SFC FR Model

A Stock Flow Consistent model for the French economy

System of equations[1]

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[1] This system of equation describes the model that has been used for the articles in Metroeconomica (http://doi.org/10.1111/meca.12476) and EJEEP (https://www.elgaronline.com/view/journals/ejeep/aop/article-10.4337-ejeep.2024.0144/article-10.4337-ejeep.2024.0144.pdf). The differences between the models used in the two above-mentioned articles are in Equations 125, 133 and 143.

System of equations

Throughout the presentation, terms in bold indicate that the corresponding term is a single variable included in the code. For instance, pv (a value) indicates that p (price) and v (volume) are separate terms, whereas $\boldsymbol{pv}$ (in bold) is a single value item. When this is done, an additional identity $v = \boldsymbol{pv}/p$ (or alternatively $p = \boldsymbol{pv}/v$) is added to the code. In order to save space, these equations are not shown in the present document. In this version, the items belonging to the production account (other than value added) are taken as given, so that the supply side is modeled impartially. The variables $p^G_{I_{12}}$, I^G_{12}, $p^H_{I_{13}}$ and I^H_{13} are exogenous.

Table 1: Symbolic balance sheet structure of economic agents

		Non-Fin. Corporations		**Financial institutions**				**Government**		**Households + NPISH**		**Rest of the world**	
				Banks		**Banque de France**							
		Asset	**Liab.**	**Asset**	**Liab.**	**Asset**	**Liab.**	**Asset**	**Liab.**	**Asset**	**Liab.**	**Asset**	**Liab.**
ANF₁	*Produced non-financial assets*[2]	$p^F_{K_1}K^F_1$		$p^B_{K_1}K^B_1$				$p^G_{K_1}K^G_1$		$p^H_{K_1}K^H_1$			
ANF₁₂/₁₃	*Inventories (12) + valuables (13)*	$p^F_{K_{12}}K^F_{12}$						$p^G_{K_{12}}K^G_{12}$		$p^H_{K_{12}}K^H_{12}$ $p^F_{K_{13}}K^F_{13}$			
ANF₂	*Non-produced non-financial assets*	$p^F_{K_2}K^F_2$		$p^B_{K_2}K^B_2$				$p^G_{K_2}K^G_2$		$p^H_{K_2}K^H_2$			
F₁	*Monetary gold and SDRs*					$p^{CB}_G G^{CB}$							$p^{CB}_G G^{CB}$
F₂	*Bills and coins*	H^F		H^B			H^{CB}			H^H		H^R	
	Digital currency	EH^F		EH^B			EH	EH^G		EH^H			
	Refinancing between financial institutions				RF^B	RF^{CB}							RF^R
	Bank reserves			RES			RES						
	Govt. account at CB						$D^{CB_G}_L$	$D^{G_{CB}}_A$					
	Target 2					$TRGT2$							$TRGT2$
	Deposits	D^F_A		D^B_A	D^B_L	D^{CB}_A	D^{CB}_L	D^G_A	D^G_L	D^H_A		D^R_A	D^R_L
F₃	*Public securities*	$p^{F_G}_{B_A}B^{F_G}_A$		$p^{B_G}_{B_A}B^{B_G}_A$		$p^{CB_G}_{B_A}B^{CB_G}_A$			$p^G_{B_L}B^G_L$			$p^{R_G}_{B_A}B^{R_G}_A$	
	Foreign securities	$p^{F_R}_{B_A}B^{F_R}_A$		$p^{B_R}_{B_A}B^{B_R}_A$		$p^{CB_R}_{B_A}B^{CB_R}_A$		$p^{G_R}_{B_A}B^{G_R}_A$		$p^{H_R}_{B_A}B^{H_R}_A$			$p^R_{B_L}B^R_L$
	Other securities		$p^F_{B_L}B^F_L$	$p^B_{B_A}B^B_A$	$p^B_{B_L}B^B_L$	$p^{CB}_{B_A}B^{CB}_A$		$p^G_{B_A}B^G_A$		$p^H_{B_A}B^H_A$		$p^R_{B_A}B^R_A$	
F₄	*Loans*	L^F_A	L^F_L	L^B_A		L^{CB}_A			L^G_L		L^H_L	L^R_A	L^R_L
F₅	*[Domestic] Equity and inv. fund shares*	$p^{F_D}_{E_A}E^{F_D}_A$	$p^{F_D}_{E_L}E^{F_D}_L$	$p^{B_D}_{E_A}E^{B_D}_A$	$p^{B_D}_{E_L}E^{B_D}_L$	$p^{CB_D}_{E_A}E^{CB_D}_A$	$p^{CB_D}_{E_L}E^{CB_D}_L$	$p^{G_D}_{E_A}E^{G_D}_A$		$p^{H_D}_{E_A}E^{H_D}_A$		$p^R_{E_A}E^R_A$	
	[Foreign] Equity and inv. fund shares issued by RoW	$p^{F_R}_{E_A}E^{F_R}_A$		$p^{B_R}_{E_A}E^{B_R}_A$		$p^{CB_R}_{E_A}E^{CB_R}_A$		$p^{G_R}_{E_A}E^{G_R}_A$		$p^{H_R}_{E_A}E^{H_R}_A$			$p^R_{E_L}E^R_L$
F₆	*Insurance. pension funds and s.g.s.*	A^F_A			A^B_L			A^G_A		A^H_A		A^R_A	
F₇	*Fin. derivatives and employee stock options*	X^F_A			X^B_L			X^G_A		X^H_A			X^R_L
F₈	*Other accounts receivable/payable*	Z^F_A		Z^B_A		Z^{CB}_A		Z^G_A		Z^H_A		Z^R_A	
F	***Financial wealth***		$\boldsymbol{FW^F}$		$\boldsymbol{FW^B}$		$\boldsymbol{FW^{CB}}$		$\boldsymbol{FW^G}$		$\boldsymbol{FW^H}$		$\boldsymbol{FW^R}$
B90	***Net worth***		$\boldsymbol{WLTH^F}$		$\boldsymbol{WLTH^B}$		$\boldsymbol{WLTH^{CB}}$		$\boldsymbol{WLTH^G}$		$\boldsymbol{WLTH^H}$		$\boldsymbol{WLTH^R}$

Closes the column (sector) in flow Closes the row (instrument) in flow

The unwritten identity is described in Equation 278.

The closure for the government is the sector's total indebtedness ($p^G_{B_L}B^G_L + L^G_L$), described in Equation 339.

[2] Note that *ANF₁* excludes inventories and valuables.

Table 2: Numerical balance sheet structure of economic agents, 2019, % of GDP

		Non-Fin. Corporations		Financial institutions				Government		Households + NPISH		Rest of the world		Total
				Banks		Banque de France								
		Asset	Liab.	Asset	Liab.	Asset	Liab.	Asset	Liab.	Asset	Liab.	Asset	Liab.	
ANF_1	Produced non-financial assets	104.7		6.7				51.2		170.3				332.9
ANF_{12}	Inventories (12) + valuables (13)	17.6						1.1		6.4				25.1
ANF_2	Non-produced non-financial assets	94.5		7.3				38.9		175.1				315.9
F_1	Monetary gold and SDRs					4.3							4.3	0.0
F_2	Bills and coins	0.6		0.5			10.1			3.4		5.6		0.0
	Refinancing between financial institutions				25.7	5.0							-20.7	0.0
	Bank reserves			22.1			22.1							0.0
	Govt. account at CB						1.1	1.1						0.0
	Target 2					0.0							0.0	0.0
	Deposits	30.9		127.2	237.2	7.7	6.9	5.9	5.8	64.4		30.2	16.5	0.0
F_3	Public securities	0.4		26.5		17.3			97.9			53.7		0.0
	Foreign securities	1.6		62.9		6.5		1.0		0.9			72.8	0.0
	Other securities		26.5	36.6	67.6	5.0		0.4		0.8		51.2		0.0
F_4	Loans	76.5	124.9	142.8		0.2			8.2		61.7	21.4	46.0	0.0
F_5	[Domestic] Equity and inv. fund shares	203.8	343.5	83.7	102.5	0.7	6.0	23.1		63.1		77.6		0.0
	[Foreign] Equity and inv. fund shares issued by RoW	69.9		32.1		0.1		1.2		4.2			107.5	0.0
F_6	Insurance. pension funds and s.g.s.	1.8			92.3			0.2		89.2		1.1		0.0
F_7	Fin. derivatives and employee stock options	0.0			1.7			-0.1		0.0			-1.8	0.0
F_8	Other accounts receivable/payable	10.4		-3.0		0.0		0.5		5.2		-13.1		0.0
F	***Financial wealth***		***-99.1***		***4.5***		***0.6***		***-78.5***		***169.5***		***3.1***	***0.0***
B90	***Net worth***		***117.6***		***18.5***		***0.6***		***12.7***		***521.2***		***3.1***	***673.8***
	A-(L+B90)		***0***		***0***		***0***		***0***		***0***		***0***	

Source: Authors' calculations using data from INSEE and Webstat (Banque de France)

Note: The totals are the result of operations carried out with more than one decimal (not shown here), therefore totals in the last line and column may differ slightly.

As in the previous table, ANF_1 excludes inventories and valuables.

Table 3: Symbolic uses-resources table + flow of funds

		Firms		Financial inst excl BdF		Banque de France		Government		Households + NPISH		Rest of the world		Total (uses -res.)
Code	Item	paid	received	paid	received	paid	received	paid	received	paid	received	paid	received	
P6	Exports											$p_X X$		$p_X X$
P7	Imports												$p_{IM} IM$	$p_{IM} IM$
B11	*Trade balance*												$-TB$	TB
P1	Production		$p_Q Q^F$		$p_Q Q^B$				$p_Q Q^G$		$p_Q Q^H$			$p_Q Q$
P2	Intermediate consumption	$p_{IC} IC^F$		$p_{IC} IC^B$				$p_{IC} IC^G$		$p_{IC} IC^H$				$p_{IC} IC$
B1	*Value added*		VA^F		VA^B				VA^G		VA^H			VA
D11	Wages and salaries	W_p^F		W_p^B				W_p^G		W_p^H	W_r^H	W_p^R	W_r^R	0
D12	Labor contributions	LC_p^F		LC_p^B				LC_p^G		LC_p^H	LC_r^H	LC_p^R	LC_r^R	0
D29	Taxes on payroll and miscellaneous taxes on production	T_L^F		T_L^B				T_L^G	T_L	T_L^H			T_L^R	0
D319	Subsidies on production							Sub				Sub^R		Sub'
D39	Other subsidies on production		Sub_r^F		Sub_r^B			Sub_p^G	Sub_r^G		Sub_r^H	Sub_p^R		0
~~D39b~~	~~Operating subsidies~~								~~$-Sub_r^G$~~					~~$-Sub_r^G$~~

B2	*Gross operating surplus*		Π^F		Π^B		$[\Pi^{CB}]$		$[\Pi^G]$		$[\Pi^H]$			Π
D21	Net taxes on production								T_P				T_P^R	T_P^T
D41	Interest	Int_p^F	Int_r^F	Int_p^B	Int_r^B	Int_p^{CB}	Int_r^{CB}	Int_p^G	Int_r^G	Int_p^H	Int_r^H	Int_p^R	Int_r^R	0
D42	Distributed income of corporations	Div_p^F	Div_r^F	Div_p^B	Div_r^B	Div_p^{CB}	Div_r^{CB}		Div_r^G		Div_r^H	Div_p^R	Div_r^R	0
D43	Reinvested earnings on direct foreign investment	$RFDI_p^F$	$RFDI_r^F$	$RFDI_p^B$	$RFDI_r^B$							$RFDI_p^R$	$RFDI_r^R$	0
D44	Property income attributed to insurance policy holders		INS_r^F	INS_p^B					INS_r^G		INS_r^H		INS_r^R	0
D45	Rents	$RENT_p^F$							$RENT_r^G$	$RENT_p^H$	$RENT_r^H$			0
D5	Taxes on income and wealth	T^F		T^B		T^{CB}			T	T^H		T^R		0
D61	Social contributions		SC_r^F		SC_r^B				SC_r^G	SC_p^H		SC_p^R	SC_r^R	0
D62	Social benefits	SB_p^F		SB_p^B				SB_p^G			SB_r^H	SB_p^R	SB_r^R	0
D7	Transfers	Tr_p^F		Tr_p^B	Tr_r^B			Tr_p^G			Tr_r^H		Tr_r^R	0
B6	*Gross disposable income*		Y_d^F		Y_d^B				Y_d^G		Y_d^H			Y_d
P3	Consumption							$p_C^G C^G$		$p_C^H C^H$				$p_C C$
B8	*Gross saving*		S^F		S^B				S^G		S^H			S
D9	Capital transfers		$Tr_{K_r}^F$		$Tr_{K_r}^B$			$Tr_{K_p}^G$		$Tr_{K_p}^H$		$Tr_{K_p}^R$	$Tr_{K_r}^R$	0
P51	Gross Fixed Capital Formation	$p_{I_1}^F I_1^F$		$p_{I_1}^B I_1^B$				$p_{I_1}^G I_1^G$		$p_{I_1}^H I_1^H$				$p_{I_1} I_1$
P52	Changes in inventories	$p_{I_{12}}^F I_{12}^F$						$p_{I_{12}}^G I_{12}^G$		$p_{I_{12}}^H I_{12}^H$				$p_{I_{12}} I_{12}$
P53	Acquisition less disposals of valuables									$p_{I_{13}}^H I_{13}^H$				$p_{I_{13}} I_{13}$
NP	Acquisitions less disposals of non-fin non-produced assets	NP_p^F		NP_p^B				NP_p^G		NP_p^H				0
B9NF	*Financing capacity*	FCN^F		FCN^B		*0*		FCN^G		FCN^H		FCN^R		*0*
Adj	***Adjustment B9F - B9NF***	Adj^F		Adj^B		Adj^{CB}		Adj^G		Adj^H		Adj^R		***0***
		Firms		***Financial inst excl BdF***		***Banque de France***		***Government***		***Households + NPISH***		***Rest of the world***		
Flow	*Instrument*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	
F1	Monetary gold and SDRs					$p_G^{CB}\Delta^* G^{CB}$							$p_G^{CB}\Delta^* G^{CB}$	0
F21	Bills and coins	$\Delta^* H^F$		$\Delta^* H^B$			$\Delta^* H^{CB}$			$\Delta^* H^H$		$\Delta^* H^R$		0
F295	Refinancing between FI				$\Delta^* RF^B$	$\Delta^* RF^{CB}$							$\Delta^* RF^R$	0
res	Bank reserves			$\Delta^* RES$			$\Delta^* RES$							0
gcb	Govt acc at the CB						$\Delta^* D_L^{CB_G}$	$\Delta^* D_A^{G_{CB}}$						0
tgt2	Target2					$\Delta^* TRGT2$							$\Delta^* TRGT2$	0
F2	Deposits	$\Delta^* D_A^F$		$\Delta^* D_A^B$	$\Delta^* D_L^B$	$\Delta^* D_A^{CB}$	$\Delta^* D_L^{CB}$	$\Delta^* D_A^G$	$\Delta^* D_L^G$	$\Delta^* D_A^H$		$\Delta^* D_A^R$	$\Delta^* D_L^R$	0
F3e	Public securities	$p_{B_A}^{F_G}\Delta^* B_A^{F_G}$		$p_{B_A}^{B_G}\Delta^* B_A^{B_G}$		$p_{B_A}^{CB_G}\Delta^* B_A^{CB_G}$			$p_{B_L}^G\Delta^* B_L^G$			$p_{B_A}^{R_G}\Delta^* B_A^{R_G}$		0
F3d	Foreign securities	$p_{B_A}^{F_R}\Delta^* B_A^{F_R}$		$p_{B_A}^{B_R}\Delta^* B_A^{B_R}$		$p_{B_A}^{CB_R}\Delta^* B_A^{CB_R}$		$p_{B_A}^{G_R}\Delta^* B_A^{G_R}$		$p_{B_A}^{H_R}\Delta^* B_A^{H_R}$			$p_{B_L}^R\Delta^* B_L^R$	0
F3g	Other securities		$p_{B_L}^F\Delta^* B_L^F$	$p_{B_A}^B\Delta^* B_A^B$	$p_{B_L}^B\Delta^* B_L^B$	$p_{B_A}^{CB}\Delta^* B_A^{CB}$		$p_{B_A}^G\Delta^* B_A^G$		$p_{B_A}^H\Delta^* B_A^H$		$p_{B_A}^R\Delta^* B_A^R$		0
F4	Loans	$\Delta^* L_A^F$	$\Delta^* L_L^F$	$\Delta^* L_A^B$		$\Delta^* L_A^{CB}$			$\Delta^* L_L^G$		$\Delta^* L_L^H$	$\Delta^* L_A^R$	$\Delta^* L_L^R$	0
F5e	Domestic equity and investment fund shares	$p_{E_A}^{F_{FR}}\Delta^* E_A^{F_{FR}}$	$p_{E_L}^F\Delta^* E_L^F$	$p_{E_A}^{B_{FR}}\Delta^* E_A^{B_{FR}}$	$p_{E_L}^B\Delta^* E_L^B$	$p_{E_A}^{CB_{FR}}\Delta^* E_A^{CB_{FR}}$	$p_{E_L}^{CB}\Delta^* E_L^{CB}$	$p_{E_A}^{G_{FR}}\Delta^* E_A^{G_{FR}}$		$p_{E_A}^{H_{FR}}\Delta^* E_A^{H_{FR}}$		$p_{E_A}^R\Delta^* E_A^R$		0
F5d	Foreign equity and investment fund shares	$p_{E_A}^{F_R}\Delta^* E_A^{F_R}$		$p_{E_A}^{B_R}\Delta^* E_A^{B_R}$		$p_{E_A}^{CB_R}\Delta^* E_A^{CB_R}$		$p_{E_A}^{G_R}\Delta^* E_A^{G_R}$		$p_{E_A}^{H_R}\Delta^* E_A^{H_R}$			$p_{E_L}^R\Delta^* E_L^R$	0
F6	Insurance, pension funds and s.g.s.	$\Delta^* A_A^F$			$\Delta^* A_L^B$			$\Delta^* A_A^G$		$\Delta^* A_A^H$		$\Delta^* A_A^R$		0
F7	Fin. derivatives and employee stock options	$\Delta^* X_A^F$			$\Delta^* X_L^B$			$\Delta^* X_A^G$		$\Delta^* X_A^H$			$\Delta^* X_L^R$	0
F8	Other accounts receivable/payable	$\Delta^* Z_A^F$		$\Delta^* Z_A^B$		$\Delta^* Z_A^{CB}$		$\Delta^* Z_A^G$		$\Delta^* Z_A^H$		$\Delta^* Z_A^R$		0
	Net acquisition of financial assets		$NAFA^F$		$NAFA^B$		$NAFA^{CB}$		$NAFA^G$		$NAFA^H$		$NAFA^R$	***0***

NPISH = Non-profit institutions serving households

Cells in blue represent the closing items of the corresponding line

Note: The Central Bank's financing capacity is nil; it is paid in full to the government in form of a tax (see Equation 241 and Equation 242).

