Backdating at ESA

- *Calculation of the Backdated Cost-at-Completion of Optional Programmes*

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Backdating is the conversion of actual expenses and forecasts of expenses for a programme to a unique economic basis in order to be able to compare expenses incurred during different years under different economic conditions (price levels, conversion rates) and define the Cost-at-Completion (CAC) of a programme. The CAC is the total cost for a programme, expressed at certain economic conditions (the same for all the years of life of the programme). It is not the sum of actual expenses and forecasts, as these are expressed at different economic conditions.

The ESA Convention (Article III of Annex III; Fig. 1) states that a Member State can withdraw from a programme if the CAC is to go beyond a limit of 120% of the indicative financial envelope. This means that there should be a means of comparing actual expenses with the indicative financial envelope, whether it is explicitly requested in the Declaration for a programme or more generally to monitor the total cost of a programme. Backdating is a means of relating all expenses or forecasts back to the price and currency rate levels of the Declaration so that they can be directly compared with the envelope voted.

The basic principles

Backdating refers to two different types of financial data: the actual expenses that are well known and the backdating of which will not change, and the forecasts, the backdating of which is only indicative and depends on both the structure of expenses of the last year known N (last actual expenses) and the structure of expenses planned for year N+1 when its budget was prepared at the economic conditions 'N' (Fig. 2).

Actual expenses are accounting data registered as such in the ESA accounts. They are fixed after the closing of the relevant year. They represent the payments made and are associated with the currency used for this payment on a given budget line for each output.

Every year (let us assume it is year N+1) around February/March, when the actual expenses for year N are known and fixed, these actual expenses (that were paid at price level N by definition, using the conversion rates defined for year N) are converted into amounts at the economic conditions (e.c.) of the Declaration (for example year 'D' e.c.: price level D, conversion rates (D+1)). Actual expenses of previous years (N-1 and before) have already been converted to the same 'D' e.c.. The forecasts for current year (N+1) and for the further years are established at 'N' e.c., which are the last known economic conditions (price level N, conversion rates (N+1)) and they are also converted in amounts of D e.c.. All amounts are then expressed at the same economic conditions as those of the Declaration and can be added (thus giving the planned CAC) and compared with the budget voted by the Participating States in the Declaration.

The procedure

The data: actuals

Every year (N+1), after the annual accounts have been closed, actual expenses of the year just ended (N), expressed in ECUs, for all programmes to be backdated are imported from ESA's computerised financial system EFSY into the backdating application (for the time being). The data imported or used include:

- all expenses per sub-output, sub-heading and currency (Fig. 3)
- potential 'miscellaneous receipts' per currency to be deducted from the expenses (provided by the financial controllers); this corresponds, for example, to sale of equipment when the amount received by the programme has to be deducted from the CAC
- price indices that were used for the updating of current year (N+1 - price indices from N-1 to N) (Fig. 4)
- conversion-rate variations (updating of year N – from N-1 to N, for national currencies and ECUs; these data are already in the system from the year before).

The data: forecasts

For the backdating of the forecasts for year N+1 and the subsequent years, the following data are needed:

Figure 1

ESA Convention - Annex III - Article III

1. If the programme includes a project definition phase, the participating States shall, at the end of the phase, reassess the cost of the programme. If the reassessment shows that there is a cost overrun greater than 20% of the indicative financial envelope referred to in Article I, any participating State may withdraw from the programme. The participating States that wish, nevertheless, to continue with the programme shall consult among themselves and determine the arrangements for such continuation. They shall report accordingly to the Council, which shall take any measures that may be required.
2. ..
3. The Council shall lay down a procedure enabling the financial envelope or sub-envelopes to be revised in the event of price level variations.
4. When the financial envelope or a financial sub-envelope has to be revised for reasons other than those referred to in paragraphs 1 and 3, the participating States shall apply the following procedure:
   a. No participating State shall be entitled to withdraw from the programme unless the cumulative cost overrun is greater than 20% of the initial financed envelope, or of the revised envelope defined in accordance with the procedure laid down in paragraph 1.
   b. If the cumulative cost overrun is greater than 20% of the relevant financial envelope, any participating State may withdraw from the programme. Those States that wish, nevertheless, to continue with the programme shall consult among themselves, determine the arrangements for such continuation and report accordingly to the Council, which shall take any measures that may be required.

