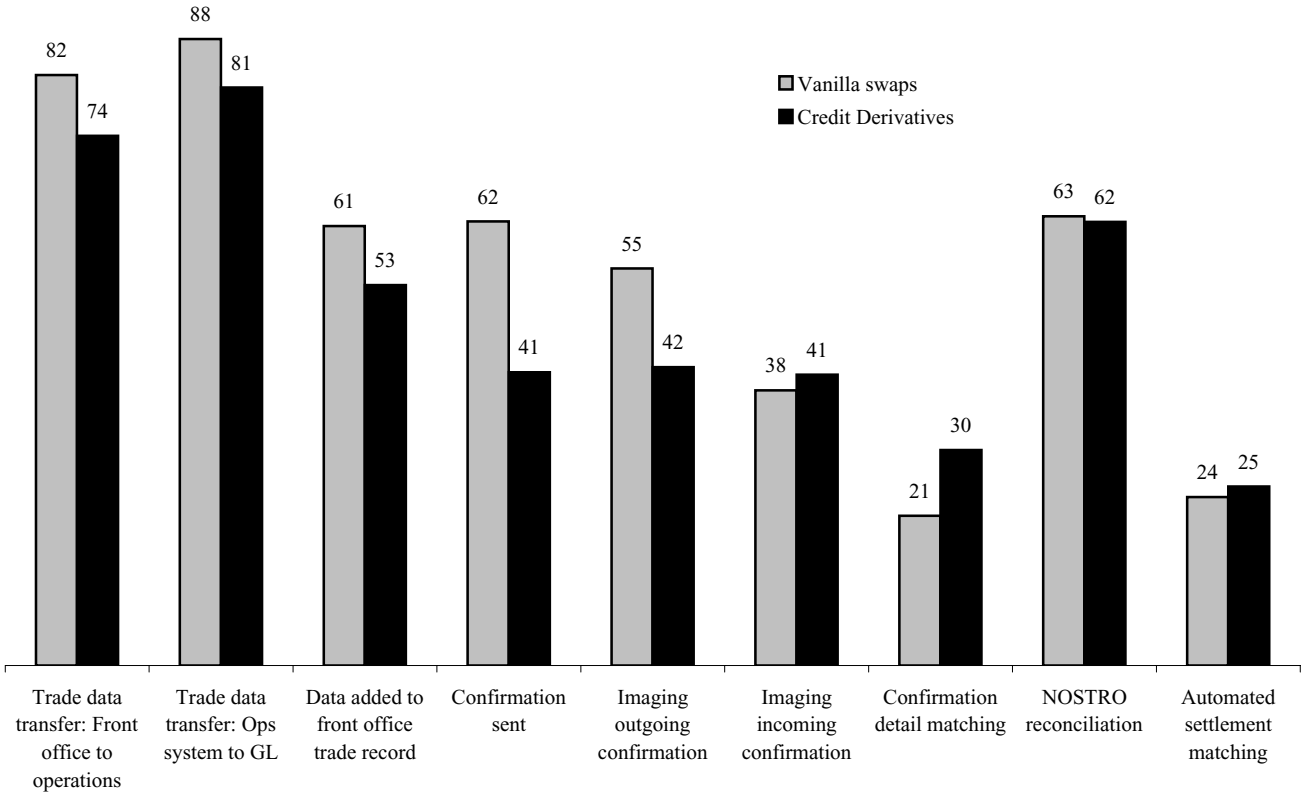
With regard to products, forward rate agreements continue to be the most automated, followed by vanilla interest rate swaps and currency options. Least automated are non-vanilla interest rate swaps, equity derivatives, and commodity derivatives. Credit derivatives fall between the two groups. With regard to future automation efforts, credit derivatives are likely to attract by far the most attention (Table 3.2).

Chart 3.1 combines the function and product dimensions. For both vanilla swaps and credit derivatives, the relative levels of automation are similar across functions. Although levels of automation are relatively higher for vanilla interest rate swaps, some functions are more automated for credit derivatives.

Table 3.2 Plans to increase automation of selected functions, 2006 Survey

	FRA	Vanilla swaps	Non-vanilla swaps	IR Options	Curr. Options	Credit	Equity - vanilla	Equity non-vanilla	Comm.	Avg
Trade data transferred from front office to operations for processing	26	36	46	42	41	63	47	48	34	**43**
Trade data transferred from operations system to general ledger	31	30	41	35	38	46	40	40	32	**37**
Additional data added to front office trade record in order to process	33	43	44	44	41	63	42	45	33	**43**
Confirmation sent	52	61	62	59	63	68	58	52	39	**57**
Imaging of outgoing confirmation	46	49	53	46	42	64	45	51	35	**48**
Imaging of incoming confirmation	48	55	53	48	39	60	43	54	50	**50**
Matching of details on confirmation	60	67	39	48	49	68	49	39	39	**51**
NOSTRO reconciliation	46	42	43	45	31	44	41	38	40	**41**
Automated settlement matching	35	41	28	31	20	60	25	18	14	**30**
Average	**42**	**47**	**46**	**44**	**40**	**59**	**43**	**43**	**35**	

Chart 3.1 Levels of automation, vanilla swaps and credit derivatives



Although the Survey has asked the same automation questions since 2003, this year's Survey reports only cross sectional data; the reason is that the results are difficult to compare, and often inconsistent, over time. Some firms, for example, report a lower level of automation of a product in a given year than they did in the previous year. Such a result seems implausible because it is unlikely that automation can be reversed. Instead, it is likely that some firms' estimates of the level of automation are highly subjective. While such estimates might be comparable across products, it is less likely that they are comparable across years.

Appendix – 2006 Survey Participants

ABN Amro Bank
AmMerchant Bk Bhd
Aozora Bank
Australia and New Zealand Banking Group
Banca Nazionale del Lavoro
Banco Bilbao Vizcaya Argentaria
Banco BPI
Bank of America
Bank of Montreal
Bank of Nova Scotia
Barclays Bank
Bear Stearns
BHF-Bank
BNP Paribas
Caisse de dépôt et placement du Québec
Chuo Mitsui Trust and Banking Company
Citigroup
Commerzbank
Commonwealth Bank of Australia
Credit Suisse
Daiwa Securities SMBC
Danske Bank
Deutsche Bank
DnB NOR Bank
Dresdner Kleinwort Wasserstein
DZ Bank
Freddie Mac
Goldman Sachs
Handelsbanken
HBOS Treasury Services
HSBC
ING Belgium
JP Morgan Chase
KBC Bank
Landesbank Baden-Württemberg
Lehman Brothers
Lloyds TSB
Mellon Bank
Merrill Lynch
Mitsubishi UFJ Trust and Banking Corporation
Mizuho Capital Markets
Mizuho Corporate Bank
Morgan Stanley
National Australia Bank
National Bank of Canada
Nikko Citigroup
Nikko Cordial Securities
Nomura Securities
Norddeutsche Landesbank Girozentrale - NORD/LB
Nykredit Bank
Pacific Life Insurance Company
Rabobank International
Royal Bank of Canada
Royal Bank Of Scotland
RWE Trading
Société Générale
Shell Trading
Shinko Securities Co.
St George Bank
Standard Bank of South Africa
Standard Chartered Bank
Sumitomo Trust & Banking Co.
Toronto Dominion Bank
Treasury Corporation of Victoria
UBS Investment Bank
Wachovia Bank
Zürcher Kantonalbank