Note: The value of gross investment is identical to the value of the flow of non-financial assets. However, the same identity does not hold in volume. In other words; $p_{I_1} I_1 = p_{K_1} I_{1*}$ where p_{I_1} and I_1 are the price and volume of gross investment from the national accounts (uses-resources table), and p_{K_1} and I_{1*} are the equivalent items from the accumulation accounts. However, note that $p_{I_1} \neq p_{K_1}$ and that $I_1 \neq I_{1*}$. When dealing with this volume mismatch, we have to correct by including the identity linking both in value.

Table 4: Numerical uses-resources table + flow of funds, 2019, % of GDP

		Firms		Financial inst excl BdF		Banque de France		Government		Households + NPISH		Rest of the world		Total (uses -res.)
Code	Item	paid	received	paid	received	paid	received	paid	received	paid	received	paid	received	
P6	Exports											31.6		31.6
P7	Imports												32.6	32.6
B11	*Trade balance*												*1.0*	*-1.0*
P1	Production		124.8		10.1				20.8		21.2			176.9
P2	Intermediate consumption	72.5		6.4				4.9		4.1				-88.0
B1	*Value added*		*52.3*		*3.8*				*15.9*		*17.1*			*89.0*
D11	Wages and salaries	26.0		1.7				8.2		2.3	38.8	0.7	0.1	0.0
D12	Labor contributions	7.4		0.6				4.0		0.8	13.0	0.2	0.0	0.0
D29	Taxes on payroll and miscellaneous taxes on production	3.0		0.5				0.5	4.8	0.9			0.1	0.0
D319	Subsidies on production							0.9				0.1		1.0
D39	Other subsidies on production		1.6		0.1			1.8	0.1		0.4	0.3		0.0
B2	*Gross operating surplus*		*17.4*		*1.0*				*[3.4]*		*[13.4]*			*35.2*
D21	Net taxes on production								11.9				0.1	12.0
D41	Interest	2.6	2.0	4.7	6.2	0.0	0.1	1.4	0.1	0.6	0.6	2.7	3.0	0.0
D42	Distributed income of corporations	9.0	7.5	1.6	2.4	0.1	0.0		0.3		1.7	3.1	1.8	0.0
D43	Reinvested earnings on direct foreign investment	0.3	0.3	0.0	0.2							0.5	0.3	0.0
D44	Property income attributed to insurance policy holders		0.1	1.8					0.1		1.7		0.0	0.0
D45	Rents	0.2							0.1	0.1	0.1			0.0
D5	Taxes on income and wealth	1.9		0.8		-0.1			13.1	10.2		0.2		0.0
D61	Social contributions		0.6		1.4				16.7	19.0		0.0	0.3	0.0
D62	Social benefits	0.6		1.4				19.4			21.3	0.2	0.3	0.0
D7	Transfers	1.0		4.1	4.1			2.7			2.0		1.7	0.0
B6	*Gross disposable income*		*12.3*		*1.0*				*24.1*		*62.8*			*100.2*
P3	Consumption							23.0		53.6				76.5
B8	*Gross saving*		*12.3*		*1.0*				*1.2*		*9.2*			*23.7*
D9	Capital transfers		0.9		0.1			0.5		0.5		0.1	0.1	0.0
P51	Gross Fixed Capital Formation	12.7		1.1				3.7		6.0				23.5
P52	Changes in inventories	0.8						0.0		0.0				0.8
P53	Acquisition less disposals of valuables									0.0				0.0
NP	Acquisitions less disposals of non-fin non-produced assets	0.0		0.0				0.1		-0.1				0.0
B9NF	***Net financing capacity***	*-0.3*		*-0.1*		*0.0*		*-3.1*		*2.8*		*0.7*		***0.0***
Adj	***Adjustment B9F - B9NF***	***0.1***		***0.6***		***-0.4***		***0.1***		***-0.2***		***-0.2***		***0.0***
		Firms		***Financial inst excl BdF***		***Banque de France***		***Government***		***Households + NPISH***		***Rest of the world***		

Flow	Instrument	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	
F1	Monetary gold and SDRs					0.0							0.0	0.0
F21	Bills and coins	0.1		0.0			0.6			0.3		0.2		0.0
F295	Refinancing between FI				0.9	-0.6							-1.5	0.0
res	Bank reserves			0.7			0.7							0.0
gcb	Govt acc at the CB						-0.1	-0.1						0.0
tgt2	Target2					1.5							1.5	0.0
F2	Deposits	3.2		9.8	16.8	0.8	0.0	0.6	0.5	3.3		1.3	1.8	0.0
F3e	Public securities	0.0		1.2		-0.4			2.9			2.1		0.0
F3d	Foreign securities	0.6		2.5		-0.7		0.0		0.1			2.5	0.0
F3g	Other securities		1.6	1.5	3.3	0.0		0.0		-0.2		3.6		0.0
F4	Loans	3.3	5.4	6.5		0.0			0.0		3.7	0.3	1.0	0.0
F5e	Domestic equity and investment fund shares	-0.9	0.8	1.8	0.0	0.1	0.0	0.1		_0.9		0.6		0.0
F5d	Foreign equity and investment fund shares	0.9		1.2		0.0		0.0		0.0			2.2	0.0
F6	Insurance, pension funds and s.g.s.	0.1			1.8			0.0		1.6		0.1		0.0
F7	Fin. derivatives and employee stock options	0.0			-0.2			0.0		0.0			0.2	0.0
F8	Other accounts receivable/payable	0.2		-2.2		0.1		-0.3		2.1		0.0		0.0
	Net acquisition of financial assets		***-0.2***		***0.5***		***-0.4***		***-3.0***		***2.6***		***0.6***	***0.0***

The value of GDP can be obtained from the table above;

- By the **demand approach** as the sum of *public* and *personal consumption* (76.6), *gross fixed capital formation* by all sectors (23.5), *changes in inventories* (0.8), *acquisition less disposals of valuables* (0.0) and *exports* (31.6), less *imports* (32.6).
- By the **income approach** as the sum of *wages and salaries* received by households and paid and received by RoW (38.2) the corresponding *labor contributions* (12.8), the sum of all sectors' *gross operating surplus* (35.2), net *taxes on production (12.0), total tax on payroll received (4.9)* and total subsidies on production paid (-3.1).
- By the **production approach** as total *value added* (89.0), *net taxes on production* (12.0) less *subsidies on production* (-1.0).

Table 5: Symbolic revaluations table

		Firms		Financial inst excl BdF		Banque de France		Government		Households + NPISH		Rest of the world		Total
Flow	Instrument	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	Asset	Liability	
NFA1	Produced	$K^F_{1-1}\Delta p^F_{K_1}$		$K^B_{1-1}\Delta p^B_{K_1}$				$K^G_{1-1}\Delta p^G_{K_1}$		$K^H_{1-1}\Delta p^H_{K_1}$				$K_{1-1}\Delta p_{K1}$
NFA12	Inventories	$K^F_{12-1}\Delta p^F_{K_{12}}$						$K^G_{12-1}\Delta p^G_{K_{12}}$		$K^H_{12-1}\Delta p^H_{K_{12}}$				$K_{12-1}\Delta p_{K12}$
NFA13	Valuables									$K^H_{13-1}\Delta p^H_{K_{13}}$				$K^H_{13-1}\Delta p^H_{K_{13}}$
NFA2	Non-produced	$K^F_{2-1}\Delta p^F_{K_2}$		$K^B_{2-1}\Delta p^B_{K_2}$				$K^G_{2-1}\Delta p^G_{K_2}$		$K^H_{2-1}\Delta p^H_{K_2}$				$K_{2-1}\Delta p_{K2}$
F1	Monetary gold and SDRs					$G^{CB}_{-1}\Delta p^{CB}_G$							$G^{CB}_{-1}\Delta p^{CB}_G$	0
F295	Refinancing between FI				$reval^B_{RF}$	$reval^{CB}_{RF}$							$reval^R_{RF}$	
res	Bank reserves			$reval^B_{res}$			$reval^{CB}_{res}$							
F2	Deposits	$reval^F_{D_A}$		$reval^B_{D_A}$	$reval^B_{D_L}$	$reval^{CB}_{D_A}$	$reval^{CB}_{D_L}$	$reval^G_{D_A}$	$reval^G_{D_L}$	$reval^H_{D_A}$		$reval^R_{D_A}$	$reval^R_{D_L}$	0
F3e	Public securities	$B^{F_G}_{A-1}\Delta p^{F_G}_{B_A}$		$B^{B_G}_{A-1}\Delta p^{B_G}_{B_A}$		$B^{CB_G}_{A-1}\Delta p^{CB_G}_{B_A}$			$B^G_{L-1}\Delta p^G_{B_L}$			$B^{R_G}_{A-1}\Delta p^{R_G}_{B_A}$		0
F3d	Foreign securities	$B^{F_R}_{A-1}\Delta p^{F_R}_{B_A}$		$B^{B_R}_{A-1}\Delta p^{B_R}_{B_A}$		$B^{CB_R}_{A-1}\Delta p^{CB_R}_{B_A}$		$B^{G_R}_{A-1}\Delta p^{G_R}_{B_A}$		$B^{H_R}_{A-1}\Delta p^{H_R}_{B_A}$			$B^R_{L-1}\Delta p^R_{B_L}$	0
F3g	Other securities		$B^F_{L-1}\Delta p^F_{B_L}$	$B^B_{A-1}\Delta p^B_{B_A}$	$B^B_{L-1}\Delta p^B_{B_L}$	$B^{CB}_{A-1}\Delta p^{CB}_{B_A}$		$B^G_{A-1}\Delta p^G_{B_A}$		$B^H_{A-1}\Delta p^H_{B_A}$		$B^R_{A-1}\Delta p^R_{B_A}$		0
F4	Loans	$reval^F_{L_A}$	$reval^F_{L_L}$	$reval^B_{L_A}$		$reval^{CB}_{L_A}$			$reval^G_{L_L}$		$reval^H_{L_L}$	$reval^R_{L_A}$	$reval^R_{L_L}$	0
F5e	Domestic equity and investment fund shares	$E^F_{A-1}\Delta p^F_{E_A}$	$E^F_{L-1}\Delta p^F_{E_L}$	$E^B_{A-1}\Delta p^B_{E_A}$	$E^B_{L-1}\Delta p^B_{E_L}$	$E^{CB}_{A-1}\Delta p^{CB}_{E_A}$	$E^{CB}_{L-1}\Delta p^{CB}_{E_L}$	$E^G_{A-1}\Delta p^G_{E_A}$		$E^H_{A-1}\Delta p^H_{E_A}$		$E^R_{A-1}\Delta p^R_{E_A}$		0
F5d	Foreign equity and investment fund shares	$E^{F_R}_{A-1}\Delta p^{F_R}_{E_A}$		$E^{B_R}_{A-1}\Delta p^{B_R}_{E_A}$		$E^{CB_R}_{A-1}\Delta p^{CB_R}_{E_A}$		$E^{G_R}_{A-1}\Delta p^{G_R}_{E_A}$		$E^{H_R}_{A-1}\Delta p^{H_R}_{E_A}$			$E^R_{L-1}\Delta p^R_{E_L}$	0
F6	Insurance, pension funds and s.g.s.	$reval^F_{A_A}$			$reval^B_{A_L}$			$reval^G_{A_A}$		$reval^H_{A_A}$		$reval^R_{A_A}$		0
F7	Fin. derivatives and employee stock options	$reval^F_{X_A}$			$reval^B_{X_L}$			$reval^G_{X_A}$		$reval^H_{X_A}$			$reval^R_{X_L}$	0

F8	*Other accounts receivable/payable*	$reval_Z^F$		$reval_Z^B$		$reval_Z^{CB}$		$reval_Z^G$		$reval_Z^H$		$reval_Z^R$		0
	Net financial revaluations		NFR^F		NFR^B		NFR^{CB}		NFR^G		NFR^H		NFR^R	***0***
	Net worth revaluations		NWR^F		NWR^B		NWR^{CB}		NWR^G		NWR^H		NWR^R	$K_{-1}\Delta p_K$
	A-(L+NWR)		***0***		***0***		***0***		***0***		***0***		***0***	

Table 6: Numerical revaluations table, 2019, % of GDP

		Firms		***Financial inst excl BdF***		***Banque de France***		***Government***		***Households + NPISH***		***Rest of the world***		
Flow	*Instrument*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	
NFA1	*Produced*	1.2		0.1				0.5		2.4				4.2
NFA12	*Inventories*	-0.1		0.0				0.0		0.0				-0.1
NFA13	*Valuables*									-0.1				-0.1
NFA2	*Non-produced*	5.0		0.4				2.6		11.8				19.8
F1	*Monetary gold and SDRs*					0.7							0.7	0.0
F295	Refinancing between FI				0.3	0.0							-0.3	0.0
res	*Bank reserves*			0.0			0.0							0.0
F2	*Deposits*	0.0		0.6	0.7	-0.1	0.1	0.0	0.0	0.0		0.3	0.1	0.0
F3e	*Public securities*	0.0		0.3		0.5			2.6			1.8		0.0
F3d	*Foreign securities*	0.1		2.4		0.3		0.0		0.1			2.8	0.0
F3g	*Other securities*		1.2	0.2	1.4	0.2		0.0		0.0		2.2		0.0
F4	*Loans*	0.1	0.1	0.4		0.0			0.0		0.0	0.0	0.5	0.0
F5e	*Domestic equity and investment fund shares*	41.7	59.6	5.2	9.6	0.0	0.9	2.3		8.8		12.1		0.0
F5d	*Foreign equity and investment fund shares*	10.2		4.0		0.0		0.1		0.8			15.1	0.0
F6	*Insurance, pension funds and s.g.s.*	0.0			5.5			0.0		5.4		0.0		0.0
F7	*Fin. derivatives and employee stock options*	0.0			1.0			0.0		0.0			-1.0	0.0
F8	*Other accounts receivable/payable*	0.0		0.0		0.0		0.0		0.0		0.0		0.0
	Net financial revaluations		***-8.8***		***-3.4***		***0.7***		***-0.1***		***15.1***		***-1.6***	***0.0***
	Net worth revaluations		***-2.6***		***-3.0***		***0.7***		***3.0***		***29.5***		***-1.6***	***23.9***
	A-(L+NWR)		***0.0***		***0.0***		***0.0***		***0.0***		***0.0***		***0.0***	

Table 7: Symbolic other changes in volume table

		Firms		***Financial inst excl BdF***		***Banque de France***		***Government***		***Households + NPISH***		***Rest of the world***		***Total***
Flow	*Instrument*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	
NFA1	Produced	OCV_{K1}^F		OCV_{K1}^B				OCV_{K1}^G		OCV_{K1}^H				OCV_{K1}
NFA12/ 13	Inventories + valuables	OCV_{K12}^F						OCV_{K12}^G		OCV_{K12}^H OCV_{K13}^H				OCV_{K12} OCV_{K13}
NFA2	Non-produced	OCV_{K2}^F		OCV_{K2}^B				OCV_{K2}^G		OCV_{K2}^H				OCV_{K2}
F1	Monetary gold and SDRs					OCV_G^{CB}							OCV_G^R	0
F21	Bills and coins	OCV_H^F		OCV_H^B			OCV_H^{CB}			OCV_H^H		OCV_H^R		0
F295	Refinancing between FI				OCV_{RF}^B	OCV_{RF}^{CB}							OCV_{RF}^R	0
res	Bank reserves			OCV_{res}^B			OCV_{res}^{CB}							0
gcb	Govt acc at the CB						$OCV_{DL}^{CB_G}$	$OCV_{DA}^{CB_G}$						0
F2	Deposits	OCV_{DA}^F		OCV_{DA}^B	OCV_{DL}^B	OCV_{DA}^{CB}	OCV_{DL}^{CB}	OCV_{DA}^G	OCV_{DL}^G	OCV_{DA}^H		OCV_{DA}^R	OCV_{DL}^R	0
F3e	Public securities	$OCV_{BA}^{F_G}$		$OCV_{BA}^{B_G}$		$OCV_{BA}^{CB_G}$			OCV_{BL}^G			$OCV_{BA}^{R_G}$		0
F3d	Foreign securities	$OCV_{BA}^{F_R}$		$OCV_{BA}^{B_R}$		$OCV_{BA}^{CB_R}$		$OCV_{BA}^{G_R}$		$OCV_{BA}^{H_R}$			OCV_{BL}^R	0
F3g	Other securities		OCV_{BL}^F	OCV_{BA}^B	OCV_{BL}^B	OCV_{BA}^{CB}		OCV_{BA}^G		OCV_{BA}^H		OCV_{BA}^R		0
F4	Loans	OCV_{LA}^F	OCV_{LL}^F	OCV_{LA}^B		OCV_{LA}^{CB}			OCV_{LL}^G		OCV_{LL}^H	OCV_{LA}^R	OCV_{LL}^R	0
F5e	Domestic equity and investment fund shares	$OCV_{EA}^{F_{FR}}$	$OCV_{EL}^{F_{FR}}$	$OCV_{EA}^{B_{FR}}$	$OCV_{EL}^{B_{FR}}$	$OCV_{EA}^{CB_{FR}}$	$OCV_{EL}^{CB_{FR}}$	$OCV_{EA}^{G_{FR}}$		$OCV_{EA}^{H_{FR}}$		$OCV_{EA}^{R_{FR}}$		0

F5d	Foreign equity and investment fund shares	$OCV_{EA}^{F_R}$		$OCV_{EA}^{B_R}$		$OCV_{EA}^{CB_R}$		$OCV_{EA}^{G_R}$		$OCV_{EA}^{H_R}$			OCV_{EL}^{R}	0
F6	Insurance, pension funds and s.g.s.	OCV_{AA}^{F}			OCV_{AL}^{B}			OCV_{AA}^{G}		OCV_{AA}^{H}		OCV_{AA}^{R}		0
F7	Fin. derivatives and employee stock options	OCV_{XA}^{F}			OCV_{XL}^{B}			OCV_{XA}^{G}		OCV_{XA}^{H}			OCV_{XL}^{R}	0
F8	Other accounts receivable/payable	OCV_{ZA}^{F}		OCV_{ZA}^{B}		OCV_{ZA}^{CB}		OCV_{ZA}^{G}		OCV_{ZA}^{H}		OCV_{ZA}^{R}		0
	Net financial other changes in volume		$FOCV^{F}$		$FOCV^{B}$		$FOCV^{CB}$		$FOCV^{G}$		$FOCV^{H}$		$FOCV^{R}$	***0***
	Net other changes in volume		OCV^{F}		OCV^{B}		OCV^{CB}		OCV^{G}		OCV^{H}		OCV^{R}	OCV

Table 8: Numerical other changes in volume table, 2019, % of GDP

		Firms		***Financial inst excl BdF***		***Banque de France***		***Government***		***Households + NPISH***		***Rest of the world***		***Total***
Flow	*Instrument*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	*Asset*	*Liability*	
NFA1	Produced	0.0		0.0				0.0		0.0				*0.0*
NFA12	Inventories + valuables	0.0						0.0		0.0				*0.0*
NFA2	Non-produced	2.2		0.3				0.4		3.0				*6.0*
F1	Monetary gold and SDRs					0.0							0.0	*0.0*
F21	Bills and coins	0.0		0.0			0.0			0.0		0.0		*0.0*
F295	Refinancing between FI				0.1	0.0							-0.1	*0.0*
res	Bank reserves			0.0			0.0							*0.0*
gcb	Govt acc at the CB						0.0	0.0						*0.0*
F2	Deposits	-0.4		0.3	0.0	0.0	0.0	0.0	0.0	0.0		0.1	0.0	*0.0*
F3e	Public securities	0.0		0.0		0.0			0.0			0.0		*0.0*
F3d	Foreign securities	-0.6		-0.9		0.0		0.0		0.0			-1.5	*0.0*
F3g	Other securities		0.0	-0.1	0.0	0.0		0.0		0.0		0.1		*0.0*
F4	Loans	2.3	-0.4	-0.2		0.0			0.0		-0.2	-6.5	-6.4	*0.0*
F5e	Domestic equity and investment fund shares	1.8	0.3	-0.2	-0.8	0.0	0.0	0.2		0.4		0.0		*0.0*
F5d	Foreign equity and investment fund shares	-1.5		-0.6		0.0		0.0		0.1			-2.1	*0.0*
F6	Insurance, pension funds and s.g.s.	0.0			0.1			0.0		0.1		0.0		*0.0*
F7	Fin. derivatives and employee stock options	0.0			0.0			0.0		0.0			0.0	*0.0*
F8	Other accounts receivable/payable	0.0		0.0		0.0		0.0		0.0		0.0		*0.0*
	Net financial other changes in volume		***-3.5***		***-1.2***		***0.0***		***0.2***		***0.7***		***3.8***	***0.9***
	Net other changes in volume		***-1.4***		***-0.9***		***0.0***		***0.6***		***3.8***		***3.8***	***5.9***

Equation 1 GDP volume, excludes inventories and valuables (*noΔs*)

$$Y_{no\Delta s} = \underbrace{C^H + C^G}_{Consumption} + \overbrace{I_1^F + I_1^B + I_1^G + I_1^H}^{Gross\ Fixed\ Capital\ Formation} + \underbrace{X - IM}_{Trade\ balance}$$

The corresponding price deflator $p_{Y_{no\Delta s}}$ is given in Equation 416. The value of GDP excluding inventories and valuables $\boldsymbol{p_{Y_{no\Delta s}} Y_{no\Delta s}}$ is calculated as the product of $p_{Y_{no\Delta s}}$ and $Y_{no\Delta s}$.