Figure 2

Economic Conditions

1996 e.c.: Established mid-1996, to be used in the draft budget for 1997.
Price level **1996** (known June 1996).
Currency rates level for **1997** (mean values of National Currencies towards the ECU between July 1995 and June 1996)

Actuals of 1996: Price level **1996** (expenses incurred during **1996**)

Figure 3

Definitions

– (Sub-)output: programme or part of a programme - e.g. ERS-2 Phase-E1
– (Sub-)heading: type of expenditure - e.g. salaries, manpower costs, etc.
– Grand heading: grouping of sub-headings of the same types

Figure 4

Updating

- A budget is established in the May-July time-frame for the following year, at the economic conditions known in spring, i.e. for the 1998 budget, at the economic conditions of 1996 (price level 1997, conversion rates for 1997).
- This budget has to be published at the economic conditions of 1997, known mid-97.
- This means that all planned expenses have to be converted from 1996 e.c. to 1997 e.c. by applying price variation indices from 1996 price levels to 1997 price levels, and conversion rates variation from 1997 to 1998.
- The indices correspond to categories of expenses (salaries, cost in an industrial sector, cost of goods).
- The price variation indices are established for all currencies used at ESA and for ecus/country by statistical offices independent from ESA (Wiesbaden Office for the indices in national currencies and Eurostat for the indices in ECUs).
- For each sub-heading, one index is applied, corresponding to its category of expenses.

– forecasts (provided by the programmes) per sub-output and grand heading, expressed at the economic conditions N (prices N, conversion rates N+1), including potential miscellaneous receipts; uncovered parts can be taken out
– mean conversion-rate variations per grand heading for each sub-output, as calculated during the updating of year N+1 (conversion rates from N to N+1, for national currencies and ECUs).

The method for backdating actual expenses
Actual expenses of year N-1 and before are already backdated and the results and indices used are kept in the system at sub-output grand heading/currency level for each year. The results are kept at grand-heading level in order to limit the volumes of data to be kept (more than 300 000 lines in the historical file).

In cases where a subheading was used in year N which was not used in the updating of year N+1 or for some of the former years, no price index is available at least for one of the years between N and 'D'. The first step in the backdating of actual expenses N, which in theory is a rather simple calculation, is then to compute all the indices necessary to backdate them to the economic conditions of the Declaration. The basic indices used are those that have been calculated by the independent statistical offices in charge of the elaboration of the indices. The Wiesbaden Statistical Office in Germany provides the price indices in national currencies, while Eurostat in Belgium calculates the price indices for ECUs/country, using the Wiesbaden indices and the conversion rates of the national currencies versus the ECU.

The corresponding price indices that were used in the updating for year N+1 (price indices from N-1 to N) are imported into the backdating application. When a given price index for a subheading is missing, the index used for the calculation is the IVPGTE (price variation index per grand heading for the corresponding sub-output). If this one is also missing, it is the IVPGT (price variation index per grand heading) defined every year for all the expenses on a given grand heading of all programmes to be backdated. The conversion-rate index used is then the IVTGT (currency rate variation per grand heading). Figures 5 and 6 show the correspondence between the IVPGTE and IVTGTE (price and rate variation indices per output and per grand heading) and the Wiesbaden document.

These same default indices (or even, if they are missing, the general price variation and currency-rate variation indices, IVPG and IVTG - mean value for one year for all ESA backdated outputs) are used when a programme had no expenses for one or more years, either between the e.c. of the Declaration and the first year of expenses or during the life of the programme.

