Annex 3

I. TF-QA: Agreement on key indicators

Element / Indicator / Focal issue	Indicator's name	Formula	Variables / Parameters	Parameters reference values	B.o.p. Items to be applied	Different assessments/set of data to be compared	Data frequency to be applied	Report frequency
ACCURACY & RELIABILITY DIMENSION								
Stability (Revision studies)	Mean Absolute Percentage Error (MAPE)	$$MAPE = \frac{1}{N}\sum_{t=1}^{N}\left|\frac{X_t(l_j) - X_t(l_i)}{X_t(l_i)}\right|$$	$X(l_i)$ -early estimation of X $X(l_j)$ - later estimation of X N - time frame data Θ - average for $X(l_j)$		*Total current account, Goods, Services and Income:* **Debits and Credits**	*First assessment and the Latest assessment (published data)*	Monthly	Biannual (May and November)
	Root Mean Square Relative Error (RMSRE)[1]	$$RMSRE = \sqrt{\frac{\sum_{t=1}^{N}(X_t(l_j) - X_t(l_i))^2}{\sum_{t=1}^{N}(\Theta - X_t(l_j))^2}}$$		N= 36 (previous 3 calendar years) Θ =average				
	bias proportion (unconditional)	$$Bias\ proportion = \frac{\left[\frac{\overline{X_{(l_j)}} - \overline{X_{(l_i)}}}{S_{x_{(l_j)}}}\right]^2}{RMSRE^2}$$			*Direct Investment, Porfolio Investment, Other Investment:* **Assets, Liabilities, Net assets**			
	Regression proportion (conditional)	$$Regr.\ proportion = \frac{\left[r_{x_{(li)}x_{(lj)}} - \frac{S_{x_{(l_i)}}}{S_{x_{(l_j)}}}\right]^2}{RMSRE^2}$$	$\overline{X_{(l_j)}}$ - Average for X_j $\overline{X_{(l_i)}}$ - Average for X_i $S_{x_{(l_j)}}$ - Standard deviation for $X(l_j)$ $r_{x_{(li)}x_{(lj)}}$ - Correlation coeficient		*Reserve Assets Errors and omissions*			
	disturbance proportion (unsystematic)	$$Dist.\ proportion = \frac{\left[1 - (r_{x_{(li)}x_{(lj)}})^2\right]}{RMSRE^2}$$						
SERVICEABILITY DIMENSION								
Internal consistency	Root Mean Square Error (EO)	$$RMSE\ (EO) = \sqrt{\sum_{i=t-a}^{t}(EOi)^2 \Big/ a+1}$$			*Errors and omissions corrected by the average of the addition of the current account subitems (CR+DB)*	-- -- --	Monthly	
	Bias proportion	$$bias\ prop. = \left(\frac{\sum_{i=t-a}^{t}(EOi)}{a+1}\right)^2 / RMSE^2(EO)$$	EO - Errors and Omissions a - time-frame $\overline{EO}$ - average of EO	a= 35				
	Variance proportion	$$variance\ prop. = \frac{\sum_{i=t-a}^{t}(EOi - \overline{EO})^2}{a+1} / RMSE^2(EO)$$			*Errors and omissions*			

1. **Bias proportion + Regression proportion + Disturbance proportion =1**
2. **Bias proportion + Variance proportion = 1**

II. TF-QA: Potential key indicators

Element / Indicator / Focal issue	Indicator's name	Formula	Variables / Parameters	Parameters reference values	B.o.p. Items to be applied	Different assessments/set of data to be compared	Data frequency to be applied	Report frequency
SERVICEABILITY DIMENSION								
External consistency Net flows	**Root Mean Square Relative Error (RMSRE)**	$$RMSRE = \sqrt{\dfrac{\sum_{t=1}^{N}(X_t - Y_t)^2}{\sum_{t=1}^{N}(\Theta - X_t)^2}}$$	Yt - external set of data to compare Xt - bop item N - time frame data $\overline{Y}$ - average for Y $\overline{x}$ - average for X Sx - standard deviation of x S_y - standard deviation of Y r_{yx} - correlation coefficient	Θ = Average for X N = 36 (last observations)	*Other investment net + direct investment other capital (MFI sector)*	*deposits and loans Money and banking stadistcis*	Monthly	Biannual (May and November)
	bias proportion (unconditional)	$$Bias\ propor. = \left[\dfrac{\overline{X}-\overline{Y}}{S_x}\right]^2 / RMSRE^2$$						
	Regression proportion (conditional)	$$Regr.\,propor. = \left[r_{XY} - \dfrac{S_Y}{S_X}\right]^2 / RMSRE^2$$						
	disturbance proportion (unsystematic)	$$Disturb.\,propor. = \left[1 - r_{XY}^2\right]/ RMSRE^2$$						
External consistency Gross flows	$C_{t,a}$	$$C_{t,a} = \dfrac{\sum_{i=t-a}^{t}|\Delta x_i - \Delta y_i|}{\sum_{i=t-a}^{t}(x_{i-1}+y_{i-1})\Big/2}$$	a - time frame data	a=35	*Goods credits and debits* ----------------------------------- *Goods+Services;*	*External trade stadistics. Source: Eurostat* ----------------------- *National accounts*		