Equation 2 GDP value

$$\boldsymbol{p_Y Y = p_{Y_{no\Delta s}} Y_{no\Delta s} + p_{I_{12}}^F I_{12}^F + p_{I_{12}}^G I_{12}^G + p_{I_{12}}^H I_{12}^H + p_{I_{13}}^H I_{13}^H}$$

The corresponding price deflator p_Y is given in Equation 417. The volume of GDP Y is calculated as the ratio of $\boldsymbol{p_Y Y}$ (GDP in value) over p_Y.

Equation 3 Internal demand

$$DEM_{int} = \boldsymbol{p_C^H C^H + p_C^G C^G + p_{I_1}^F I_1^F + p_{I_1}^B I_1^B + p_{I_1}^G I_1^G + p_{I_1}^H I_1^H + p_{I_{12}}^F I_{12}^F + p_{I_{12}}^G I_{12}^G + p_{I_{12}}^H I_{12}^H + p_{I_{13}}^H I_{13}^H}$$

Equation 4 Consumer price index

$$\Delta \ln(p_C^H) = -0.1 + 0.4\Delta \ln(p_{C-1}^H) + 0.1\Delta \ln(ULC^M) + 0.2\Delta \ln(ULC_{-1}^M) + 0.1\Delta \ln(p_{IM}) + 0.2\left(\frac{va^M}{K_1^M}\right) + 0.3\left(\frac{T_{p-1} - Sub_{-1}}{\boldsymbol{p_{Y-1} Y_{-1}}}\right) - 0.1vc_{-1}$$

$$vc = \ln(p_C^H) - 0.3 - 0.9\ln(ULC^M) - 0.1\ln(p_{IM})$$

Equation 5 Value added, in value

$$VA = \boldsymbol{p_Y Y} - T_P - T_P^R + Sub + Sub^R$$

Equation 6 Value added, firms

$$VA^F = VA - VA^B - VA^G - VA^H$$

Equation 7 Value added, households

$$VA^H = \alpha_{VA}^H (VA - VA^B - VA^G)$$

Equation 8 Value added, banks

$$VA^B = \alpha_{VA}^B \boldsymbol{p_Y Y}$$

Equation 9 Value added, public sector

$$VA^G = \alpha_{VA}^G (W_p^G + LC_p^G)$$

Equation 10 Value added, volume

$$va = \left(\frac{VA}{p_{VA}}\right)$$

Equation 11 Value added, price

$$p_{VA} = \kappa p_Y$$

Equation 12 Value added, market sector (value)

$$VA^M = VA^F + VA^B + VA^H$$

Equation 13 Value added market sector, volume

$$va^M = \left(\frac{VA^M}{p_{VA}}\right)$$

Non-financial corporations

Equation 14 Wages paid

$$W_p^F = w_p^F N^F$$

Equation 15 Labor contributions paid

$$LC_p^F = \beta_{LC}^F W_p^F$$

Equation 16 Labor taxes

$$T_L^F = \beta_{TL}^F W_p^F$$

Equation 17 Subsidies received

$$Sub_r^F \text{ exogenous}$$

Equation 18 Profits

$$\Pi^F = VA^F - W_p^F - LC_p^F - T_L^F + Sub_r^F$$

Equation 19 Interests received

$$Int_r^F = r_A^F (D_{A-1}^F + \boldsymbol{p_{B_{A-1}}^{F_G} B_{A-1}^{F_G}} + \boldsymbol{p_{B_{A-1}}^{F_R} B_{A-1}^{F_R}} + L_{A-1}^F)$$

Equation 20 Interests paid

$$Int_p^F = r_L^F (\boldsymbol{p_{B_L-1}^F B_{L-1}^F} + L_{L-1}^F)$$

Equation 21 Dividends paid

$$Div_p^F = \gamma_{div_p}^F \Pi^F$$

Equation 22 Dividends received

$$Div_r^F = \gamma_{div_r}^F \boldsymbol{p_{E_{A-1}}^F E_{A-1}^F}$$

Equation 23 Reinvested earnings on FDI received

$$RFDI_r^F = RFDI_p^F + RFDI_p^B + RFDI_p^R - RFDI_r^B - RFDI_r^R$$

Equation 24 Reinvested earnings on FDI paid

$$RFDI_p^F = r_{FDI}^F \boldsymbol{p_{E_L-1}^F E_{L-1}^F}$$

Equation 25 Property income attributed to insurance policy holders received

$$INS_r^F = r_{A_A}^F A_{A-1}^F$$

Equation 26 Rents paid

$$RENT_p^F = rent_p^F \, VA^F$$

Equation 27 Corporate taxes

$$T^F = \theta_T^F (\Pi_{-1}^F + Int_{r-1}^F - Int_{p-1}^F + Div_{r-1}^F - Div_{p-1}^F + RFDI_{r-1}^F - RFDI_{p-1}^F + INS_{r-1}^F - RENT_{p-1}^F)$$

Equation 28 Social benefits paid

$$SB_p^F = \gamma_{SB_p}^F \boldsymbol{p_Y Y}$$

Equation 29 Social contributions received

$$SC_r^F = \theta_{SC}^F (SC_p^H + SC_p^R)$$

Equation 30 Miscellaneous transfers paid

$$Tr_p^F = \theta_{Tr_p}^F \boldsymbol{p_Y Y}$$

Equation 31 Disposable (corporate) income

$$Y_d^F = \Pi^F + Int_r^F - Int_p^F + Div_r^F - Div_p^F + RFDI_r^F - RFDI_p^F + INS_r^F - RENT_p^F - T^F + SC_r^F - SB_p^F - Tr_p^F$$

Equation 32 Savings (self-financing)

$$S^F = Y_d^F$$

Equation 33 Net acquisition of non-financial non-produced assets

$$NP_p^F = \theta_{NP_p}^F \boldsymbol{p_Y Y}$$

Equation 34 Capital transfers

$$Tr_{K_r}^F = \theta_{TrK_r}^F \boldsymbol{p_Y Y}$$

Equation 35 Financing capacity/need

$$FCN^F = S^F - \boldsymbol{p_{I_1}^F I_1^F} - \boldsymbol{p_{I_{12}}^F I_{12}^F} - NP_p^F + Tr_{K_r}^F$$

Equation 36 Gross investment (accumulation accounts)

$$I_{1*}^F = \Delta^* K_1^F + \delta_{K_1}^F \left(\frac{p_{K_{1-1}}^F}{p_{K_1}^F}\right) K_{1-1}^F$$

Equation 37 Gross investment (national accounts)

$$I_1^F = \frac{p_{K_1}^F}{p_I^F} \left(\Delta^* K_1^F + \delta_{K_1}^F \left(\frac{p_{K_{1-1}}^F}{p_{K_1}^F}\right) K_{1-1}^F\right) = \theta_{p_{K1}}^F I_{1*}^F$$

Equation 38 Gross investment, price

$$\Delta \ln(p_I^F) = 0.9\Delta \ln(p_C^H)$$

Equation 39 Produced non-financial assets, price

$$p_{K_1}^F = \theta_{p_{K1}}^F p_I^F$$

Equation 40 Net produced non-financial assets, stock

$$\Delta ln(K_1^F) = -0.2 + 0.3\left(\frac{va^F}{K_1^F}\right) + 0.1\left(\frac{\Pi^F}{VA^F}\right) - 0.2(r_L^F - \pi_Y) - 0.01\left(r_{E_L}^F - \pi_Y\right)$$

Equation 41 Inventories, price

$$p_{K_{12}}^F \text{ exogenous}$$

Equation 42 Inventories, stock

$$\Delta \ln(K_{12}^F) = 0.4\Delta \ln(K_{12-1}^F) + 0.9\Delta \ln(va^F) - 0.4vc_{-1}$$

$$vc = \ln(K_{12}^F) + 0.3 - \ln(va^F) + 0.02t - 0.04t_{2000-end}$$

Equation 43 Value added by firms, volume

$$va^F = \left(\frac{VA^F}{p_{VA}}\right)$$

Equation 44 Inventories, flow

$$\boldsymbol{p_{I_{12}}^F I_{12}^F} = \Delta\left(\boldsymbol{p_{K_{12}}^F K_{12}^F}\right) - K_{12-1}^F \Delta p_{K_{12}}^F - OCV_{K_{12}}^F$$

Equation 45 Non-produced non-financial assets, price

$$\ln\left(p_{K_2}^F\right) = 0.9\ln\left(p_{K_{2-1}}^F\right) + 0.8\ln\left(p_{K_2}^H\right) - 0.7\ln\left(p_{K_{2-1}}^H\right)$$

Equation 46 Non-produced non-financial assets, stock (mainly constructible land)

$$\boldsymbol{p_{K_2}^F K_2^F} = \boldsymbol{p_{K_{2-1}}^F K_{2-1}^F} + NP_p^F + K_{2-1}^F \Delta p_{K_2}^F + OCV_{K_2}^F$$

Equation 47 Bills and coins, stock

$$H^F = \psi_H^F \boldsymbol{p_Y Y}$$

Equation 48 Bills and coins, flow

$$\Delta^* H^F = \Delta H^F - OCV_H^F$$

Equation 49 Digital currency, stock

$$EH^F = \psi_{EH}^F EH_L^{CB}$$

Equation 50 Digital currency, flow

$$\Delta EH^F = EH^F - EH_{-1}^F$$

Equation 51 Public securities held, stock

$$\boldsymbol{p_{B_A}^{F_G} B_A^{F_G}} = \psi_{F1} VA^F$$

Equation 52 Public securities held, flow

$$\Delta^* B_A^{F_G} = \Delta B_A^{F_G} - \left(\frac{OCV_{B_A}^{F_G}}{p_{B_A}^{F_G}}\right)$$

Equation 53 Public securities held, price

$$p_{B_A}^{F_G} = \psi_{pBA}^{F_G} p_{B_L}^G$$

Equation 54 Foreign securities held, stock

$$\boldsymbol{p_{B_A}^{F_R} B_A^{F_R}} = \psi_{F2} VA^F$$

Equation 55 Foreign securities held, flow

$$\Delta^* B_A^{F_R} = \Delta B_A^{F_R} - \left(\frac{OCV_{B_A}^{F_R}}{p_{B_A}^{F_R}}\right)$$

Equation 56 Foreign securities held, price

$$p_{B_A}^{F_R} = \psi_{pBA}^{F_R} p_{B_L}^R$$

Equation 57 Equities held, flow (accumulation rate)

$$\left(\frac{\Delta^* E_A^F}{E_{A-1}^F}\right) = -0.03 + 0.5\left(\frac{\Pi_{-1}^F}{p_{K_{1-1}}^F K_{1-2}^F + p_{K_{12-1}}^F K_{12-2}^F + p_{K_{2-1}}^F K_{2-2}^F}\right) + 0.03\left(r_{E_{A-1}}^F - \pi_{Y-1}\right) + 0.02\left(\frac{L_{L-1}^F}{p_{E_{L-1}}^F E_{L-1}^F + WLTH_{-1}^F}\right)$$

Equation 58 Equities held, price

$$p_{E_A}^F = p_{E_A}^{F_{FR}}\left(\frac{\boldsymbol{p_{E_A}^{F_{FR}} E_A^{F_{FR}}}}{\boldsymbol{p_{E_A}^F E_A^F}}\right) + p_{E_A}^{F_R}\left(\frac{\boldsymbol{p_{E_A}^{F_R} E_A^{F_R}}}{\boldsymbol{p_{E_A}^F E_A^F}}\right)$$

Equation 59 Equities held, stock

$$E_A^F = E_{A-1}^F + \Delta^* E_A^F + \left(\frac{OCV}{p_{E_A}^F}\right)$$

Equation 60 Domestic equities held, stock

$$\boldsymbol{p_{E_A}^{F_{FR}} E_A^{F_{FR}}} = \psi_{p_{EA}}^{F_R} \boldsymbol{p_{E_A}^F E_A^F}$$

Equation 61 Domestic equities held, price

$$\Delta p_{E_A}^{F_{FR}} = \sum_i \left(\frac{E_{L-1}^i}{E_{A-1}^R}\right)\Delta p_{E_L}^i - \sum_j \left(\frac{E_{A-1}^{j_{FR}}}{E_{A-1}^R}\right)\Delta p_{E_A}^{j_{FR}}$$

$$\text{for } i = F, B, CB \quad \& \quad j = R, B, CB, G, H$$

Equation 62 Domestic equities held, flow

$$\Delta^* E_A^{F_{FR}} = \Delta E_A^{F_{FR}} - \left(\frac{OCV_{E_A}^{F_{FR}}}{p_{E_A}^{F_{FR}}}\right)$$

Equation 63 Foreign equities held, stock

$$\boldsymbol{p_{E_A}^{F_R} E_A^{F_R}} = \boldsymbol{p_{E_A}^F E_A^F} - \boldsymbol{p_{E_A}^{F_{FR}} E_A^{F_{FR}}}$$

Equation 64 Foreign equities held, flow

$$\Delta^* E_A^{F_R} = \Delta E_A^{F_R} - \left(\frac{OCV_{E_A}^{F_R}}{p_{E_A}^{F_R}}\right)$$

Equation 65 Foreign equities held, price

$$\ln\left(p_{E_A}^{F_R}\right) = 0.8\ln\left(p_{E_{A-1}}^{F_R}\right) + 0.06\ln(p_E^*) + 0.1$$

Equation 66 Profitability of equities held

$$r_{E_A}^F = \left(\frac{E_{A-1}^F \Delta p_{E_A}^F + Div_r^F}{\boldsymbol{p_{E_{A-1}}^F E_{A-1}^F}}\right)$$

Equation 67 Deposits, stock

$$\Delta\left(\frac{D_A^F}{\boldsymbol{p_Y Y}}\right) = 0.01 - 0.3\left(i_{10yrs} - \pi_Y\right)$$

Equation 68 Deposits, flow

$$\Delta^* D_A^F = \Delta D_A^F - reval_{D_A}^F - OCV_{D_A}^F$$

Equation 69 Credit assets, flow

$$\left(\frac{\Delta^* L_A^F}{VA^F}\right) = 0.2\left(\frac{\Delta^* L_{A-1}^F}{VA^F{}_{-1}}\right) + 0.4\left(\frac{\Delta^* L_L^F}{VA^F}\right)$$

Equation 70 Credit assets, stock

$$L_A^F = L_{A-1}^F + \Delta^* L_A^F + reval_{L_A}^F + OCV_{L_A}^F$$

Equation 71 Insurance, pension funds and standardized guarantee schemes, flow

$$\Delta^* A_A^F = \psi_{A_A}^F VA^F$$

Equation 72 Insurance, pension funds and standardized guarantee schemes, stock

$$A_A^F = A_{A-1}^F + \Delta^* A_A^F + reval_{A_A}^F + OCV_{A_A}^F$$

Equation 73 Total indebtedness, stock

$$\begin{aligned}
&\Delta\left(\frac{\boldsymbol{p_{BL_L}^F BL_L^F}}{\boldsymbol{p_{K_1}^F K_1^F + p_{K_{12}}^F K_{12}^F + p_{K_2}^F K_2^F}}\right) \\
&= 0.2\Delta\left(\frac{\boldsymbol{p_{BL_{L-1}}^F BL_{L-1}^F}}{\boldsymbol{p_{K_{1-1}}^F K_{1-1}^F + p_{K_{12-1}}^F K_{12-1}^F + p_{K_{2-1}}^F K_{2-1}^F}}\right) \\
&+ 1.8\Delta\left(\frac{\Pi^F}{\boldsymbol{p_{K_1}^F K_{1-1}^F + p_{K_{12}}^F K_{12-1}^F + p_{K_2}^F K_{2-1}^F}}\right) - 0.1 vc_{-1}
\end{aligned}$$

$$\begin{aligned}
vc = &\left(\frac{\boldsymbol{p_{BL_L}^F BL_L^F}}{\boldsymbol{p_{K_1}^F K_1^F + p_{K_{12}}^F K_{12}^F + p_{K_2}^F K_2^F}}\right) \\
&- 7.8\left(\frac{\Pi^F}{\boldsymbol{p_{K_1}^F K_{1-1}^F + p_{K_{12}}^F K_{12-1}^F + p_{K_2}^F K_{2-1}^F}}\right) \\
&+ 3.6\left(i_{10yrs-1} - \pi_{Y-1}\right)
\end{aligned}$$