When all indices necessary for the backdating of actuals to the e.c. of the Declaration are known, the price and variation indices are applied to the expenses until the e.c. of the Declaration are reached (Fig. 7), for all direct expenses (Grand Headings 1 to 5). The actual expenses (N prices and N conversion rates) per subheading are backdated to 'N-1' e.c. (by applying the price-variation index; see Fig. 8) and then aggregated per grand heading and

Figure 5

Price Variation and Exchange Rate Variation Indices as per Updating 1998

YEAR N	OUTPUT	GH	IVPGTE	% price	IVTGTE	% rate
1997	645	1	1.02425 =	2.43%		
1997	645	2	1.03504 =	3.50%		
1997	645	3	1.02703 =	2.70%		
1997	645	4	0.97949 =	-2.05%		
1997	645	5	1.03055 =	3.06%		
1997	645	A	1.01384 =	1.38%		
1997	645	B	1.02279 =	2.28%		
1997	645	C	1.02214 =	2.21%		
1998	645	1			0.97341 =	-2.66%
1998	645	2			0.97786 =	-2.21%
1998	645	3			0.99474 =	-0.53%
1998	645	4			1.00419 =	0.42%
1998	645	5			1.03129 =	3.13%
1998	645	A			0.9816 =	-1.84%
1998	645	B			0.98656 =	-1.34%
1998	645	C			1.02265 =	2.27%

in backdating database

as in ESA/FIN(97)4 - Wiesbaden report for 1998 budget

exchange rate variation 1997 to 1998 per output and GH in backdating database

price variation index 1996 to 1997 per output and GH in backdating database

Figure 6

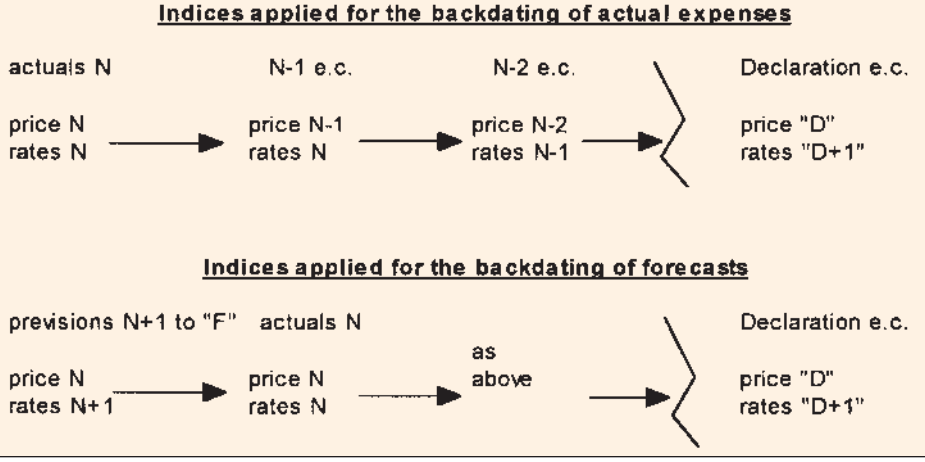
ESA/FIN/97/4
ANNEXE A

UPDATING OF DRAFT 1998 EXPENDITURE

(IN K.ECU)