III. TF-QA: Agreement on supporting indicators

Element / Indicator / Focal issue	Indicator's name	Formula	Variables / Parameters	Parameters reference values	B.o.p. Items to be applied	Different assessments/set of data to be compared	Data frequency to be applied	Report frequency
ACCURACY & RELIABILITY DIMENSION								
Revision studies	**Upward revisions**	$upward\ revisions = (\#\ upward\ revisions)\ /\ n$		-- -- --	Any item	First assessment and the Latest assessment (published data)	Monthly	
	Directional reliability	$Q = \dfrac{n_{11} + n_{22}}{N}$	$n11$ - number of cases when $\Delta X_{(ti)} > 0$ and $\Delta X_{(tj)} > 0$ $n22$ - number of cases when $\Delta X_{(ti)} < 0$ and $\Delta X_{(tj)} < 0$	-- -- --				
	Mean absolute relative error (MARE)	$MARE = \dfrac{\sum_{t=1}^{N} \left| X_t(l_j) - X_t(l_i) \right|}{\sum_{t=1}^{N} \left| (\Theta - X_t(l_j)) \right|}$	$X(l_i)$ -early estimation of X $X(l_j)$ - later estimation of X N - time frame data $X(l_k)$ - last assessment Q - average for $X(lj)$	$N = 36$	Assets, Liabilities, Net assets; DI, PI, OI;			
SERVICEABILITY DIMENSION								
Internal consistency	**Count positive EO**	$CP(EO) = \dfrac{Count(EO_t > 0)}{N}$	N - time frame data EO - Errors and omissions		Errors and omissions (EO)	-- -- --	Monthly	-- -- --
	Average absolute error (EO)	$AAE(EO) = \dfrac{\sum_{t=1}^{N} \left| EO_i \right|}{N}$	N - time frame data		Errors and omissions (EO)	-- -- --		
External consistency Net flows	**Mean absolute relative error (MARE)**	$MARE = \dfrac{\sum_{t=1}^{N} \left| X_t - Y_t \right|}{\sum_{t=1}^{N} \left| \Theta - X_t \right|}$	Yt - external set of data to compare Xt - bop item N - time frame data Θ - average for $X(lj)$		Other investment net + direct investment other capital (MFI sector)	deposits and loans Money and banking stadistcis	Monthly	
	Directional consistency	$Q = \dfrac{n_{11} + n_{22}}{N}$	$n11$ - number of cases when $\Delta Y_t > 0$ and $\Delta O_t > 0$ $n22$ - number of cases when $\Delta Y_t < 0$ and $\Delta O_t < 0$					
External consistency Gross flows	**Interquartile Dispersion**	$Interquartile\ dispersion = 3rd\ quartile(C_{t,a}) - 1st\ quartile(C_{t,a})$	indicator linked to $C_{t,a}$		Goods credits and debits --------------------------------- Goods+Services;	External trade stadistics. Source: Eurostat ----------------------- National accounts	Monthly ------------------- Quarterly	

III. TF-QA: Agreement on supporting indicators

Element / Indicator / Focal issue	Indicator's name	Formula	Variables / Parameters	Parameters reference values	B.o.p. Items to be applied	Different assessments/set of data to be compared	Data frequency to be applied	Report frequency
External consistency Mirror Statistics	**Indication of asymmetries between countries**	(1) $C_{ij} - D_{ji}$ (2) $(C_{ij} - D_{ji})/(C_{ij} + D_{ji})/2$	Cij: Credits of country i with country j. Dji: Debits of country j with country i. j: rest of EU/eurozone countries		*Current Account, Goods, Services, Transport, Travel, Other services, Income, Compensation of employees, Investment income, Current transfers*		Annual	
		(1) $S \mid (C_{ij} - D_{ji}) \mid$ (2) $(S \mid (C_{ij} - D_{ji}) \mid)/ S (C_{ij} + D_{ji})/2$	Cij: Credits of country i with country j. Dji: Debits of country j with country i. j: rest of EU/eurozone countries					
External consistency Other	**b.o.p. investment income versus i.i.p. related stocks**	*(Investment income flow)/(Corresponding stock)*		-- -- --	-- -- --	-- -- --	-- -- --	
Relevance element	**No of hits on the website**			-- -- --	-- -- --	-- -- --	-- -- --	
	Willingness of external users to buy the statistics provided (Y/N)			-- -- --	-- -- --	-- -- --	-- -- --	
	Regular review of user needs (Y/N)	*[Regular meeting with the users; Questionnaires]*		-- -- --	-- -- --	-- -- --	-- -- --	-- -- --
ACCESSIBILITY DIMENSION								
	Subscriber to **- A=SDDS;** **B=GDDS;** **C= None**			-- -- --	-- -- --	-- -- --	-- -- --	
	Periodicity of the regular statistical publications **M Q A** **Web x x x** **Paper x x x** **CD-rom x** **Other x**			-- -- --	-- -- --	-- -- --	-- -- --	
	Number of analytical articles published by the compiler (= analysis of own data) **- Number of articles or** **A= more than 12** **B= 5 -12** **C= 0 - 4**			-- -- --	-- -- --	-- -- --	-- -- --	