Equation 74 Total indebtedness, flow

$$\Delta^* BL_L^F = \Delta BL_L^F - \left(\frac{OCV_{BL_L}^F}{p_{BL_L}^F}\right)$$

Equation 75 Bonds issued, stock

$$\left(\frac{\boldsymbol{p_{B_L}^F B_L^F}}{\boldsymbol{p_{BL_L}^F BL_L^F}}\right) = 0.9\left(\frac{\boldsymbol{p_{B_{L-1}}^F B_{L-1}^F}}{\boldsymbol{p_{BL_{L-1}}^F BL_{L-1}^F}}\right) + 0.003\ln\left(100 p_{B_L}^F\right)$$

Equation 76 Total indebtedness, price

$$\begin{aligned}
\Delta\ln\left(p_{BL_L}^F\right) = &\ 0.8\Delta\ln\left(p_{BL_{L-1}}^F\right) + 0.1\Delta\ln\left(p_{B_L}^F\right) - 0.1\Delta\ln\left(p_{B_L-1}^F\right) \\
&- 0.4 vc_{-1}
\end{aligned}$$

$$vc = \ln\left(p_{BL_L}^F\right) - \ln\left(p_{BL_{L-1}}^F\right) - 0.1\ln\left(p_{B_L}^F\right) + 0.1\ln\left(p_{B_L-1}^F\right)$$

Equation 77 Bonds issued, price

$$\ln\left(p_{B_L}^F\right) = 0.8\ln\left(p_{B_{L-1}}^F\right) + 0.1\ln\left(p_{B_{L-1}}^G\right)$$

Equation 78 Bonds issued, flow

$$\Delta^* B_L^F = \Delta B_L^F - \left(\frac{OCV_{B_L}^F}{p_{B_L}^F}\right)$$

Equation 79 Loans issued, flow

$$\Delta^* L_L^F = p_{BL_L}^F \Delta^* BL_L^F - p_{B_L}^F \Delta^* B_L^F$$

Equation 80 Loans issued, stock

$$L_L^F = L_{L-1}^F + \Delta^* L_L^F + reval_{L_L}^F + OCV_{L_L}^F$$

Equation 81 Other accounts payable/receivable, stock (net assets)

$$Z_A^F = \theta_Z^F \boldsymbol{p_Y Y}$$

Equation 82 Other accounts payable/receivable, flow (net assets)

$$\Delta^* Z_A^F = \Delta Z_A^F - reval_{Z_A}^F - OCV_{Z_A}^F$$

Equation 83 Equities issued, flow; **closes account** of non-financial corporations

$$\begin{aligned}
\boldsymbol{p_E^F \Delta^* E_L^F} = &\ \boldsymbol{p_{I_1}^F I_1^F} + \boldsymbol{p_{I_{12}}^F I_{12}^F} + \Delta^* H^F + \Delta E H^F + \Delta^* D_A^F + \boldsymbol{p_{B_A}^{F_G}} \Delta^* \boldsymbol{B_A^{F_G}} \\
&+ \boldsymbol{p_{B_A}^{F_R}} \Delta^* \boldsymbol{B_A^{F_R}} + \Delta^* L_A^F + \boldsymbol{p_{E_A}^F} \Delta^* \boldsymbol{E_A^F} + \Delta^* A_A^F \\
&+ \Delta^* X^F + \Delta^* Z_A^F - \boldsymbol{p_{B_L}^F} \Delta^* \boldsymbol{B_L^F} - \Delta^* L_L^F - S^F \\
&+ NP^F - Tr_{K_r}^F - Adj^F
\end{aligned}$$

Equation 84 Equities issued, price

$$p_{E_L}^F = \theta_{p_{E_L}}^F p_E^{FR}$$

Equation 85 Equities issued, stock

$$E_L^F = E_{L-1}^F + \Delta^* E_L^F + \left(\frac{OCV_{E_L}^F}{p_{E_L}^F}\right)$$

Equation 86 Profitability of equities issued

$$r_{E_L}^F = \left(\frac{E_{L-1}^F \Delta p_{E_L}^F + Div_p^F}{\boldsymbol{p_{E_{L-1}}^F E_{L-1}^F}}\right)$$

Equation 87 Price of domestic equity

$$p_E^{FR} \text{ exogeneous}$$

Equation 88 Profitability of domestic equities

$$r_E^{FR} = \left(\frac{Div_p^F + Div_p^B + E_{L-1}^F \Delta p_{E_L}^F + E_{L-1}^B \Delta p_{E_L}^B}{\boldsymbol{p_{E_{L-1}}^F E_{L-1}^F + p_{E_{L-1}}^B E_{L-1}^B}}\right)$$

Equation 89 Financial wealth

$$\begin{aligned}
FW^F = &\ H^F + EH^F + D_A^F + \boldsymbol{p_{B_A}^{F_G} B_A^{F_G}} + \boldsymbol{p_{B_A}^{F_R} B_A^{F_R}} + L_A^F + \boldsymbol{p_{E_A}^F E_A^F} + A_A^F \\
&+ X_A^F + Z_A^F - \boldsymbol{p_{B_L}^F B_L^F} - L_L^F - \boldsymbol{p_{E_L}^F E_L^F}
\end{aligned}$$

Equation 90 Net wealth

$$WLTH^F = \boldsymbol{p_{K_1}^F K_1^F + p_{K_{12}}^F K_{12}^F + p_{K_2}^F K_2^F} + FW^F$$

Households and NPISH

Equation 91 Wages paid by households

$$W_p^H = W^M - W_p^F - W_p^B$$

Equation 92 Total wages received

$$W_r^H = W + W_p^R - W_r^R$$

Equation 93 Labor contributions paid by individual entrepreneurs

$$LC_p^H = \beta_{LC}^H W_p^H$$

Equation 94 Labor contributions received

$$LC_r^H = \sum_i LC_p^i - LC_r^R \quad \text{for} \quad i = F, B, G, H, R$$

Equation 95 Labor taxes paid

$$T_L^H = \beta_{TL}^H W_p^H$$

Equation 96 Subsidies received

$$Sub_r^H \text{ exogenous}$$

[Operating surplus of individual entrepreneurs → $\Pi^H = VA^H - W_p^H - LC_p^H - T_L^H + Sub_r^H$]

Equation 97 Interests received

$$Int_r^H = r_A^H (D_{A-1}^H + \boldsymbol{p_{B_A-1}^{H_R} B_{A-1}^{H_R}} + \boldsymbol{p_{B_A-1}^{H} B_{A-1}^{H}})$$

Equation 98 Interests paid

$$Int_p^H = r_L^H L_{L-1}^H$$

Equation 99 Dividends received

$$Div_r^H = \gamma_{div_r}^H \boldsymbol{p_{E_A-1}^{H} E_{A-1}^{H}}$$

Equation 100 Property income attributed to insurance policy holders received

$$INS_r^H = r_{A_A}^H A_{A-1}^H$$

Equation 101 Rents paid

$$RENT_p^H = RENT_r^G + RENT_r^H - RENT_p^F$$

Equation 102 Rents received

$$RENT_r^H = rent_r^H \boldsymbol{p_{K_2-1}^{H} K_{2-1}^{H}}$$

Equation 103 Income tax paid

$$T^H = \theta_T^H (VA_{-1}^H + W_{r-1}^H - W_{p-1}^H + LC_{r-1}^H - LC_{p-1}^H - T_{L-1}^H + Sub_r^H + Int_{r-1}^H - Int_{p-1}^H + Div_{r-1}^H + INS_{r-1}^H + RENT_{r-1}^H - RENT_{p-1}^H)$$

Equation 104 Social contributions paid by workers

$$LCW_p^H = \theta_{SC}^H W_r^H$$

Equation 105 Social contributions paid

$$SC_p^H = LC_r^H + LCW_p^H$$

Equation 106 Social benefits received

$$SB_r^H = -SB_r^R + \sum_i SB_p^i \quad \text{for } i = F, B, G, R$$

Equation 107 Miscellaneous transfers received (net)

$$Tr_r^H = Tr_p^F + Tr_p^B + Tr_p^G - Tr_r^B - Tr_r^R$$

Equation 108 Disposable income

$$Y_d^H = VA^H - W_p^H - LC_p^H - T_L^H + Sub_r^H + Int_r^H - Int_p^H + Div_r^H + INS_r^H + RENT_r^H - RENT_p^H + W_r^H + LC_r^H - T^H - SC_p^H + SB_r^H + Tr_r^H$$

Equation 109 Personal consumption (volume)

$$\Delta \ln(C^H) = 0.7\,\Delta \ln\left(\frac{Y_d^H}{p_C^H}\right) + 0.07 \Delta \ln\left(\frac{WLTH^H}{p_C^H}\right) - 0.2 vc_{-1}$$

$$vc = \ln(C^H) - 0.5 - 0.8 \ln\left(\frac{Y_d^H}{p_C^H}\right) - 0.05 \ln\left(\frac{WLTH^H}{p_C^H}\right)$$

Equation 110 Savings

$$S^H = Y_d^H - \boldsymbol{p_C^H C^H}$$

Equation 111 Net acquisition of non-financial non-produced assets

$$NP_p^H = \theta_{NP_p}^H \boldsymbol{p_Y Y}$$

Equation 112 Capital transfers paid

$$Tr_{K_p}^H = \theta_{Tr_K}^H \boldsymbol{p_Y Y}$$

Equation 113 Financing capacity/need

$$FCN^H = S^H - \boldsymbol{p_{I_1}^H I_1^H} - \boldsymbol{p_{I_{12}}^H I_{12}^H} - \boldsymbol{p_{I_{13}}^H I_{13}^H} - NP_p^H - Tr_{K_p}^H$$

Equation 114 Investment

$$\Delta \ln(I_1^H) = 0.7\,\Delta \ln(I_{1-1}^H) - 0.5 vc_{-1}$$

$$vc = \ln(I_1^H) - 3.4 - 0.2 \ln\left(\frac{Y_d^H}{p_I^H}\right) + 1.3\left(i_{10years} - \pi_I^H\right) - 0.3\left(\frac{\Delta p_{K_2}^H}{p_{K_2-1}^H}\right)$$

Equation 115 Investment, price

$$\Delta \ln(p_I^H) = 0.005 + 0.9 \Delta \ln(p_C^H)$$

Equation 116 Produced non-financial assets, price

$$\Delta \ln\left(p_{K_1}^H\right) = 0.004 + 0.7 \Delta \ln\left(p_{K_{1-1}}^H\right) + 0.8 \Delta \ln(p_Y) - 0.6 \Delta \ln(p_{Y-1})$$

Equation 117 Produced non-financial assets, stock (including housing investment)

$$\boldsymbol{p_{K_1}^H K_1^H} = \left(1 - \delta_{K_1}^H\right) \boldsymbol{p_{K_{1-1}}^H K_{1-1}^H} + \boldsymbol{p_{K_1}^H I_{1*}^H} + K_{1-1}^H \Delta p_{K_1}^H + OCV_{K_1}^H$$

Equation 118 Non-produced non-financial assets, price

$$\Delta \ln\left(p_{K_2}^H\right) = 0.03 + 0.6 \Delta \ln\left(p_{K_2-1}^H\right) + 0.5 \Delta \ln(I_1^H) - 0.3 vc_{-1}$$

$$vc = \ln\left(p_{K_2}^H\right) + 7.8 - 1.3 \ln(I_1^H) - 0.1 t_{1998\_2008}$$

Equation 119 Change in inventories

$$\boldsymbol{p_{I_{12}}^H I_{12}^H} \text{ exogenous}$$

Equation 120 Non-produced non-financial assets, stock (mainly constructible land)

$$\boldsymbol{p_{K_2}^H K_2^H} = \boldsymbol{p_{K_{2-1}}^H K_{2-1}^H} + NP_p^H + K_{2-1}^H \Delta p_{K_2}^H + OCV_{K_2}^H$$

Equation 121 Bills and coins, stock

$$H^H = \psi_H^H Y_d^H$$

Equation 122 Bills and coins, flow

$$\Delta^* H^H = \Delta H^H - OCV_H^H$$

Equation 123 Digital currency, stock

$$EH^H = \psi_{EH}^H EH_L^{CB}$$

Equation 124 Digital currency, flow

$$\Delta EH^H = EH^H - EH_{-1}^H$$

Equation 125 Deposits, stock (mainly savings accounts)

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$$D_A^H = \psi_{D_A}^H Y_d^H$$

EJEEP

$$\Delta\left(\frac{D_A^H}{Y_d^H}\right) = 0.6\Delta\left(\frac{D_{A-1}^H}{Y_{d-1}^H}\right) - 0.2vc_{-1}$$

$$vc = \left(\frac{D_A^H}{Y_d^H}\right) - 0.9 + 2.1\left(i_{10yrs} - \pi_C^H\right)$$

Equation 126 Deposits, flow

$$\Delta^* D_A^H = \Delta D_A^H - reval_{D_A}^H - OCV_{D_A}^H$$

Equation 127 Foreign securities held by households, stock

$$\boldsymbol{p_{B_A}^{H_R} B_A^{H_R}} = \psi_{B_A}^{H_R} Y_d^H$$

Equation 128 Foreign securities held by households, price

$$p_{B_A}^{H_R} = \psi_{p_{BA}}^{H_R} p_{B_L}^R$$

Equation 129 Foreign securities held by households, flow

$$\Delta^* B_A^{H_R} = \Delta B_A^{H_R} - \left(\frac{OCV_{B_A}^{H_R}}{p_{B_A}^{H_R}}\right)$$

Equation 130 Other securities held by households, stock

$$\boldsymbol{p_{B_A}^H B_A^H} = \psi_{B_A}^H Y_d^H$$

Equation 131 Other securities held by households, price

$$p_{B_A}^H = \psi_{p_{BA}}^H p_{B_L}^B$$

Equation 132 Other securities held by households, flow

$$\Delta^* B_A^H = \Delta B_A^H - \left(\frac{OCV_{B_A}^H}{p_{B_A}^H}\right)$$

Equation 133 Equities held, stock

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$$\Delta\left(\frac{\boldsymbol{p_{E_A}^H E_A^H}}{Y_d^H}\right) = 1.1\Delta\left(r_{E_A}^H\right) - 0.4vc_{-1}$$

$$vc = \left(\frac{\boldsymbol{p_{E_A}^H E_A^H}}{Y_d^H}\right) - 1.0 - 1.9r_{E_A}^H + 7.1r_A^H$$

EJEEP

$$\Delta\left(\frac{\boldsymbol{p_{E_A}^H E_A^H}}{Y_d^H}\right) = 0.2\Delta\left(\frac{p_{E_{A-1}}^H E_{A-1}^H}{Y_{d-1}^H}\right) + 1.4\Delta\left(r_{E_A}^H - \pi_C^H\right) - 0.3vc_{-1}$$

$$vc = \left(\frac{\boldsymbol{p_{E_A}^H E_A^H}}{Y_d^H}\right) - 0.9 - 2.2\left(r_{E_A}^H - \pi_C^H\right) + 3.9\left(i_{10years} - \pi_C^H\right)$$

Equation 134 Equities held, price

$$p_{E_A}^H = p_{E_A}^{H_{FR}}\left(\frac{\boldsymbol{p_{E_A}^{H_{FR}} E_A^{H_{FR}}}}{\boldsymbol{p_{E_A}^H E_A^H}}\right) + p_{E_A}^{H_R}\left(\frac{\boldsymbol{p_{E_A}^{H_R} E_A^{H_R}}}{\boldsymbol{p_{E_A}^H E_A^H}}\right)$$

Equation 135 Equities held, flow

$$\Delta^* E_A^H = \Delta E_A^H - \left(\frac{OCV_{E_A}^H}{p_{E_A}^H}\right)$$

Equation 136 Profitability of equities held by households

$$r_{E_A}^H = \left(\frac{E_{A-1}^H \Delta p_{E_A}^H + Div_r^H}{\boldsymbol{p_{E_{A-1}}^H E_{A-1}^H}}\right)$$

Equation 137 Domestic equities held by households, stock

$$\boldsymbol{p_{E_A}^{H_{FR}} E_A^{H_{FR}}} = \psi_E^H \boldsymbol{p_{E_A}^H E_A^H}$$

Equation 138 Domestic equities held by households, price

$$p_{E_A}^{H_{FR}} = \eta_{p_{EA}}^{H_{FR}} p_E^{FR}$$

Equation 139 Domestic equities held by households, flow

$$\Delta^* E_A^{H_{FR}} = \Delta E_A^{H_{FR}} - \left(\frac{OCV_{E_A}^{H_{FR}}}{p_{E_A}^{H_{FR}}}\right)$$

Equation 140 Foreign equities held by households, stock

$$\boldsymbol{p_{E_A}^{H_R} E_A^{H_R}} = \boldsymbol{p_{E_A}^H E_A^H} - \boldsymbol{p_{E_A}^{H_{FR}} E_A^{H_{FR}}}$$

Equation 141 Foreign equities held by households, price

$$p_{E_A}^{H_R} \text{ exogenous}$$

Equation 142 Foreign equities held by households, flow

$$\Delta^* E_A^{H_R} = \Delta E_A^{H_R} - \left(\frac{OCV_{E_A}^{H_R}}{p_{E_A}^{H_R}}\right)$$

Equation 143 Insurance, pension funds and standardized guarantee schemes, stock

$DepRatio_{old}$ = old-age dependency ratio

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$$\Delta\left(\frac{A_A^H}{Y_d^H}\right) = 0.02\Delta(DepRatio_{old}) + 0.4r_A^H + 0.1r_{E_A}^H - 0.1vc_{-1}$$

$$vc = \left(\frac{A_A^H}{Y_d^H}\right) + 2.9 - 0.1DepRatio_{old}$$

EJEEP

$$\Delta\left(\frac{A_A^H}{Y_d^H}\right) = 0.02\Delta(DepRatio_{old}) + 0.5\left(i_{10years} - \pi_C^H\right) + 0.1\left(r_{E_A}^H - \pi_C^H\right) - 0.1vc_{-1}$$

$$vc = \left(\frac{A_A^H}{Y_d^H}\right) + 2.9 - 0.1DepRatio_{old}$$

Equation 144 Insurance, pension funds and standardized guarantee schemes, flow

$$\Delta^* A_A^H = \Delta A_A^H - reval_{A_A}^H - OCV_{A_A}^H$$

Equation 145 Loans, flow; closes account of households

$$\Delta^* L_L^H = \boldsymbol{p_{I_1}^H I_1^H} + \boldsymbol{p_{I_{12}}^H I_{12}^H} + \boldsymbol{p_{I_{13}}^H I_{13}^H} + \Delta^* H^H + \Delta EH^H + \Delta^* D_A^H + \boldsymbol{p_{B_A}^{H_R}}\Delta^* \boldsymbol{B_A^{H_R}} + \boldsymbol{p_{B_A}^H}\Delta^* \boldsymbol{B_A^H} + \boldsymbol{p_{E_A}^H}\Delta^* \boldsymbol{E_A^H} + \Delta^* A_A^H + \Delta^* X_A^H + \Delta^* Z_A^H - S^H + NP^H + Tr_{K_p}^H - Adj^H$$