OUTPUT 645 COLUMBUS - POLAR PLATFORM TOTAL	MID 96 PRICES RATES FOR 97	WEIGHTED PRICE VARIATION	MID 97 PRICES RATES FOR 97	WEIGHTED CONVERSION RATES VARIATIONS	MID'97 PRICES RATES FOR 98	COMBINED PRICE/RATES VARIATIONS	
111 SALARIES,ALLOW.,BENEFITS(NET)	2668	2.44	2733	-2.67	2660	-0.30	1A
122 LOCAL & PART-TIME STAFF	12	2.50	12	-2.83	12	-0.40	1A
GT1 STAFF EXPENDITURE	2680	2.43	2745	-2.66	2672	-0.30	
211 MISSION EXPENSES ESA STAFF	522	4.41	545	-2.39	532	1.92	2C
212 MISSION EXPENSES NON-ESA STAFF	32	4.30	33	-2.83	32	1.35	2C
223 PACKAGING & FREIGHT COSTS	33		33	-2.54	32	-2.54	2D
231 PUBLIC RELATIONS	50		50		50		1B
241 YOUNG GRADUATES	26	2.50	27	-2.83	26	-0.40	1A
252 MEETING COSTS	50	2.00	51		51	2.00	1B
273 EXTERNAL SERVICES	29	1.00	29	-2.83	28	-1.86	1B
GT2 RUNNING EXPENDITURE	742	3.50	768	-2.21	751	1.21	
312 RENTAL/EXT. FACILITIES & SERV.	1417	3.03	1460	-0.21	1457	2.82	1B
313 COMMUNICATION & DATA LINKS	50		50	-2.54	49	-2.54	3B
321 INDUSTRIAL MANPOWER	157	1.00	159	-2.83	155	-1.86	1B
322 MAINTENANCE OF TECH FACILITIES	25	1.00	25	-2.83	24	-1.86	1B
330 TECHNIC. CONSUM. & SPARE PARTS	16	1.00	16	-2.83	16	-1.86	3A
GT3 FACILITIES	1665	2.70	1710	-0.53	1701	2.16	
420 ADM EQUIPT VEHICLES & AIRCRAFT	5		5	-2.83	5	-2.83	4D
441 PERSONAL COMPUT & ASS EQUIPT	81	-4.94	77	-2.60	75	-7.41	4C
442 OTHER COMPUTERS & ASS EQUIPT	1104	-5.00	1049	-2.54	1022	-7.41	4C
450 TRACKING, TELEMETRY & RANGES	2223	-0.49	2212	1.94	2255	1.44	4A
GT4 CAPITAL EXPENDITURE	3413	-2.05	3343	0.42	3357	-1.64	
511 EXPERTS AND CONSULTANTS	170	1.00	172	-2.83	167	-1.86	1B
512 SPECIAL STUDIES (INCL. PHA A)	108	0.93	109	4.59	114	5.56	1B
521 SPACECR, AIRCRAFT INC SUB-SYST	55122	2.45	56473	6.25	60003	8.85	XP
527 SOFTWARE DEVELOPMENT	1321	3.18	1363		1363	3.18	1B
531 LAUNCH PURCHASE	40950	3.88	42538	-0.89	42160	2.95	99
533 ESA TEAM ON RANGE	50	1.00	51	-2.83	50	-1.86	1B
GT5 DEVELOPMENT	97721	3.05	100706	3.13	103857	6.28	
TOTAL DIRECT EXPENDITURE	106221	2.87	109272	2.81	112338	5.76	
A11 RECH SITE SERVICES ESTEC	502	0.20	503	-2.58	490	-2.39	
A13 RECH SITE SERVICES HQ	39	1.39	39	-1.01	39	0.37	
A15 RECH OFFICE AUTOMATION	85	1.50	86	1.24	87	2.76	
A20 RECH ADMINISTRATIVE SUPPORT	1036	2.03	1057	-1.80	1038	0.19	
GTA ADMINISTRATIVE + SITE COSTS	1662	1.38	1685	-1.84	1654	-0.48	
B11 RECH TECHN SUPPORT/MANPOWER	1190	1.89	1212	-1.77	1191	0.08	
B12 RECH OPS SUPPORT/MANPOWER	6888	2.52	7061	-1.32	6969	1.17	

Figure 7



backdated to 'D' e.c.. Once this backdating has been completed, the recharges on the backdated amounts are calculated using the same rules as for the recharging in the financial system.