Element / Indicator / Focal issue	Indicator's name	Formula	Variables / Parameters	Parameters reference values	B.o.p. Items to be applied	Different assessments/set of data to be compared	Data frequency to be applied	Report frequency

	Number of BOP/QA time series published on the internet
	 - Number of time series or
	    A= more than 1,000
	    B= 100 - 999
	    C= 0 to 99
				-- -- --	-- -- --	-- -- --	-- -- --	

	Possibility to export data (as time series) to own computer environment?
	    A=Yes
	    B= No
				-- -- --	-- -- --	-- -- --	-- -- --	

	Search engine available?
	    A=Yes
	    B= No
				-- -- --	-- -- --	-- -- --	-- -- --	

	Possibility to mail questions directly from the internet site?
	    A=Yes
	    B= No
				-- -- --	-- -- --	-- -- --	-- -- --	

	Telephone number of people responsible available?
	    A=Yes
	    B= No
				-- -- --	-- -- --	-- -- --	-- -- --	

" -- -- -- " -> Non applicable, Non defined

METHODOLOGICAL SOUNDNESS QUESTIONNAIRE

MS	#	METHODOLOGICAL SOUNDNESS	Yes	No	Partly	N/A	Remarks
		GENERAL ISSUES					
MS2	1	All transactions between residents and non-residents should be recorded in the balance of payments.					
	2	Balance of payments transaction should be valued on an accrual basis.					
	3	Sectorisation should be done according to the international classifications.					
		CURRENT ACCOUNT					
MS3	1	Intra-EU imports of goods should be allocated according to the consignment principle.					
	2	BOP compilers should ensure that all necessary adjustments (for coverage, classification, timing and valuation) to foreign trade statistics are carried out to align them more closely with BOP requirements.					
	3	Repairs on goods and goods for processing should be recorded in the respective sub-items of goods following the principles of BPM5.					
	4	The conversion of imports of goods from CIF to FOB values should be based on a detailed and regularly updated analysis of freight and insurance costs (taking into account the distance, kind of cargo…).					
MS4	1	The collection system should comply with the detail and definitions required in the Eurostat/OECD services classification. *Please indicate the main differences in 'remarks'*					
	2	For the recording of transportation services in the BOP, it should be ascertained that the determination of carriers' residency is based on that of operators (rather than owners) of vehicles.					
	3	A distinction should be made between rentals of transportation equipment with crew (transportation) and without crew (operational leasing).					
	4	For package tours, a distinction should be made between transportation (passenger services) and travel.					
	5	Reciprocal claims between resident and non-resident communications operators (postal and courier services, and telecommunications) should be recorded on a gross basis.					
MS5	6	The distinction between construction services and FDI should comply with the OECD's "Benchmark definition of direct investment".					
	7	Construction abroad and construction in the compiling economy should be recorded separately, and gross receipts and expenditures should be recorded in these sub-items in compliance with the recommendations of the UN Manual of statistics on international trade in services.					
	8	Gross premiums and claims should be collected for insurance, so as to estimate the service charge in accordance with international guidelines and record it as insurance services.					
	9	Estimation of FISIM should be undertaken for recording in memorandum item and for NA purposes.					
	10	Computer services should cover hardware and software related services, and data processing services, excluding: - the provision of packaged non-customised software (goods) - the provision of non-specific computer training courses (other personal, cultural and recreational services) - the installation of big computer configurations (construction services)					
	11	Royalties and license fees should include fees for the temporary use of property rights, licences etc.. The acquisition (final purchase/sale) of such rights should be recorded in the capital account.					
	12	Merchanting should be recorded on a net basis. If the commodities acquired by the merchant are not resold in the same accounting period, an import of goods should be recorded in the first period, and a negative import entry should be recorded in the later period.					
	13	All transactions related to audiovisual – except for those concerning goods – should be recorded in the memorandum item audiovisual transactions.					

MS6	1	Capital and current transfers should be separately recorded according to the rules defined in the BPM5.				

		FDI				
MS7	1	The Ownership Threshold is 10% of capital or voting power				
	2	The Directional Principle is applied for all posts				
	3	Reinvested Earnings are recorded excluding holding gains and losses				
	4	Trade Credits and Short Term Loans are recorded in FDI – other capital				
	5	FDI variables include the activity of Special Financial Institutions (SFIs)				