Equation 146 Loans, stock

$$L_L^H = L_{L-1}^H + \Delta^* L_L^H + reval_{L_L}^H + OCV_{L_L}^H$$

Equation 147 Other accounts payable/receivable, stock (net assets)

$$Z_A^H = \psi_Z^H \boldsymbol{p_Y Y}$$

Equation 148 Other accounts payable/receivable, flow (net assets)

$$\Delta^* Z_A^H = \Delta Z_A^H - OCV_{Z_A}^H$$

Equation 149 Financial wealth

$$FW^H = H^H + EH^H + D_A^H + \boldsymbol{p_{B_A}^{H_R} B_A^{H_R}} + \boldsymbol{p_{B_A}^H B_A^H} + \boldsymbol{p_{E_A}^H E_A^H} + A_A^H + X_A^H + Z_A^H - L_L^H$$

Equation 150 Net wealth

$$WLTH^H = \boldsymbol{p_{K_1}^H K_1^H} + \boldsymbol{p_{K_{12}}^H K_{12}^H} + \boldsymbol{p_{K_{13}}^H K_{13}^H} + \boldsymbol{p_{K_2}^H K_2^H} + FW^H$$

Financial institutions, other than the central bank

Equation 151 Wages paid by banks

$$W_p^B = w_p^B N^B$$

Equation 152 Labor contributions paid

$$LC_p^B = \beta_{LC}^B W_p^B$$

Equation 153 Labor taxes paid

$$T_L^B = \beta_{TL}^B W_p^B$$

Equation 154 Subsidies received

$$Sub_r^B \text{ exogenous}$$

Equation 155 Profits

$$\Pi^B = VA^B - W_p^B - LC_p^B - T_L^B + Sub_r^B$$

Equation 156 Interests paid

$$Int_p^B = r_L^B\left(D_{L-1}^B + \boldsymbol{p_{B_L-1}^B B_{L-1}^B}\right) + r_{CB}RF_{-1}$$

Equation 157 Interests received

$$Int_r^B = Int_p^F + Int_p^B + Int_p^{CB} + Int_p^G + Int_p^H + Int_p^R - Int_r^{CB} - Int_r^F - Int_r^G - Int_r^H - Int_r^R$$

Equation 158 Dividends paid

$$Div_p^B = \gamma_{div_p}^B \Pi^B$$

Equation 159 Dividends received

$$Div_r^B = \gamma_{div_r}^B \boldsymbol{p_{E_A-1}^B E_{A-1}^B}$$

Equation 160 Redistributed earnings on FDI received

$$RFDI_r^B = r_{FDI_A}^B \boldsymbol{p_{E_A-1}^B E_{A-1}^B}$$

Equation 161 Redistributed earnings on FDI paid

$$RFDI_p^B = r_{FDI_L}^B \boldsymbol{p_{E_L-1}^B E_{L-1}^B}$$

Equation 162 Property income attributed to insurance policy holders paid

$$INS_p^B = \sum_i INS_r^i \quad \text{for } i = F, G, H, R$$

Equation 163 Corporate taxes

$$T^B = \theta_T^B(\Pi_{-1}^B + Int_{r-1}^B - Int_{p-1}^B + Div_{r-1}^B - Div_{p-1}^B + RFDI_{r-1}^B - RFDI_{p-1}^B - INS_{p-1}^B)$$

Equation 164 Social contributions received

$$SC_r^B = \theta_{SC}^B(SC_p^H + SC_p^R)$$

Equation 165 Social benefits paid

$$SB_p^B = \theta_{SB_p}^B \boldsymbol{p_Y Y}$$

Equation 166 Miscellaneous transfers received

$$Tr_r^B = \theta_{Tr_r}^B \boldsymbol{p_Y Y}$$

Equation 167 Miscellaneous transfers paid

$$Tr_p^B = \theta_{Tr_p}^B \boldsymbol{p_Y Y}$$

Equation 168 Disposable (corporate) income

$$Y_d^B = \Pi^B + Int_r^B - Int_p^B + Div_r^B - Div_p^B + RFDI_r^B - RFDI_p^B - INS_p^B - T^B + SC_r^B - SB_p^B + Tr_r^B - Tr_p^B$$

Equation 169 Savings

$$S^B = Y_d^B$$

Equation 170 Net acquisition of non-financial non-produced assets

$$NP_p^B = \theta_{NP}^B \boldsymbol{p_Y Y}$$

Equation 171 Capital transfers received

$$Tr_{K_r}^B = \theta_{Tr_K}^B \boldsymbol{p_Y Y}$$

Equation 172 Financing capacity/need

$$FCN^B = S^B - \boldsymbol{p_{I_1}^B I_1^B} - NP_p^B + Tr_{K_r}^B$$

Equation 173 Investment (accumulation rate)

$$\left(\frac{I^B}{K_{1-1}^B}\right) = 0.04 + 0.7\left(\frac{I_{-1}^B}{K_{1-2}^B}\right) + 0.4\left(\frac{\Delta Y}{Y_{-1}}\right) - 0.2(i_{10years} - \pi_Y)$$

Equation 174 Investment, price

$$\Delta \ln(p_I^B) = -0.01 + 0.96\Delta \ln(p_C^H)$$

Equation 175 Produced non-financial assets, price

$$\Delta \ln\left(p_{K_1}^B\right) = 0.4\Delta \ln\left(p_{K_1-1}^B\right) + 0.7\Delta \ln(p_Y)$$

Equation 176 Produced non-financial assets, stock

$$\boldsymbol{p_{K_1}^B K_1^B} = \left(1 - \delta_{K_1}^B\right)\boldsymbol{p_{K_1-1}^B K_{1-1}^B} + \boldsymbol{p_{K_1}^B I_{1*}^B} + K_{1-1}^B \Delta p_{K_1}^B + OCV_{K_1}^B$$

Equation 177 Non-produced non-financial assets, price

$$p_{K_2}^B = \psi_{p_{K2}}^B p_{K_2}^H$$

Equation 178 Non-produced non-financial assets, stock

$$\boldsymbol{p_{K_2}^B K_2^B} = \boldsymbol{p_{K_2-1}^B K_{2-1}^B} + NP_p^B + K_{2-1}^B \Delta p_{K_2}^B + OCV_{K_2}^B$$

Equation 179 Bills and coins, stock

$$H^B = \psi_H^B \boldsymbol{p_Y Y}$$

Equation 180 Bills and coins, flow

$$\Delta^* H^B = \Delta H^B - OCV_H^B$$

Equation 181 Digital currency; **closes the row** of the instrument

$$\Delta^* EH^B = \Delta^* EH_L^{CB} - \Delta^* EH^F - \Delta^* EH^G - \Delta^* EH^H$$

Equation 182 Digital currency, stock

$$EH^B = EH_{-1}^B + \Delta EH^B$$

Equation 183 Loans, flow; **closes the row** of the instrument

$$\Delta^* L_A^B = \Delta^* L_L^F + \Delta^* L_L^G + \Delta^* L_L^H + \Delta^* L_L^R - \Delta^* L_A^F - \Delta^* L_A^R - \Delta^* L_A^{CB}$$

Equation 184 Loans, stock

$$L_A^B = L_{A-1}^B + \Delta^* L_A^B + reval_{L_A}^B + OCV_{L_A}^B$$

Equation 185 Loans, revaluation effects (closes revaluation for this instrument)

$$reval_{L_A}^B = reval_{L_L}^F + reval_{L_L}^G + reval_{L_L}^H + reval_{L_L}^R - reval_{L_A}^F - reval_{L_A}^R - reval_{L_A}^{CB}$$

Equation 186 Loans, other changes in volume (closes OCV for this instrument)

$$OCV_{L_A}^B = OCV_{L_L}^F + OCV_{L_L}^G + OCV_{L_L}^H + OCV_{L_L}^R - OCV_{L_A}^F - OCV_{L_A}^R - OCV_{L_A}^{CB}$$

Equation 187 Financial derivatives and employee stock options, flow; **closes the row** of the instrument

$$\Delta^* X_L^B = \Delta^* X_A^F + \Delta^* X_A^G + \Delta^* X_A^H - \Delta^* X_L^R$$

Equation 188 Financial derivatives and employee stock options, stock

$$X_L^B = X_{L-1}^B + \Delta^* X_L^B + reval_{X_L}^B + OCV_{X_L}^B$$

Equation 189 Financial derivatives and employee stock options, revaluation effects (closes reval for this instrument)

$$reval_{X_L}^B = reval_{X_A}^F + reval_{X_A}^G + reval_{X_A}^H - reval_{X_L}^R$$

Equation 190 Financial derivatives and employee stock options, other changes in volume (closes OCV for this instrument)

$$OCV_{X_L}^B = OCV_{X_A}^F + OCV_{X_A}^G + OCV_{X_A}^H - OCV_{X_L}^R$$

Equation 191 Deposit holdings, stock

$$D_A^B = \psi_D^B \boldsymbol{p_Y Y}$$

Equation 192 Deposit holdings, flow

$$\Delta^* D_A^B = \Delta D_A^B - reval_{D_A}^B - OCV_{D_A}^B$$

Equation 193 Banks absorb all public debt securities available

$$\boldsymbol{p_{B_A}^{B_G}} \Delta^* \boldsymbol{B_A^{B_G}} = \boldsymbol{p_{B_L}^G} \Delta^* \boldsymbol{B_L^G} - \boldsymbol{p_{B_A}^{CB_G}} \Delta^* \boldsymbol{B_A^{CB_G}} - \boldsymbol{p_{B_A}^{F_G}} \Delta^* \boldsymbol{B_A^{F_G}} - \boldsymbol{p_{B_A}^{R_G}} \Delta^* \boldsymbol{B_A^{R_G}}$$

Equation 194 Public debt securities held, stock

$$B_A^{B_G} = B_{A-1}^{B_G} + \Delta^* B_A^{B_G} + \left(\frac{OCV_{B_A}^{B_G}}{p_{B_A}^{B_G}}\right)$$

Equation 195 Public debt securities, price

$$p_{B_A}^{B_G} = \psi_{B_A}^{B_G} p_{B_L}^G$$

Equation 196 Foreign debt securities held, flow

$$\Delta^* B_A^{B_R} = \theta_{B_A}^{B_R} \boldsymbol{p_Y Y}$$

Equation 197 Foreign debt securities held, stock

$$B_A^{B_R} = B_{A-1}^{B_R} + \Delta^* B_A^{B_R} + \left(\frac{OCV_{B_A}^{B_R}}{p_{B_A}^{B_R}}\right)$$

Equation 198 Foreign debt securities held, price

$$\Delta p_{B_A}^{B_R} = \left(\frac{B_{B_{L-1}}^R}{B_{B_{A-1}}^{B_R}}\right)\Delta p_{B_L}^R - \sum_i \left(\frac{B_{B_{A-1}}^{i_R}}{B_{B_{A-1}}^{B_R}}\right)\Delta p_{B_A}^{i_R} \quad \text{for } i = F, CB, G, H$$

Equation 199 Demand for other securities

$$\left(\frac{p_{B_A}^B \Delta^* B_A^B}{\boldsymbol{p_Y Y}}\right) = 0.4\left(\frac{p_{B_{A-1}}^B \Delta^* B_{A-1}^B}{\boldsymbol{p_{Y-1} Y_{-1}}}\right) + 1.9r_A^B - 1.6r_{A-1}^B$$

Equation 200 Other debt securities held, stock

$$B_A^B = B_{A-1}^B + \Delta^* B_A^B + \left(\frac{OCV_{B_A}^B}{p_{B_A}^B}\right)$$

Equation 201 Other securities held, price

$$\Delta \ln\left(p_{B_A}^B\right) = 0.5\Delta \ln\left(p_{B_{A-1}}^B\right) + 0.2\Delta \ln\left(p_{B_L}^G\right)$$

Equation 202 Equities held, flow (financial accumulation rate)

$$\left(\frac{\Delta^* E_A^B}{E_{A-1}^B}\right) = 0.03 + 0.3\left(\frac{\Delta^* E_{A-1}^B}{E_{A-2}^B}\right) + 0.05\left(r_{E_{A-1}}^B - \pi_{Y-1}\right)$$

Equation 203 Equities held (domestic + foreign), stock

$$E_A^B = E_{A-1}^B + \Delta^* E_A^B + \left(\frac{OCV_{E_A}^B}{p_{E_A}^B}\right)$$

Equation 204 Equities held, price

$$p_{E_A}^B = p_{E_A}^{B_{FR}}\left(\frac{\boldsymbol{p_{E_A}^{B_{FR}} E_A^{B_{FR}}}}{\boldsymbol{p_{E_A}^B E_A^B}}\right) + p_{E_A}^{B_R}\left(\frac{\boldsymbol{p_{E_A}^{B_R} E_A^{B_R}}}{\boldsymbol{p_{E_A}^B E_A^B}}\right)$$

Equation 205 Profitability of equities held

$$r_{E_A}^B = \left(\frac{E_{A-1}^B \Delta p_{E_A}^B + Div_r^B}{\boldsymbol{p_{E_{A-1}}^B E_{A-1}^B}}\right)$$

Equation 206 Domestic equities held by banks, stock

$$\boldsymbol{p_{E_A}^{B_{FR}} E_A^{B_{FR}} = p_{E_A}^B E_A^B - p_{E_A}^{B_R} E_A^{B_R}}$$

Equation 207 Domestic equities held by banks, flow

$$\Delta^* E_A^{B_{FR}} = \Delta E_A^{B_{FR}} - \left(\frac{OCV_{E_A}^{B_{FR}}}{p_{E_A}^{B_{FR}}}\right)$$

Equation 208 Domestic equities held by banks, price

$$p_{E_A}^{B_{FR}} = \eta_{P_{EA}}^{B_{FR}} p_E^{FR}$$

Equation 209 Foreign equities held by banks, stock

$$\left(\frac{\boldsymbol{p_{E_A}^{B_R} E_A^{B_R}}}{\boldsymbol{p_{E_A}^B E_A^B}}\right) = 0.7\left(\frac{\boldsymbol{p_{E_{A-1}}^{B_R} E_{A-1}^{B_R}}}{\boldsymbol{p_{E_{A-1}}^B E_{A-1}^B}}\right) - 0.4\left(\frac{\Delta NEER}{NEER_{-1}}\right) + 0.001t$$

Equation 210 Foreign equities held by banks, flow

$$\Delta^* E_A^{B_R} = \Delta E_A^{B_R} - \left(\frac{OCV_{E_A}^{B_R}}{p_{E_A}^{B_R}}\right)$$

Equation 211 Foreign equities held by banks, price

$$\Delta \ln\left(p_{E_A}^{B_R}\right) = 0.6\Delta \ln(p_E^*)$$

Equation 212 Bank reserves, flow; **closes the account** of financial institutions excluding the central bank (this version runs with option 1 before 2007 and option 2 from 2007 onwards)

Option 1 (no QE, before 2007)

$$\Delta^* RES = \Delta RES - reval_{RES}^B - OCV_{RES}^B$$

Option 2 (QE, 2007 onwards)

$$\begin{aligned}\Delta^* RES = \Delta^* RF + \Delta^* D_L^B + \boldsymbol{p_{B_L}^B}\Delta^* \boldsymbol{B_L^B} + \boldsymbol{p_{E_L}^B}\Delta^* \boldsymbol{E_L^B} + \Delta^* A_L^B \\ + \Delta^* X_L^B - \left(\Delta^* H^B + \Delta EH^B + \Delta^* D_A^B + \boldsymbol{p_{B_A}^{B_G}}\Delta^* \boldsymbol{B_A^{B_G}}\right. \\ + \boldsymbol{p_{B_A}^{B_R}}\Delta^* \boldsymbol{B_A^{B_R}} + \boldsymbol{p_{B_A}^B}\Delta^* \boldsymbol{B_A^B} + \Delta^* L_A^B + \boldsymbol{p_{E_A}^B}\Delta^* \boldsymbol{E_A^B} \\ \left. + \Delta^* Z_A^B + \boldsymbol{p_{I_1}^B I_1^B} - S^B - Tr_{K_r}^B + NP^B - Adj^B\right)\end{aligned}$$

Equation 213 Bank reserves, stock (this version runs with option 1 before 2007 and option 2 from 2007 onwards)

Option 1 (no QE, before 2007)

$$RES = \theta_{RES-D_L^B} D_L^B$$

Option 2 (QE, 2007 onwards)

$$RES = RES_{-1} + \Delta^* RES + reval_{RES}^B + OCV_{RES}^B$$

Equation 214 Refinancing, flow (this version runs with option 1 before 2007 and option 2 from 2007 onwards)

Option 1 (no QE, before 2007)

$$\begin{aligned}\Delta^* RF = \Delta^* H^B + \Delta EH^B + \Delta^* RES + \Delta^* D_A^B + \boldsymbol{p_{B_A}^{B_G}}\Delta^* \boldsymbol{B_A^{B_G}} + \boldsymbol{p_{B_A}^{B_R}}\Delta^* \boldsymbol{B_A^{B_R}} \\ + \boldsymbol{p_{B_A}^B}\Delta^* \boldsymbol{B_A^B} + \Delta^* L_A^B + \boldsymbol{p_{E_A}^B}\Delta^* \boldsymbol{E_A^B} + \Delta^* Z_A^B \\ - \left(\Delta^* D_L^B + \boldsymbol{p_{B_L}^B}\Delta^* \boldsymbol{B_L^B} + \boldsymbol{p_{E_L}^B}\Delta^* \boldsymbol{E_L^B} + \Delta^* A_L^B\right. \\ \left. + \Delta^* X_L^B\right) + \boldsymbol{p_{I_1}^B I_1^B} - S^B - Tr_{K_r}^B + NP^B - Adj^B\end{aligned}$$

Option 2 (QE, 2007 onwards)

$$\Delta^* RF = \Delta^* RF^{CB} - \Delta^* RF^R$$

Equation 215 Refinancing, stock

$$RF = RF_{-1} + \Delta^* RF + OCV_{RF}$$

Equation 216 Refinancing, other changes in volume (closes OCV for this instrument)

$$OCV_{RF} = OCV_{RF}^{CB} - OCV_{RF}^R$$

Equation 217 Bank deposits, flow; **closes the row** of the instrument

$$\begin{aligned}\Delta^* D_L^B = \Delta^* D_A^F + \Delta^* D_A^B + \Delta^* D_A^{CB} + \Delta^* D_A^G + \Delta^* D_A^H + \boldsymbol{p_{D_A}^R}\Delta^* \boldsymbol{D_A^R} \\ - \boldsymbol{p_{D_L}^R}\Delta^* \boldsymbol{D_L^R} - \Delta^* D_L^{CB} - \Delta^* D_L^G\end{aligned}$$

Equation 218 Deposit liabilities, stock

$$D_L^B = D_{L-1}^B + \Delta^* D_L^B + reval_{D_L}^B + OCV_{D_L}^B$$

Equation 219 Deposit liabilities, revaluation effects (closes reval for this instrument)

$$\begin{aligned}reval_{D_L}^B = reval_{D_A}^F + reval_{D_A}^B + reval_{D_A}^{CB} + reval_{D_A}^G + reval_{D_A}^H \\ + reval_{D_A}^R - reval_{D_L}^R - reval_{D_L}^{CB} - reval_{D_L}^G\end{aligned}$$