Backdating of the forecasts
Forecasts for years N+1 until the end of a programme are expressed at N e.c. (price N, conversion rates N+1) per sub-output and grand heading. These economic conditions are the last known, and those of the current budget; no estimation of the evolution of the economic conditions for the future is performed. It is in fact not necessary, all forecasts being expressed at the same economic conditions. The forecasts are backdated to the e.c. of actual expenses N by applying the conversion-rate variation N+1 to N (used in the updating of year N+1). These conversion-rate variations are taken from the updating calculation (included in the so-called 'Wiesbaden document') as the mean value for each grand heading per sub-output (IVTGTE). Similar rules apply as for the backdating of actual expenses if some of the indices are missing. The indices to be used are linked by construction directly to the structure of expenses as planned when preparing the budget for year N+1. The backdating coefficients per grand heading (all currencies aggregated) as calculated for the backdating of actual expenses N are then applied. Note that for expenses in ECUs, the conversion rate variation N+1 to N is 1 by definition.

The method defined implies that the forecasts can only be backdated when expenses have been incurred and first indices are known. It is not possible to backdate forecasts alone, as the calculation links the forecasts to the result of the backdating of actual expenses.

National currencies and ECUs
The conversion-rate variations for the national currencies are defined as the variation in official rates between two years for each national currency considered. Today, the official conversion rate of a currency to the ECU for year N is equal to the mean value of the conversion rate between July N-2 and June N-1 (over a 12-month period).

These conversion-rate indices are combined with the price indices established by Wiesbaden to update and backdate expenses or forecasts expressed in national currencies.

The updating factors for price variations of expenses in ECUs are established by Eurostat. They are based on the variation of price indices versus the ECU from June in year N-1 to June in year N, and thus combine the price indices as established by the Wiesbaden Institute for national currencies with the effect of variation of conversion rates of the national currency vis-à-vis the ECU for the same June-to-June period (not the same period as the one used for the official conversion rates in national currencies), i.e. prices in ECUs June year N-1 to prices in ECUs June year N.

For the backdating of actual expenses, the two effects have to be separated (price variation/conversion-rate variation mixed effect for expenses in ECUs) as actual expenses are not expressed at 'normal' e.c. as in the Wiesbaden document (price N-1 to N, rates N to N+1 to go from N-1 to N e.c. - in the N+1 updating, when actuals N use prices N and rates N). This means that, for expenses in ECUs, the price index used will be the same as the one used for national currencies, and the conversion-rate variation will be the one defined for the ECUs (June N-2 to June N-1), which differs as from 1997 from the conversion rate for national currencies (July N-3-June N-2 to July N-2-June N-1).

For the backdating of forecasts, the rate

Figure 8

ACTUAL EXPENSES DATABASE FOR OUTPUT X

YEAR	OUTPUT	SH	CURR	IP	ACTUALS	BACKD N-1 E.C.
1996	X	513	F	1.5	142091	139991.133
1996	X	521	XB	3.009231	99984	97063.14549
1996	X	521	XD	3.009231	1391682	1351026.489
1996	X	521	XF	3.009231	891251	865214.6892
1996	X	521	XNL	3.009231	182000	176683.1941
1996	X	527	D	6.6	454965	426796.4353

actual expenses backdated at "N-1" e.c.
actual expenses year N in ECU as recorded in EFSY
price index (in %) as defined in the "Wiesbaden report"
valid for the currency and SH considered to go from "N-1" to "N"
"N" = 1996 here

variations N to N+1 of the Wiesbaden document are applied to data, so that they are brought back to the economic conditions of actual expenses N, when the overall backdating coefficient calculated for these actual expenses per Grand Heading (GH) is applied (going back to the Declaration e.c.). This means that for provisions in ECUs (structure of expenses used for the forecasts is the one that was planned in the updating for year N+1), the backdating coefficient to actual expenses N has a factor of 1 (by definition in the updating procedure, the conversion-rate variation ECU to ECU is one). The effect of conversion-rate variations for expenses in ECUs will only be seen for the backdating of actual expenses. This will disappear for all currencies in the Euro system as the conversion rates vis-à-vis the Euro will be fixed and no conversion-rate variation effect will then be included in the calculation of price indices for Euro/country expenses or forecasts.

If forecasts were planned during the updating calculation as being 'not subject to updating', the relevant price and conversion-rate indices are zero, and the backdated amount will be the same as the initial amount.

Backdating and charging policy

Charging policy is what defines the way in which programmes will pay for the administrative support and technical costs. These costs are 'recharged' to the programmes following rules defined in the Financial Regulations, and are termed 'indirect expenditure'.

For the years up to and including 1997, these indirect expenditures were composed of Grand Headings 6, 7 and 8. As from 1998, the indirect Grand Headings became GH A, B and C due to a new charging policy (Fig. 9). This means that the backdating programme has to be adapted to take into account this new rule.

As from the forecasts for 1998, GH A, B and C have been introduced into the system with the creation of a history, so that forecasts can be backdated to the origin. In view of the structure of the outputs discharged on these new GHs, it has been decided that :

- GH A will have the same past indices as GH 6 (both costs are of the administrative type)
- GH B indices will be composed of 100/130 of GH 7 and 30/130 of GH 6 as it includes expenses corresponding to former GH 7 and GH 6 (staff costs related to the support staff – recharged before on GH 6 – are now included in GH B)
- GH C will have the same indices as GH 8 (same type of expenditures).

As for the actual expenses of 1998 and subsequent years, the rules for recharging will of course reflect the new charging policy.

Economic conditions of the Declaration and first expenses

If expenses are incurred at economic conditions 'older' than in the Declaration, i.e. first expenses in 1990 and Declaration at 1995 e.c., the actual expenses before 1995 are updated to the conditions of the Declaration so that the CAC is composed of figures expressed at the same economic conditions as those of the Declaration.

Change in the economic conditions of a Declaration

It is always possible to change the reference year for a Declaration if it is to make it 'younger' (e.g. to go from 1992 to 1994), but the reverse is impossible as the indices to go 'earlier' either do not exist and cannot be 'constructed', or they have been erased by already changing the conditions to a 'younger' date.

Recent evolution in the definition of currencies

When payment in ECUs was introduced, it was necessary to define 18 more currencies in the system, as the price indices still depend upon the country in which the expenses are incurred, even if they are in ECUs. Expenses incurred in France, for example, can be in French Francs or ECUs/France. A 'history' for all of these currencies therefore had to be defined in order to have indices for the former years. The same indices as those of the corresponding national currency have been defined (same price indices and reference months for the calculation of conversion-rate variations up to 1996). From 1997, rates in ECUs are different from those in national currencies (different reference as ECU conversion rates are calculated from June to June for combination with the price-variation indices in ECUs).

Figure 9

GH 6 Administrative and Site Costs
GH 7 Variable Support Costs
GH 8 Fixed Support Costs and Investment

GH A Site Services & Office Automation & Administrative Support
GH B Technical & Operational Support
GH C Technical Infrastructure & Capacity Support

Creation of the Euro

In addition to the fact that the introduction of the Euro will mean the suppression of several currencies and will allow the backdating of

forecasts in Euros to be closer to the final result (no more conversion-rate variation effect that would not be taken into account in the backdating of forecasts), the real impact of this change has still to be studied.

Already for the 1999 budget, two updating exercises will probably have to be performed, one as usual to bring the 1997 e.c. to 1998 e.c, but with the conversion rates of the currencies going into the Euro defined in a different way: not the mean value July 1997 to June 1998, but the provisional conversion rate that will be defined in May 1998. Another updating exercise will be done in January 1999, as soon as the official conversion rates vis-à-vis the Euro have been defined. The backdating of the forecasts for 1999 and later actuals for 1999 will have to take into account this double conversion-rate variation. Appropriate proposals have been made to ESA's Administrative and Finance Committee and are being discussed by the Member States.

The database

In addition to the parameters necessary to backdate the budgets and interface correctly with the financial system (list of outputs, rules for backdating, exceptions and fixed amounts for the recharging, Declaration and subscription envelopes, grouping of sub-outputs into outputs, the default indices, all conversion rates for the national and ECU currencies), the history file (more than 300 000 records) maintains the results of calculations for all actual expenses, i.e. per sub-output, grand heading, currency and year, the amount spent, the backdated amount and the price-variation index to go from the year of the expenses to the previous one (Fig.10). When a printout is needed for a given output, the system recalculates the final coefficients from this database.