Equation 220 Deposit liabilities, other changes in volume (closes OCV for this instrument)

$$\begin{aligned}OCV_{D_L}^B = OCV_{D_A}^F + OCV_{D_A}^B + OCV_{D_A}^{CB} + OCV_{D_A}^G + OCV_{D_A}^H + OCV_{D_A}^R \\ - OCV_{D_L}^R - OCV_{D_L}^{CB} - OCV_{D_L}^G\end{aligned}$$

Equation 221 Debt securities issued, closes the instrument

$$\begin{aligned}\boldsymbol{p_{B_L}^B}\Delta^* \boldsymbol{B_L^B} = \boldsymbol{p_{B_A}^B}\Delta^* \boldsymbol{B_A^B} + \boldsymbol{p_{B_A}^{CB}}\Delta^* \boldsymbol{B_A^{CB}} + \boldsymbol{p_{B_A}^G}\Delta^* \boldsymbol{B_A^G} + \boldsymbol{p_{B_A}^H}\Delta^* \boldsymbol{B_A^H} \\ + \boldsymbol{p_{B_A}^R}\Delta^* \boldsymbol{B_A^R} - \boldsymbol{p_{B_L}^F}\Delta^* \boldsymbol{B_L^F}\end{aligned}$$

Equation 222 Debt securities issued, price

$$\Delta p_{B_L}^B = -\left(\frac{B_{L-1}^F}{B_{L-1}^B}\right)\Delta p_{B_L}^F + \sum_i \left(\frac{B_{A-1}^i}{B_{L-1}^B}\right)\Delta p_{B_A}^i \quad \text{for } i = B, CB, G, H, R$$

Equation 223 (Other) debt securities issued, stock

$$B_L^B = B_{L-1}^B + \Delta^* B_L^B + \left(\frac{OCV_{B_L}^B}{p_{B_L}^B}\right)$$

Equation 224 Other securities held, other changes in volume (closes OCV for this instrument)

$$OCV_{B_L}^B = OCV_{B_A}^B + OCV_{B_A}^{CB} + OCV_{B_A}^G + OCV_{B_A}^H + OCV_{B_A}^R - OCV_{B_L}^F$$

Equation 225 Insurance, pension funds and standardized guarantee schemes, flow; **closes the row** of the instrument

$$\Delta^* A_L^B = \Delta^* A_A^F + \Delta^* A_A^G + \Delta^* A_A^H + \Delta^* A_A^R$$

Equation 226 Insurance, pension funds and standardized guarantee schemes, stock

$$A_L^B = A_{L-1}^B + \Delta^* A_L^B + reval_{A_L}^B + OCV_{A_L}^B$$

Equation 227 Insurance, pension funds and standardized guarantee schemes, other changes in volume (closes OCV for this instrument)

$$OCV_{A_L}^B = \sum_i OCV_{A_A}^i \quad \text{for} \quad i = F, G, H, R$$

Equation 228 Equities issued (closes the block equities)

$$\begin{aligned} \boldsymbol{p}_{E_L}^{\boldsymbol{B}} \Delta^* \boldsymbol{E}_{\boldsymbol{L}}^{\boldsymbol{B}} = {} & \boldsymbol{p}_{E_A}^{\boldsymbol{F_{FR}}} \Delta^* \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{F_{FR}}} + \boldsymbol{p}_{E_A}^{\boldsymbol{B_{FR}}} \Delta^* \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{B_{FR}}} + \boldsymbol{p}_{E_A}^{\boldsymbol{CB_{FR}}} \Delta^* \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{CB_{FR}}} \\ & + \boldsymbol{p}_{E_A}^{\boldsymbol{G_{FR}}} \Delta^* \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{G_{FR}}} + \boldsymbol{p}_{E_A}^{\boldsymbol{H_{FR}}} \Delta^* \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{H_{FR}}} + \boldsymbol{p}_{E_A}^{\boldsymbol{R}} \Delta^* \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{R}} \\ & - \boldsymbol{p}_{E_L}^{\boldsymbol{F}} \Delta^* \boldsymbol{E}_{\boldsymbol{L}}^{\boldsymbol{F}} - \boldsymbol{p}_{E_L}^{\boldsymbol{CB}} \Delta^* \boldsymbol{E}_{\boldsymbol{L}}^{\boldsymbol{CB}} \end{aligned}$$

Equation 229 Equities issued, stock

$$E_L^B = E_{L-1}^B + \Delta^* E_L^B + \left(\frac{OCV_{E_L}^B}{p_{E_L}^B} \right)$$

Equation 230 Equities issued, other changes in volume (closes OCV for the instrument)

$$\begin{aligned} OCV_{E_L}^B = {} & OCV_{E_A}^{F_{FR}} + OCV_{E_A}^{B_{FR}} + OCV_{E_A}^{CB_{FR}} + OCV_{E_A}^{G_{FR}} + OCV_{E_A}^{H_{FR}} \\ & + OCV_{E_A}^{R} - OCV_{E_L}^{F} - OCV_{E_L}^{CB} \end{aligned}$$

Equation 231 Equities issued, price

$$p_{E_L}^B = \theta_{pEL}^B p_E^{FR}$$

Equation 232 Profitability of equities issued

$$r_{E_L}^B = \left(\frac{E_{L-1}^B \Delta p_{E_L}^B + Div_p^B}{\boldsymbol{p}_{\boldsymbol{E_{L-1}}}^{\boldsymbol{B}} \boldsymbol{E}_{\boldsymbol{L-1}}^{\boldsymbol{B}}} \right)$$

Equation 233 Other accounts receivable/payable, stock

$$Z_A^B = \psi_{B_A}^{B_G} \boldsymbol{p_Y Y}$$

Equation 234 Other accounts receivable/payable, flow

$$\Delta^* Z_A^B = \Delta Z_A^B - OCV_{Z_A}^B$$

Equation 235 Financial wealth

$$\begin{aligned} FW^B = {} & H^B + EH^B + RES + D_A^B + \boldsymbol{p}_{\boldsymbol{B_A}}^{\boldsymbol{B_G}} \boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{B_G}} + \boldsymbol{p}_{\boldsymbol{B_A}}^{\boldsymbol{B_R}} \boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{B_R}} + \boldsymbol{p}_{\boldsymbol{B_A}}^{\boldsymbol{B}} \boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{B}} \\ & + L_A^B + \boldsymbol{p}_{\boldsymbol{E_A}}^{\boldsymbol{B}} \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{B}} + Z_A^B - RF - D_L^B - \boldsymbol{p}_{\boldsymbol{B_L}}^{\boldsymbol{B}} \boldsymbol{B}_{\boldsymbol{L}}^{\boldsymbol{B}} \\ & - \boldsymbol{p}_{\boldsymbol{E_L}}^{\boldsymbol{B}} \boldsymbol{E}_{\boldsymbol{L}}^{\boldsymbol{B}} - A_L^B - X_L^B \end{aligned}$$

Equation 236 Net wealth

$$WLTH^B = \boldsymbol{p}_{\boldsymbol{K_1}}^{\boldsymbol{B}} \boldsymbol{K}_{\boldsymbol{1}}^{\boldsymbol{B}} + \boldsymbol{p}_{\boldsymbol{K_2}}^{\boldsymbol{B}} \boldsymbol{K}_{\boldsymbol{2}}^{\boldsymbol{B}} + FW^B$$

Banque de France

Equation 237 Interests paid

$$Int_p^{CB} = r_{CB} RES_{-1} + r_D \left(D_{L-1}^{CB_G} + D_{L-1}^{CB} \right)$$

Equation 238 Interests received

$$\begin{aligned} Int_r^{CB} = {} & r_{CB} RF_{-1} + r_{€} TGT2_{-1} + r_D D_{A-1}^{CB} \\ & + i_{10yr} \left(\boldsymbol{p}_{\boldsymbol{B-1}}^{\boldsymbol{CB_G}} \boldsymbol{B}_{\boldsymbol{A-1}}^{\boldsymbol{CB_G}} + \boldsymbol{p}_{\boldsymbol{B-1}}^{\boldsymbol{CB_R}} \boldsymbol{B}_{\boldsymbol{A-1}}^{\boldsymbol{CB_R}} + \boldsymbol{p}_{\boldsymbol{B-1}}^{\boldsymbol{CB}} \boldsymbol{B}_{\boldsymbol{A-1}}^{\boldsymbol{CB}} \right) \\ & + i^{LT_{CR}} L_{A-1}^{CB} \end{aligned}$$

Equation 239 Dividends paid

$$Div_p^{CB} = \gamma_{div_r}^B \boldsymbol{p}_{\boldsymbol{E_{L-1}}}^{\boldsymbol{CB_{FR}}} \boldsymbol{E}_{\boldsymbol{L-1}}^{\boldsymbol{CB_{FR}}}$$

Equation 240 Dividends received

$$Div_r^{CB} = \gamma_{div_r}^B \boldsymbol{p}_{\boldsymbol{E_{A-1}}}^{\boldsymbol{CB}} \boldsymbol{E}_{\boldsymbol{A-1}}^{\boldsymbol{CB}}$$

Equation 241 Profits

$$\Pi^{CB} = Int_r^{CB} - Int_p^{CB} + Div_r^{CB} - Div_p^{CB}$$

Equation 242 Taxes paid to the government

$$T^{CB} = \Pi^{CB}$$

Equation 243 Central bank deposits held by the government

$$D_L^{CB_G} = D_A^{G_{CB}}$$

Equation 244 Central bank deposits assets, stock

$$D_A^{CB} = \gamma_{D_A}^{CB} \boldsymbol{p_Y Y}$$

Equation 245 Central bank deposits liabilities, stock

$$D_L^{CB} = \gamma_{D_L}^{CB} \boldsymbol{p_Y Y}$$

Equation 246 Central bank deposits (assets and liabilities), flow

$$\Delta^* D_i^{CB} = \Delta D_i^{CB} - reval_{D_i}^{CB} - OCV_{D_i}^{CB} \quad \text{for} \quad i = A, L$$

Equation 247 Bills and coins, flow; **closes the row** of the instrument

$$\Delta^* H^{CB} = \Delta^* H^F + \Delta^* H^B + \Delta^* H^H + \Delta^* H^R$$

Equation 248 Bills and coins, stock

$$H^{CB} = H_{-1}^{CB} + \Delta^* H^{CB} + OCV_H^{CB}$$

Equation 249 Digital currency issued, stock

$$EH_L^{CB} \quad \text{exogenous}$$

Equation 250 Bills and coins, other changes in volume (closes OCV for this instrument)

$$OCV_H^{CB} = \sum_i OCV_H^i \quad \text{for} \quad i = F, B, H, R$$

Equation 251 Public bonds bought by the central bank (QE), flow

$$\boldsymbol{p}_{\boldsymbol{B_A}}^{\boldsymbol{CB_G}} \Delta^* \boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{CB_G}} = \gamma_{B_A}^{CB_G} \boldsymbol{p_Y Y}$$

Equation 252 Public bonds bought by the central bank (QE), stock

$$B_A^{CB_G} = B_{A-1}^{CB_G} + \Delta^* B_A^{CB_G} + \left(\frac{OCV_{B_A}^{CB_G}}{p_{B_A}^{CB_G}} \right)$$

Equation 253 Price of public bonds bought by the central bank

$$p_{B_A}^{CB_G} = \gamma_{p_{BA}}^{CB_G} p_{B_L}^G$$

Equation 254 Foreign bonds bought by the central bank, stock

$$\boldsymbol{p}_{\boldsymbol{B_A}}^{\boldsymbol{CB_R}} \boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{CB_R}} = \gamma_{B_A}^{CB_R} \boldsymbol{p_Y Y}$$

Equation 255 Foreign bonds bought by the central bank, flow

$$\Delta^* B_A^{CB_R} = \Delta B_A^{CB_R} - \left(\frac{OCV_{B_A}^{CB_R}}{p_{B_A}^{CB_R}} \right)$$

Equation 256 Price of foreign bonds bought by the central bank

$$p_{B_A}^{CB_R} = \gamma_{p_{BA}}^{CB_R} p_{B_L}^{R}$$

Equation 257 Other bonds bought by the central bank (QE), flow

$$\boldsymbol{p_{B_A}^{CB}} \Delta^* \boldsymbol{B_A^{CB}} = \gamma_{B_A}^{CB} \boldsymbol{p_Y Y}$$

Equation 258 Other bonds bought by the central bank (QE), stock

$$B_A^{CB} = B_{A-1}^{CB} + \Delta^* B_A^{CB} + \left(\frac{OCV_{B_A}^{CB}}{p_{B_A}^{CB}}\right)$$

Equation 259 Other bonds held by the central bank, price

$$p_{B_A}^{CB} = \gamma_{p_{BA}}^{CB} p_{B_L}^{G}$$

Equation 260 Purchase of bank credit, flow

$$\Delta^* L_A^{CB} = \gamma_{L_A}^{CB} \boldsymbol{p_Y Y}$$

Equation 261 Purchase of bank credit, stock

$$L_A^{CB} = L_{A-1}^{CB} + \Delta^* L_A^{CB} + reval_{L_A}^{CB} + OCV_{L_A}^{CB}$$

Equation 262 Refinancing by the central bank, flow (this version runs with option 1 before 2007 and option 2 from 2007 onwards)

Option 1 (no QE, before 2007)

$$\Delta^* RF^{CB} = \Delta^* RF + \Delta^* RF^{R}$$

Option 2 (QE, 2007 onwards)

$$\Delta^* RF^{CB} = \varphi_{RF}^{CB} \boldsymbol{p_Y Y}$$

Equation 263 Refinancing by the central bank, stock

$$RF^{CB} = RF_{-1}^{CB} + \Delta^* RF^{CB} + OCV_{RF}^{CB}$$

Equation 264 Domestic equities held, flow

$$\boldsymbol{p_{E_A}^{CB_{FR}}} \Delta^* \boldsymbol{E_A^{CB_{FR}}} = \varphi_{E_A}^{CB_{FR}} \boldsymbol{p_Y Y}$$

Equation 265 Domestic equities held, stock

$$E_A^{CB_{FR}} = E_{A-1}^{CB_{FR}} + \Delta^* E_A^{CB_{FR}} + \left(\frac{OCV_{E_A}^{CB_{FR}}}{p_{E_A}^{CB_{FR}}}\right)$$

Equation 266 Domestic equities held, price

$$p_{E_A}^{CB_{FR}} \quad \text{exogenous}$$

Equation 267 Foreign equities held, flow

$$\boldsymbol{p_{E_A}^{CB_R}} \Delta^* \boldsymbol{E_A^{CB_R}} = \varphi_{E_A}^{CB_R} \boldsymbol{p_Y Y}$$

Equation 268 Foreign equities held, stock

$$E_A^{CB_R} = E_{A-1}^{CB_R} + \Delta^* E_A^{CB_R} + \left(\frac{OCV_{E_A}^{CB_R}}{p_{E_A}^{CB_R}}\right)$$

Equation 269 Foreign equities held, price

$$p_{E_A}^{CB_R} \quad \text{exogenous}$$

Equation 270 Total equities held, flow

$$\boldsymbol{p_{E_A}^{CB}} \Delta^* \boldsymbol{E_A^{CB}} = \boldsymbol{p_{E_A}^{CB_R}} \Delta^* \boldsymbol{E_A^{CB_R}} + \boldsymbol{p_{E_A}^{CB_{FR}}} \Delta^* \boldsymbol{E_A^{CB_{FR}}}$$

Equation 271 Total equities held, stock

$$\boldsymbol{p_{E_A}^{CB}} \boldsymbol{E_A^{CB}} = \boldsymbol{p_{E_A}^{CB_R}} \boldsymbol{E_A^{CB_R}} + \boldsymbol{p_{E_A}^{CB_{FR}}} \boldsymbol{E_A^{CB_{FR}}}$$

Equation 272 Other accounts payable/receivable, stock

$$Z_A^{CB} = \theta_Z^{CB} \boldsymbol{p_Y Y}$$

Equation 273 Other accounts payable/receivable, flow

$$\Delta^* Z_A^{CB} = \Delta Z_A^{CB} - OCV_{ZA}^{CB}$$

Equation 274 Equity issued, stock

$$\boldsymbol{p_{E_L}^{CB}} \boldsymbol{E_L^{CB}} \text{ exogenous}$$

Equation 275 Equity issued, flow

$$\Delta^* E_L^{CB} = \Delta E_L^{CB} - \left(\frac{OCV_{E_L}^{CB}}{p_{E_L}^{CB}}\right)$$

Equation 276 Equity issued, price

$$p_{E_L}^{CB} = \varphi_E^{CB} p_E^{FR}$$

Equation 277 Net wealth = financial wealth

$$\begin{aligned} WLTH^{CB} = FW^{CB} = {} & p_G^{CB} G^{CB} + RF^{CB} + TRGT2 + D_A^{CB} + \boldsymbol{p_{B_A}^{CB_G}} \boldsymbol{B_A^{CB_G}} \\ & + \boldsymbol{p_{B_A}^{CB_R}} \boldsymbol{B_A^{CB_R}} + \boldsymbol{p_{B_A}^{CB}} \boldsymbol{B_A^{CB}} + L_A^{CB} + \boldsymbol{p_E^{CB}} \boldsymbol{E_A^{CB}} \\ & + Z_A^{CB} - H - EH_L^{CB} - RES - D_L^{CB_G} - D_L^{CB} \\ & - \boldsymbol{p_{E_L}^{CB}} \boldsymbol{E_L^{CB}} \end{aligned}$$

Equation 278 Central bank's accounting equilibrium (system's unwritten identity)

$$\begin{aligned} & p_G^{CB} \Delta^* G^{CB} + \Delta^* RF^{CB} + \Delta TRGT2 + \Delta^* D_A^{CB} + \boldsymbol{p_{B_A}^{CB_G}} \Delta^* \boldsymbol{B_A^{CB_G}} \\ & + \boldsymbol{p_{B_A}^{CB_R}} \Delta^* \boldsymbol{B_A^{CB_R}} + \boldsymbol{p_{B_A}^{CB}} \Delta^* \boldsymbol{B_A^{CB}} + \Delta^* L_A^{CB} \\ & + \boldsymbol{p_E^{CB}} \Delta^* \boldsymbol{E_A^{CB}} \\ & = \Delta^* H + \Delta EH_L^{CB} + \Delta^* RES + \Delta^* D_L^{CB_G} + \Delta^* D_L^{CB} \\ & + \boldsymbol{p_{E_L}^{CB}} \Delta^* \boldsymbol{E_L^{CB}} \end{aligned}$$

Government

Equation 279 Wages paid by the public sector

$$W_p^G = w_p^G N^G$$

Equation 280 Labor contributions paid

$$LC_p^G = \beta_{LC}^G W_p^G$$

Equation 281 Labor taxes paid

$$T_L^G = \beta_{TL}^G W_p^G$$

Equation 282 Labor taxes received

$$T_L = \sum_i T_L^i - T_L^R \quad \text{for} \quad i = F, B, G, H$$

[Operating surplus of the public sector → $\Pi^G = VA^G - W_p^G - LC_p^G - T_L^G + Sub_r^G$]

Equation 283 Subsidies on production paid

$$Sub \text{ exogenous}$$

Equation 284 Other subsidies on production received

$$Sub_r^G \text{ exogenous}$$

Equation 285 Other subsidies on production paid

$$Sub_p^G = Sub_r^F + Sub_r^B + Sub_r^G + Sub_r^H - Sub_p^R$$

Equation 286 Value added taxes

$$T_P = \theta_{TP} \frac{1 + \theta_{TP0}}{1 + \theta_{TP}} DEM_{int}$$

Equation 287 Interests received

$$Int_r^G = r_A^G \left(D_{A-1}^G + \boldsymbol{p_{B_A}^G B_{A-1}^G} + \boldsymbol{p_{B_A}^{G_R} B_{A-1}^{G_R}} \right) + r_D D_{A-1}^{G_{CB}}$$

Equation 288 Interests paid

$$Int_p^G = r_L^G (D_{L-1}^G + \boldsymbol{p_{B_L-1}^G B_{L-1}^G} + L_{L-1}^G)$$

Equation 289 Dividends received

$$Div_r^G = \gamma_{div_r}^G \boldsymbol{p_{E_{A-1}}^G E_{A-1}^G}$$

Equation 290 Property income attributed to insurance policy holders received

$$INS_r^G \text{ exogenous}$$

Equation 291 Rents received

$$RENT_r^G = rent_r^G \, \boldsymbol{p_{K_{2-1}}^G K_{2-1}^G}$$

Equation 292 Income taxes received

$$T = \sum_i T^i \quad \text{for} \quad i = F, B, CB, H, R$$

Equation 293 Social contributions received

$$SC_r^G = SC_p^H + SC_p^R - \sum_i SC_r^i \quad \text{for } i = F, B, R$$

Equation 294 Social benefits paid

$$SB_p^G \text{ exogeneous}$$

Equation 295 Miscellaneous transfers paid

$$Tr_p^G = \beta_{Tr_p}^G \boldsymbol{p_Y Y}$$

Equation 296 Disposable income

$$\begin{aligned} Y_d^G = {} & VA^G - W_p^G - LC_p^G - T_L^G + Sub_r^G + T_P + Int_r^G - Int_p^G + Div_r^G \\ & + INS_r^G + RENT_r^G + T + SC_r^G - SB_p^G - Tr_p^G \\ & + T_L - Sub - Sub_p^G \end{aligned}$$

Equation 297 Current public spending (collective and individual)

$$C^G \text{ exogeneous}$$

Equation 298 Price of current public expenditure

$$\Delta \ln(p_C^G) = 0.95 \Delta \ln(p_C^H)$$

Equation 299 Savings (current public balance)

$$S^G = Y_d^G - \boldsymbol{p_C^G C^G}$$

Equation 300 Capital transfers paid

$$Tr_{K_p}^G = Tr_{K_r}^F + Tr_{K_r}^B + Tr_{K_r}^R - Tr_{K_p}^H - Tr_{K_p}^R$$

Equation 301 Net acquisition of non-financial non-produced assets

$$NP_p^G = \beta_{NP}^G \boldsymbol{p_Y Y}$$

Equation 302 Financing capacity/need

$$FCN^G = S^G - \boldsymbol{p_{I_1}^G I_1^G} - \boldsymbol{p_{I_{12}}^G I_{12}^G} - NP_p^G - Tr_{K_p}^G$$

Equation 303 Investment

$$I_1^G \text{ exogeneous}$$

Equation 304 Investment, price

$$\Delta \ln(p_{I_1}^G) = 1.1 \Delta \ln(p_C^H)$$

Equation 305 Produced non-financial assets, price

$$\Delta \ln(p_{K_1}^G) = \Delta \ln(p_{I_1}^G)$$

Equation 306 Produced non-financial assets, stock

$$\boldsymbol{p_{K_1}^G K_1^G} = (1 - \delta_{K_1}^G) \boldsymbol{p_{K_{1-1}}^G K_{1-1}^G} + \boldsymbol{p_{K_1}^G I_{1*}^G} + K_{1-1}^G \Delta p_{K_1}^G + OCV_{K_1}^G$$

Equation 307 Non-produced non-financial assets, price

$$p_{K_2}^G = \psi_{pK_2}^G p_{K_2}^H$$

Equation 308 Non-produced non-financial assets, stock

$$\boldsymbol{p_{K_2}^G K_2^G} = \boldsymbol{p_{K_{2-1}}^G K_{2-1}^G} + NP_p^G + K_{2-1}^G \Delta p_{K_2}^G + OCV_{K_2}^G$$

Equation 309 Digital currency, stock

$$EH^G = \psi_{EH}^G EH_L^{CB}$$

Equation 310 Digital currency, flow

$$\Delta EH^G = EH^G - EH_{-1}^G$$

Equation 311 Government's account vis-à-vis the central bank, stock

$$D_A^{G_{CB}} = \psi_{D_A}^{G_{CB}} VA^G$$

Equation 312 Government's account vis-à-vis the central bank, flow

$$\Delta^* D_A^{G_{CB}} = \Delta D_A^{G_{CB}} - OCV_{D_A}^{G_{CB}}$$

Equation 313 Deposits, stock

$$D_A^G = \psi_{D_A}^G VA^G$$

Equation 314 Deposits, flow

$$\Delta^* D_A^G = \Delta D_A^G - reval_{D_A}^G - OCV_{D_A}^G$$

Equation 315 Foreign securities held by the government, stock

$$\boldsymbol{p_{B_A}^{G_R} B_A^{G_R}} = \psi_{B_A}^{G_R} \boldsymbol{p_Y Y}$$

Equation 316 Foreign securities held by the government, flow

$$\Delta^* B_A^{G_R} = \Delta B_A^{G_R} - \left(\frac{OCV_{B_A}^{G_R}}{p_{B_A}^{G_R}} \right)$$

Equation 317 Foreign securities held by the government, price

$$p_{B_A}^{G_R} = \psi_{p_{BA}}^{G_R} p_{B_L}^{R}$$

Equation 318 Other securities held by the government, stock

$$\boldsymbol{p_{B_A}^{G} B_A^{G}} \text{ exogenous}$$

Equation 319 Other securities held by the government, flow

$$\Delta^* B_A^G = \Delta B_A^G - \left(\frac{OCV_{B_A}^G}{p_{B_A}^G}\right)$$

Equation 320 Other securities held by the government, price

$$p_{B_A}^G = \psi_{p_{BA}}^G p_{B_L}^R$$

Equation 321 Equity held, stock

$$\boldsymbol{p_{E_A}^{G} E_A^{G}} = \psi_{E_A}^G \boldsymbol{p_Y Y}$$

Equation 322 Equity held, price

$$p_{E_A}^G = p_{E_A}^{G_{FR}} \left(\frac{\boldsymbol{p_{E_A}^{G_{FR}} E_A^{G_{FR}}}}{\boldsymbol{p_{E_A}^{G} E_A^{G}}}\right) + p_{E_A}^{G_R} \left(\frac{\boldsymbol{p_{E_A}^{G_R} E_A^{G_R}}}{\boldsymbol{p_{E_A}^{G} E_A^{G}}}\right)$$

Equation 323 Equity held, flow

$$\Delta^* E_A^G = \Delta E_A^G - \left(\frac{OCV_{E_A}^G}{p_{E_A}^G}\right)$$

Equation 324 Domestic equities held by the government, stock

$$\boldsymbol{p_{E_A}^{G_{FR}} E_A^{G_{FR}}} = \psi_E^G \boldsymbol{p_{E_A}^{G} E_A^{G}}$$

Equation 325 Domestic equities held by the government, flow

$$\Delta^* E_A^{G_{FR}} = \Delta E_A^{G_{FR}} - \left(\frac{OCV_{E_A}^{G_{FR}}}{p_{E_A}^{G_{FR}}}\right)$$

Equation 326 Domestic equities held by the government, price

$$\Delta \ln\left(p_{E_A}^{G_{FR}}\right) = 0.5 \Delta \ln(p_E^{FR}) - 0.5 vc_{-1}$$

$$vc = \ln\left(p_{E_A}^{G_{FR}}\right) + 0.3 - 0.3 \ln(p_E^{FR})$$

Equation 327 Foreign equities held by the government, stock

$$\boldsymbol{p_{E_A}^{G_R} E_A^{G_R}} = \boldsymbol{p_{E_A}^{G} E_A^{G}} - \boldsymbol{p_{E_A}^{G_{FR}} E_A^{G_{FR}}}$$

Equation 328 Foreign equities held by the government, price

$$p_{E_A}^{G_R} \text{ exogenous}$$

Equation 329 Foreign equities held government, flow

$$\Delta^* E_A^{G_R} = \Delta E_A^{G_R} - \left(\frac{OCV_{E_A}^{G_R}}{p_{E_A}^{G_R}}\right)$$

Equation 330 Profitability of equities held

$$r_{E_A}^G = \left(\frac{E_{A-1}^G \Delta p_{E_A}^G + Div_r^G}{\boldsymbol{p_{E_{A-1}}^{G} E_{A-1}^{G}}}\right)$$

Equation 331 Insurance, pension funds and guarantee schemes, stock

$$A_A^G = \psi_A^G \boldsymbol{p_Y Y}$$

Equation 332 Insurance, pension funds and guarantee schemes, flow

$$\Delta^* A_A^G = \Delta A_A^G - reval_{A_A}^G - OCV_{A_A}^G$$

Equation 333 Financial derivatives held by the government, stock

$$X_A^G = \psi_{X_A}^G VA^G$$

Equation 334 Financial derivatives held by the government, flow

$$\Delta^* X_A^G = \Delta X_A^G - reval_{X_A}^G - OCV_{X_A}^G$$

Equation 335 Other accounts payable/receivable, stock

$$Z_A^G = \psi_Z^G \boldsymbol{p_Y Y}$$

Equation 336 Other accounts payable/receivable, flow

$$\Delta^* Z_A^G = \Delta Z_A^G - OCV_{Z_A}^G$$

Equation 337 Deposits liabilities of the government, stock

$$D_L^G = \psi_{D_L}^G D_A^G$$

Equation 338 Deposits liabilities of the government, flow

$$\Delta^* D_L^G = \Delta D_L^G - reval_{D_L}^G - OCV_{D_L}^G$$

Equation 339 Total public indebtedness, flow; **closes the account** of the government

$$\begin{aligned}\boldsymbol{p_{BL_L}^{G}} \Delta^* \boldsymbol{BL_L^G} = {} & \Delta EH^G + \Delta^* D_A^{G_{CB}} + \Delta^* D_A^G + \boldsymbol{p_{B_A}^{G}} \Delta^* \boldsymbol{B_{B_A}^{G}} + \boldsymbol{p_{B_A}^{G_R}} \Delta^* \boldsymbol{B_{B_A}^{G_R}} \\ & + \boldsymbol{p_{E_A}^{G}} \Delta^* \boldsymbol{E_A^G} + \Delta^* A_A^G + \Delta^* X_A^G + \Delta^* Z_A^G - \Delta^* D_L^G \\ & + \boldsymbol{p_{I_1}^{G} I_1^G} + \boldsymbol{p_{I_{12}}^{G} I_{12}^G} - S^G + Tr_{K_p}^G + NP^G - Adj^G\end{aligned}$$

Equation 340 Total public indebtedness, stock

$$BL_L^G = BL_{L-1}^G + \Delta^* BL_L^G + \left(\frac{OCV_{BL_L}^G}{p_{BL_L}^G}\right)$$

Equation 341 Total public indebtedness, price

$$\Delta \ln\left(p_{BL_L}^G\right) = 0.8 \Delta \ln\left(p_{B_L}^G\right)$$

Equation 342 Public bonds issued, stock

$$\boldsymbol{p_{B_L}^{G} B_L^{G}} = \psi_{B_L}^G \boldsymbol{p_{BL_L}^{G} BL_L^G} \ \left\{= \psi_{B_L}^G \left(p_{B_L}^G B_L^G + L_L^G\right)\right\}$$

Equation 343 Public bonds issued, price

$$\ln(p_{B_L}^G) = -0.2 + 0.7 \ln(p_{B_{L-1}}^G) + 0.04 \ln\left(\frac{1}{r_L^G}\right)$$

Equation 344 Public debt securities held, other changes in volume (closes OCV for this instrument)

$$OCV_{B_L}^G = OCV_{B_A}^{F_G} + OCV_{B_A}^{B_G} + OCV_{B_A}^{CB_G} + OCV_{B_A}^{R_G}$$

Equation 345 Bonds issued, flow

$$\Delta^* B_L^G = \Delta B_L^G - \left(\frac{OCV_{B_L}^G}{p_{B_L}^G}\right)$$

Equation 346 Credit demand, flow

$$\Delta^* L_L^G = \boldsymbol{p_{BL_L}^{G}} \Delta^* \boldsymbol{BL_L^G} - \boldsymbol{p_{B_L}^{G}} \Delta^* \boldsymbol{B_L^G}$$

Equation 347 Credit demand, stock

$$L_L^G = L_{L-1}^G + \Delta^* L_L^G + reval_{L_L}^G + OCV_{L_L}^G$$

Equation 348 Financial wealth

$$FW^G = EH^G + D_A^{G_{CB}} + D_A^G + \boldsymbol{p}_{\boldsymbol{B_A}}^{\boldsymbol{G_R}}\boldsymbol{B}_{\boldsymbol{B_A}}^{\boldsymbol{G_R}} + \boldsymbol{p}_{\boldsymbol{B_A}}^{\boldsymbol{G}}\boldsymbol{B}_{\boldsymbol{B_A}}^{\boldsymbol{G}} + \boldsymbol{p}_{\boldsymbol{E_A}}^{\boldsymbol{G}}\boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{G}} + A_A^G + X_A^G + Z_A^G - D_L^G - \boldsymbol{p}_{\boldsymbol{B_L}}^{\boldsymbol{G}}\boldsymbol{B}_{\boldsymbol{L}}^{\boldsymbol{G}} - L_L^G$$

Equation 349 Net wealth

$$WLTH^G = \boldsymbol{p}_{\boldsymbol{K_1}}^{\boldsymbol{G}}\boldsymbol{K}_{\boldsymbol{1}}^{\boldsymbol{G}} + \boldsymbol{p}_{\boldsymbol{K_{12}}}^{\boldsymbol{G}}\boldsymbol{K}_{\boldsymbol{12}}^{\boldsymbol{G}} + \boldsymbol{p}_{\boldsymbol{K_2}}^{\boldsymbol{G}}\boldsymbol{K}_{\boldsymbol{2}}^{\boldsymbol{G}} + FW^G$$

Rest of the world

Equation 350 Wages paid

$$W_p^R \text{ exogenous}$$

Equation 351 Labor contributions paid

$$LC_p^R = \beta_{LC}^R W_p^R$$

Equation 352 Import taxes (on value added), paid as a fraction of imports

$$T_P^R = \theta_{T_P}^R \boldsymbol{p}_{\boldsymbol{IM}}\boldsymbol{IM}$$

Equation 353 Subsidies on production paid

$$Sub^R \text{ exogenous}$$

Equation 354 Other subsidies on production paid

$$Sub_p^R \text{ exogenous}$$

Equation 355 Interests received

$$Int_r^R = r_A^R(D_{A-1}^R + \boldsymbol{p}_{\boldsymbol{B_{A-1}}}^{\boldsymbol{R_G}}\boldsymbol{B}_{\boldsymbol{A-1}}^{\boldsymbol{R_G}} + \boldsymbol{p}_{\boldsymbol{B_{A-1}}}^{\boldsymbol{R}}\boldsymbol{B}_{\boldsymbol{A-1}}^{\boldsymbol{R}} + L_{A-1}^R)$$

Equation 356 Interests paid

$$Int_p^R = r_L^R\left(D_{L-1}^R + \boldsymbol{p}_{\boldsymbol{B_{L-1}}}^{\boldsymbol{R}}\boldsymbol{B}_{\boldsymbol{L-1}}^{\boldsymbol{R}} + L_{L-1}^R\right) + r_{€}TGT2_{-1}$$

Equation 357 Dividends paid

$$Div_p^R = \gamma_{Div_p}^R \boldsymbol{p}_{\boldsymbol{E_{L-1}}}^{\boldsymbol{R}}\boldsymbol{E}_{\boldsymbol{L-1}}^{\boldsymbol{R}}$$

Equation 358 Dividends received

$$Div_r^R = Div_p^F + Div_p^B + Div_p^{CB} + Div_p^R - Div_r^F - Div_r^B - Div_r^{CB} - Div_r^G - Div_r^H$$

Equation 359 Reinvested earnings on FDI paid

$$RFDI_p^R = r_{FDI}^{R_p}\boldsymbol{p}_{\boldsymbol{E_{L-1}}}^{\boldsymbol{R}}\boldsymbol{E}_{\boldsymbol{L-1}}^{\boldsymbol{R}}$$

Equation 360 Reinvested earnings on FDI received

$$RFDI_r^R = r_{FDI}^{R_r}\boldsymbol{p}_{\boldsymbol{E_{A-1}}}^{\boldsymbol{R}}\boldsymbol{E}_{\boldsymbol{A-1}}^{\boldsymbol{R}}$$

Equation 361 Property income attributed to insurance policy holders received

$$INS_r^R = r_{A_A}^R A_{A-1}^R$$

Equation 362 Import duties (paid on foreign income)

$$T^R \text{ exogenous}$$

Equation 363 Social contributions paid

$$SC_p^R \text{ exogenous}$$

Equation 364 Social contributions received

$$SC_r^R = \theta_{SC}^R(SC_p^H + SC_p^R)$$

Equation 365 Social benefits received

$$SB_r^R = \beta_{SB_r}^R \boldsymbol{p}_{\boldsymbol{Y}}\boldsymbol{Y}$$

Equation 366 Social benefits paid

$$SB_p^R \text{ exogenous}$$

Equation 367 Exports of goods and services (volume)

$$\Delta\ln(X) = -0.06 + 0.2\Delta\ln(X_{-1}) + 3.2\Delta\ln(Y^f) - 0.2\Delta\ln\left(\frac{p_X}{p_{X*}}\right) - 0.1vc_{-1}$$

$$vc = \ln(X) + 9.8 - 1.5\ln(Y^f) + 0.3\ln\left(\frac{p_X}{p_{X*}}\right)$$

Equation 368 Price of exports of goods and services

$$\Delta\ln(p_X) = -0.01 + 0.3\Delta\ln(p_{X*}) + 0.6\Delta\ln(p_C^H) - 0.4vc_{-1}$$

$$vc = \ln(p_X) - 0.06 - 0.6\ln(p_{X*}) - 0.2\ln(p_C^H)$$

Equation 369 Imports of goods and services (volume)

$$\Delta\ln(IM) = 2\Delta\ln(Y) - 0.5vc_{-1}$$

$$vc = \ln(IM) + 9 - 1.9\ln(Y) + 0.2\ln(p_{IM}) - 0.01t$$

Equation 370 Price of imports of goods and services

$$p_{IM} \text{ exogenous}$$

Equation 371 Financing capacity/need → (−) current account

$$FCN^R = \boldsymbol{p}_{\boldsymbol{IM}}\boldsymbol{IM} - \boldsymbol{p}_{\boldsymbol{X}}\boldsymbol{X} + W_r^R - W_p^R + LC_r^R - LC_p^R + T_L^R - Sub^R - Sub_p^R + T_P^R + Int_r^R - Int_p^R + Div_r^R - Div_p^R + RFDI_r^R - RFDI_p^R + INS_r^R - T^R + SC_r^R - SC_p^R + SB_r^R - SB_p^R + Tr_r^R + Tr_{K_r}^R - Tr_{K_p}^R$$