For the last actual expenses, a file contains all the detailed data, replaced every year by the new year's data (only the results per grand heading are kept permanently). This 'actuals' file contains per sub-output, subheading and currency, the price index used to backdate from actual expenses N to N-1 e.c., the amount spent and the amount backdated to the N-1 e.c. (Fig. 8).

A specific file contains the forecasts per sub-output, grand heading and year, for the current exercise.

A backdating-calculation example is given in Figures 11 and 12, and Figure 13 shows a typical schedule for such work.

Figure 10

HISTORICAL DATA KEPT IN THE DATABASE FOR OUTPUT X

GH	YEAR	CURR	OUT	ACTUALS N	BACKD TO DECL	PRICE VAR
5	1994	B1	X	0	0	1.029
5	1995	B1	X	722	672.4554312	1.031
5	1994	D	X	0	0	1.029
5	1995	D	X	2896	2686.255171	1.033
5	1996	D	X	454.965	382.848701	1.066
5	1994	DK	X	0	0	1.029
5	1995	DK	X	50	47.93567606	1.023
5	1994	F	X	0	0	1.029
5	1995	F	X	860.971	813.8439647	1.029
5	1996	F	X	142.091	131.4813377	1.015
5	1994	I1	X	0	0	1.029
5	1995	I1	X	94.31	94.3381273	1.031
5	1994	NL	X	0	0	1.029
5	1995	NL	X	1559.296	1448.913626	1.031
5	1994	XB	X	0	0	1.029
5	1995	XB	X	0	0	1.031
5	1996	XB	X	99.984	87.22992902	1.030
5	1994	XD	X	0	0	1.029
5	1995	XD	X	0	0	1.033
5	1996	XD	X	1391.682	1211.909691	1.030
5	1994	XDK	X	0	0	1.029
5	1995	XDK	X	0	0	1.023
5	1994	XF	X	0	0	1.029
5	1995	XF	X	0	0	1.029
5	1996	XF	X	891.251	812.6199304	1.030
5	1994	XI	X	0	0	1.029
5	1995	XI	X	0	0	1.031
5	1994	XNL	X	0	0	1.029
5	1995	XNL	X	0	0	1.031
5	1996	XNL	X	182	158.5238768	1.030

all price variation factors are kept back to the declaration for each currency needed

price variation between "N" and "N-1"

actual expenses backdated to the origin (Declaration e.c.)

actual expenses year N in ECU as recorded in EFSY price level N, exchange rates N

Figure 11

BACKDATING DONE IN 1997

OUTPUT : 999 - X — at 1993 economic conditions

GH	CURRENT PRICE LEVEL	1995	1996	1997	Total
R	MISC. RECEIPTS				
1	STAFF EXPENDITURE	540.916			1,190.680
2	RUNNING EXPENDITURE	110.994			225.994
3	FACILITIES				-
4	CAPITAL EXPENDITURE	10.153			10.153
5	DEVELOPMENT	6,182.577	3,161.973	567.000	9,911.550
	Direct	6,844.640	3,161.973	567.000	11,338.377
6	RECHARGE ADM. SUPP. & SITE SERV.	761.540			1,670.580
7	RECHARGE OF VAR. SUPPORT COSTS	161.800			191.000
8	RECH. FIXED SUPP. COSTS & INVEST.	177.173			205.389
A	RECHARGE ADM. SUPP., SITE SERV. & OFF. AUT.				-
B	RECHARGE OF TECHNICAL & OPERATIONAL SUPP.				-
C	RECHARGE TECHN. INFRAST. & CAPACITY SUPP.				-
	Indirect	1,099.213	-	-	2,366.969
	Total	7,943.85	3,161.97	567.00	13,405.346

Actuals year N expressed at price level N and exchange rate N for each column (total given for information - it is a mix of e.c.) Data coming from EFSY

GH	BACKDATING FACTORS	1995	1996	1997	Total
R	MISC. RECEIPTS				
1	STAFF EXPENDITURE	1.0740			1.0534
2	RUNNING EXPENDITURE	1.0670			1.0389
3	FACILITIES				
4	CAPITAL EXPENDITURE	1.0210			1.0211
5	DEVELOPMENT	1.0730	1.1360	1.1270	1.0950
	Direct	1.0726	1.1355	1.1273	1.0893
6	RECHARGE ADM. SUPP. & SITE SERV.	1.0590			1.0407
7	RECHARGE OF VAR. SUPPORT COSTS	1.0560			1.0528
8	RECH. FIXED SUPP. COSTS & INVEST.	1.0500			1.0469
A	RECHARGE ADM. SUPP., SITE SERV. & OFF. AUT.				
B	RECHARGE OF TECHNICAL & OPERATIONAL SUPP.				
C	RECHARGE TECHN. INFRAST. & CAPACITY SUPP.				
	Indirect	1.0570			1.0424
	Total	1.0704	1.1355	1.1273	1.0818

backdating coefficients - division of actuals figure by backdated figure (approximation)

GH	ECONOMIC CONDITIONS LEVEL	1995	1996	1997	Total
R	MISC. RECEIPTS				-
1	STAFF EXPENDITURE	503.688			1,130.269
2	RUNNING EXPENDITURE	104.065			217.529
3	FACILITIES				-
4	CAPITAL EXPENDITURE	9.943			9.943
5	DEVELOPMENT	5,763.742	2,784.613	502.954	9,051.309
	Direct	6,381.378	2,784.613	502.954	10,409.056
6	RECHARGE ADM. SUPP. & SITE SERV.	718.749			1,605.297
7	RECHARGE OF VAR. SUPPORT COSTS	152.462			181.422
8	RECH. FIXED SUPP. COSTS & INVEST.	168.744			196.208
A	RECHARGE ADM. SUPP., SITE SERV. & OFF. AUT.				-
B	RECHARGE OF TECHNICAL & OPERATIONAL SUPP.				-
C	RECHARGE TECHN. INFRAST. & CAPACITY SUPP.				-
	Indirect	1,039.955	-	-	1,982.927
	Total	7,421.333	2,784.613	502.954	12,391.977

backdated figure this figure is the result of the calculation, expressed at Declaration e.c. here : price level 93 and exchange rates 94

actual expenses — forecasts

Conclusion

Backdating is an essential exercise for ESA to be able to calculate the Cost-at-Completion of programmes as defined in the Convention. The calculation system as defined and used for 'traditional' national currencies has already been adapted with the introduction of payments in ECUs. It will be further adapted in the coming months to accommodate the introduction of the Euro. esa

Figure 13

Typical Planning for Calculation

- February-March: Calculation of the backdating for the actual expenses (starts as soon as the ESA accounts are closed)
- April: Integration of the forecasts
- End May: Reporting in the Quarterly Report to Council

Figure 12

OUTPUT : 161 EMIR 2
Including sub-outputs :

DECLARATION ENVELOPE	:	366 300,000 KAU
FINANCED ENVELOPE	:	153 956,000 **KAU**
COVERED	:	42,03 %
REFERENCE ECONOMIC CONDITIONS	:	1995
CTC at current price level	:	156 673,000 **KAU**
CTC backdated at 1 995 economic conditions	:	153 957,793 **KAU**
Percentage of financed envelope	:	100,00 %

SUMMARY OF YEARLY COSTS

	Current Price Level	Backdated to reference 1 995
1996	839.000	826,601
1997	14 895,000	14 636,022
1998	37 323,000	36 678,814
1999	36 818,000	36 182,508
2000	34 760,000	34 159,596
2001	30 897,000	30 361,466
2002	1 141,000	1 112,786