Equation 372 Unwritten equilibrium of goods and services with the rest of the world ($\boldsymbol{S - I - Current\ account = 0}$)

$$\sum_i FCN^i = 0 \quad \text{for } i = F, B, G, H, R$$

Equation 373 Bills and coins, stock (0 before 2002)

$$H^R = \eta_H \boldsymbol{p}_{\boldsymbol{Y}}\boldsymbol{Y}$$

Equation 374 Bills and coins, flow

$$\Delta^* H^R = \Delta H^R - OCV_H^R$$

Equation 375 Deposits held by foreigners, flow

$$\left(\frac{\Delta^* D_A^R}{\boldsymbol{p}_{\boldsymbol{Y}}\boldsymbol{Y}}\right) = -0.01 + 0.3\left(\frac{\Delta^* D_{A-1}^R}{\boldsymbol{p}_{\boldsymbol{Y-1}}\boldsymbol{Y}_{\boldsymbol{-1}}}\right) + 0.7\left(\frac{\Delta Y}{Y_{-1}}\right) + 0.3\left(\frac{\Delta Y_{-1}}{Y_{-2}}\right) + 0.1(i_{10yrs} - i^{LT*})$$

Equation 376 Deposits held by foreigners, stock

$$D_A^R = D_{A-1}^R + \Delta^* D_A^R + reval_{D_A}^R + OCV_{D_A}^R$$

Equation 377 Pulic debt securities held by the RoW, flow

$$\left(\frac{\boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{R_G}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{R_G}}}{\boldsymbol{p_Y Y}}\right) = 0.5\left(\frac{\boldsymbol{p}_{\boldsymbol{B}_{A-1}}^{\boldsymbol{R_G}}\Delta^*\boldsymbol{B}_{\boldsymbol{A-1}}^{\boldsymbol{R_G}}}{\boldsymbol{p_{Y-1}Y_{-1}}}\right) + 0.4\left(\frac{\Delta Y_{-1}}{Y_{-2}}\right) - 0.06\left(i_{-1}^{LT*} - \frac{\Delta NEER_{-1}}{NEER_{-2}}\right)$$

Equation 378 Public debt securities held by the RoW, stock

$$B_A^{R_G} = B_{A-1}^{R_G} + \Delta^* B_A^{R_G} + \left(\frac{OCV_{B_A}^{R_G}}{p_{B_A}^{R_G}}\right)$$

Equation 379 Public debt securities held by the RoW, price

$$\Delta p_{B_A}^{R_G} = \left(\frac{B_{L-1}^{G}}{B_{A-1}^{R_G}}\right)\Delta p_{B_L}^{G} - \sum_i \left(\frac{B_{A-1}^{i_G}}{B_{A-1}^{R_G}}\right)\Delta p_{B_A}^{i_G} \quad \text{for } i = F, B, CB$$

Equation 380 Other debt securities held by the RoW, flow

$$\left(\frac{\Delta^* B_A^R}{B_{A-1}^R}\right) = 0.04 + 0.4\left(\frac{\Delta^* B_{A-1}^R}{B_{A-2}^R}\right) + 0.8\left(\frac{\Delta Y_{-1}}{Y_{-2}}\right) + 0.7\left(i_{10yr} - i^{LT*}\right)$$

Equation 381 Other debt securities held by the RoW, price

$$p_{B_A}^R = \eta_{p_{BA}}^R p_{B_L}^F$$

Equation 382 Other debt securities held by the RoW, stock

$$B_A^R = B_{A-1}^R + \Delta^* B_A^R + \left(\frac{OCV_{B_A}^R}{p_{B_A}^R}\right)$$

Equation 383 Loans held by the RoW, flow

$$\left(\frac{\Delta^* L_A^R}{L_{A-1}^R}\right) = 0.04 + 1.6\left(i_{-1}^{LT_{cr}} - i_{-1}^{LT*}\right)$$

Equation 384 Loans held by the RoW, stock

$$L_A^R = L_{A-1}^R + \Delta^* L_A^R + reval_{L_A}^R + OCV_{L_A}^R$$

Equation 385 Domestic equities held by the RoW, stock (includes inward FDI)

$$E_A^R = E_{A-1}^R + \Delta^* E_A^R + \left(\frac{OCV_{E_A}^{R_{FR}}}{p_{E_A}^R}\right)$$

Equation 386 Domestic equities held by the RoW, flow (includes inward FDI)

$$\frac{\Delta^* E_A^R}{E_{A-1}^R} = 0.02 + 0.6\frac{\Delta^* E_{A-1}^R}{E_{A-2}^R} + 0.04\left(r_{E_A}^R - \pi_Y\right)$$

Equation 387 Equities held by the RoW, price

$$p_{E_A}^R = \eta_{p_{EA}}^R p_E^{FR}$$

Equation 388 Profitability of equities held by the RoW

$$r_{E_A}^R = \left(\frac{E_{A-1}^R \Delta p_{E_A}^R + Div_r^R}{\boldsymbol{p}_{\boldsymbol{E}_{\boldsymbol{A-1}}}^{\boldsymbol{R}}\boldsymbol{E}_{\boldsymbol{A-1}}^{\boldsymbol{R}}}\right)$$

Equation 389 Insurance, pension funds and standardized guarantee schemes held by the RoW, stock

$$A_A^R = \eta_{AR}\boldsymbol{p_Y Y}$$

Equation 390 Insurance, pension funds and standardized guarantee schemes held by the RoW, flow

$$\Delta^* A_A^R = \Delta A_A^R - reval_{A_A}^R - OCV_{A_A}^R$$

Equation 391 Refinancing, flow

$$\Delta^* RF^R \quad \text{exogenous}$$

Equation 392 Refinancing, stock

$$RF^R = RF_{-1}^R + \Delta^* RF^R + OCV_{RF}^R$$

Equation 393 Deposits received by the RoW, stock

$$D_L^R = D_{L-1}^R + \Delta^* D_L^R + reval_{D_L}^R + OCV_{D_L}^R$$

Equation 394 Deposits received by RoW, **closes the rest of the world's account**

$$\Delta^* D_L^R = \Delta^* H^R + \Delta^* D_A^R + \boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{R_G}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{R_G}} + \boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{R}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{R}} + \Delta^* L_A^R + \boldsymbol{p}_{\boldsymbol{E}_A}^{\boldsymbol{R}}\Delta^*\boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{R}} + \Delta^* A_A^R + \Delta^* Z_A^R - Adj^R - FCN^R - \boldsymbol{p}_{\boldsymbol{G}}^{\boldsymbol{CB}}\Delta^*\boldsymbol{G}^{\boldsymbol{CB}} - \Delta^* RF^R - \Delta^* TRGT2 - \boldsymbol{p}_{\boldsymbol{B}_L}^{\boldsymbol{R}}\Delta^*\boldsymbol{B}_{\boldsymbol{L}}^{\boldsymbol{R}} - \Delta^* L_L^R - \boldsymbol{p}_{\boldsymbol{E}_L}^{\boldsymbol{R}}\Delta^*\boldsymbol{E}_{\boldsymbol{L}}^{\boldsymbol{R}} - \Delta^* X_L^R$$

Equation 395 Debt securities issued by the RoW, flow; **closes the line** for foreign debt securitities

$$\boldsymbol{p}_{\boldsymbol{B}_L}^{\boldsymbol{R}}\Delta^*\boldsymbol{B}_{\boldsymbol{L}}^{\boldsymbol{R}} = \boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{F_R}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{F_R}} + \boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{B_R}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{B_R}} + \boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{CB_R}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{CB_R}} + \boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{G_R}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{G_R}} + \boldsymbol{p}_{\boldsymbol{B}_A}^{\boldsymbol{H_R}}\Delta^*\boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{H_R}}$$

Equation 396 Debt securities issued by the RoW, price

$$p_{B_L}^R \quad \text{exogenous}$$

Equation 397 Debt securities issued by the RoW, stock

$$B_L^R = B_{L-1}^R + \Delta^* B_L^R + \left(\frac{OCV_{B_L}^R}{p_{B_L}^R}\right)$$

Equation 398 Debt securities issued by the RoW, other changes in volume (closes OCV for this instrument)

$$OCV_{B_L}^R = \sum_i OCV_{B_A}^{i_R} \quad \text{for} \quad i = F, B, CB, G, H$$

Equation 399 Credit demand by the RoW, flow (accumulation rate)

$$\left(\frac{\Delta^* L_L^R}{L_{L-1}^R}\right) = 0.4\left(\frac{\Delta^* L_{L-1}^R}{L_{L-2}^R}\right) + 0.7\left(i^{LT*} - \frac{\Delta NEER}{NEER_{-1}}\right)$$

Equation 400 Credit demand by the RoW, stock

$$L_L^R = L_{L-1}^R + \Delta^* L_L^R + reval_{L_L}^R + OCV_{L_L}^R$$

Equation 401 Foreign equities held by domestic agents, stock (includes outward FDI)

$$E_L^R = E_{L-1}^R + \Delta^* E_L^R + \left(\frac{OCV_{E_L}^R}{p_{E_L}^R}\right)$$

Equation 402 Foreign equities held by domestic agents, flow (includes outward FDI), value

$$\boldsymbol{p}_{\boldsymbol{E}_L}^{\boldsymbol{R}}\Delta^*\boldsymbol{E}_{\boldsymbol{L}}^{\boldsymbol{R}} = \boldsymbol{p}_{\boldsymbol{E}_A}^{\boldsymbol{F_R}}\Delta^*\boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{F_R}} + \boldsymbol{p}_{\boldsymbol{E}_A}^{\boldsymbol{B_R}}\Delta^*\boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{B_R}} + \boldsymbol{p}_{\boldsymbol{E}_A}^{\boldsymbol{CB_R}}\Delta^*\boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{CB_R}} + \boldsymbol{p}_{\boldsymbol{E}_A}^{\boldsymbol{G_R}}\Delta^*\boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{G_R}} + \boldsymbol{p}_{\boldsymbol{E}_A}^{\boldsymbol{H_R}}\Delta^*\boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{H_R}}$$

Equation 403 Foreign equities held by domestic agents, other changes in volume (closes OCV for this instrument)

$$OCV_{E_L}^R = \sum_i OCV_{E_A}^{i_R} \quad \text{for } i = F, B, CB, G, H$$

Equation 404 Foreign equities held by domestic agents, price (includes outward FDI)

$$\Delta p_{E_L}^R = \sum_i \left(\frac{E_{A-1}^{i_R}}{E_{L-1}^R}\right) \Delta p_{E_A}^{i_R} \quad \text{for } i = F, B, CB, G, H$$

Equation 405 Profitability of equities issued by the RoW

$$r_{E_L}^R = \left(\frac{E_{L-1}^R \Delta p_{E_L}^R + Div_p^R}{\boldsymbol{p}_{E_{L-1}}^{\boldsymbol{R}} \boldsymbol{E}_{\boldsymbol{L-1}}^{\boldsymbol{R}}}\right)$$

Equation 406 Target 2

$$TRGT2 \quad \text{exogenous}$$

Equation 407 Monetary gold and Special Drawing Rights, stock

$$G^{CB} = G_{-1}^{CB} + \Delta^* G^{CB} + \left(\frac{OCV_G^{CB}}{p_G^{CB}}\right)$$

Equation 408 Monetary gold and Special Drawing Rights, flow

$$p_G^{CB} \Delta^* G^{CB} \quad \text{exogenous}$$

Equation 409 Monetary gold and Special Drawing Rights, price

$$\Delta \ln(p_G^{CB}) = 0.4 \Delta \ln(p_{gold}) - 0.3 vc_{-1}$$

$$vc = \ln(p_G^{CB}) + 4.1 - 0.9 \ln(p_{gold})$$

Equation 410 Financial derivatives and employee stock options, stock (net)

$$X_L^R = \eta_{X_L}^R \boldsymbol{p_Y Y}$$

Equation 411 Financial derivatives and employee stock options, flow (net)

$$\Delta^* X_L^R = \Delta X_L^R - reval_{X_L}^R - OCV_{X_L}^R$$

Equation 412 Other accounts payable/receivable, stock

$$Z_A^R = Z_{A-1}^R + \Delta^* Z_A^R + reval_{Z_A}^R + OCV_{Z_A}^R$$

Equation 413 Other accounts payable/receivable, flow; closes the instrument

$$\Delta^* Z_A^R = -\sum_i \Delta^* Z_A^i \quad \text{for } i = F, B, CB, G, H$$

Equation 414 Other accounts payable/receivable, other changes in volume (closes OCV for this instrument)

$$OCV_{Z_A}^R = -\sum_i OCV_{Z_A}^i \quad \text{for } i = F, B, CB, G, H$$

Equation 415 Net wealth

$$\begin{aligned} WLTH^R = H^R + \boldsymbol{p}_{D_A}^{\boldsymbol{R}} \boldsymbol{D}_{\boldsymbol{A}}^{\boldsymbol{R}} + \boldsymbol{p}_{B_A}^{\boldsymbol{R_G}} \boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{R_G}} + \boldsymbol{p}_{B_A}^{\boldsymbol{R}} \boldsymbol{B}_{\boldsymbol{A}}^{\boldsymbol{R}} + \boldsymbol{p}_{L_A}^{\boldsymbol{R}} \boldsymbol{L}_{\boldsymbol{A}}^{\boldsymbol{R}} + \boldsymbol{p}_{E_A}^{\boldsymbol{R}} \boldsymbol{E}_{\boldsymbol{A}}^{\boldsymbol{R}} \\ + A_A^R + Z_A^R - \boldsymbol{p}_G^{\boldsymbol{CB}} \boldsymbol{G}^{\boldsymbol{CB}} - RF^R - \boldsymbol{p}_{D_L}^{\boldsymbol{R}} \boldsymbol{D}_{\boldsymbol{L}}^{\boldsymbol{R}} \\ - TRGT2 - \boldsymbol{p}_{B_L}^{\boldsymbol{R}} \boldsymbol{B}_{\boldsymbol{L}}^{\boldsymbol{R}} - L_L^R - \boldsymbol{p}_{E_L}^{\boldsymbol{R}} \boldsymbol{E}_{\boldsymbol{L}}^{\boldsymbol{R}} - X_L^R \end{aligned}$$

Prices, wages, employment and interest rates

Equation 416 General price index (GDP deflator, excludes inventories and valuables)

$$p_{Y_{no\Delta s}} = \left(\frac{\boldsymbol{p}_C^H \boldsymbol{C}^H + \boldsymbol{p}_C^G \boldsymbol{C}^G + \boldsymbol{p}_{I_1}^F \boldsymbol{I}_1^F + \boldsymbol{p}_{I_1}^B \boldsymbol{I}_1^B + \boldsymbol{p}_{I_1}^G \boldsymbol{I}_1^G + \boldsymbol{p}_{I_1}^H \boldsymbol{I}_1^H + \boldsymbol{p}_X \boldsymbol{X} - \boldsymbol{p}_{IM} \boldsymbol{IM}}{C^H + C^G + I_1^F + I_1^B + I_1^G + I_1^H + X + IM}\right)$$

Equation 417 General price index (GDP deflator)

$$p_Y = \gamma_{\Delta s} p_{Y_{no\Delta s}}$$

Equation 418 Unit labor costs, market sector

$$ULC^M = \left(\frac{W^M + LC^M + LCW_p^{H_M} + T_{L_p}^M}{va^M}\right)$$

$$ULC^M = \left(\frac{W^M (1 + \theta_{SC}^{H_M}) + LC^M + T_{L_p}^M}{va^M}\right)$$

With $\boldsymbol{LC^M} = \boldsymbol{LC_p^F} + \boldsymbol{LC_p^B} + \boldsymbol{LC_p^H}$ and $\boldsymbol{T_{L_p}^M} = \boldsymbol{T_{L_p}^F} + \boldsymbol{T_{L_p}^B} + \boldsymbol{T_{L_p}^H}$ and $\boldsymbol{LCW_p^{H_M}} = \boldsymbol{\theta_{SC}^{H_M} W^M}$

Equation 419 Wages paid, market sector

$$W^M = w^M N^{S_M}$$

Equation 420 Total wages paid in France

$$W = W^M + W_p^G$$

Equation 421 Employment in the market sector (salaried + non-salaried)

Note: vc is obtained from the estimate equation for output per worker in the market sector

$$\Delta \ln(N^M) = 0.2 \Delta \ln(N_{-1}^M) + 0.5 \Delta \ln(va^M) - 0.4 vc_{-1}$$

$$vc = \ln(N^M) + \frac{[0.2 \ln(K_1^M) + 0.02t - 0.01t_{1992} - 0.007t_{2008} + 2.1 - \ln(va^M)]}{(1 - 0.2)}$$

Equation 422 Non-salaried workers (total household employment = salaried + non-salaried), market sector

$$N^{NS} = N^M - N^{S_M}$$

Equation 423 Salaried employment, share of total employment (market sector)

$$\ln\left(\frac{N^{S_M} * 100}{N^M}\right) = 1.2 + 0.7 \ln\left(\frac{N_{-1}^{S_M} * 100}{N_{-1}^M}\right) + 0.001t - 0.002t_{2002-end}$$

Equation 424 Firms' workers

$$N^F = N^M - N^B - N^H$$

Equation 425 Total employment

$$N = N^M + N^G$$

Equation 426 Salaried workers, households

$$N^{H_S} = N^H - N^{NS}$$

Equation 427 Public sector (i.e. non-market sector) workers

$$N^G = N^{NM} \quad \text{exogenous}$$

Equation 428 Banks and households workers

$$N^i = \gamma_N^i N^M \quad \text{for} \quad i = B, H$$

Equation 429 Wage per worker, market sector

$$\Delta \ln\left(\frac{W^M}{N^{S_M}}\right) = \Delta \ln(w^M) = -0.1 + 0.9\Delta \ln(p_C^H) + 0.6\Delta \ln\left(\frac{va^M}{N^M}\right) - 0.04 \ln(u) - 0.2vc_{-1}$$

$$vc = \ln(w^M) + 1.5 - 0.7 \ln(p_C^H) - 1.1 \ln\left(\frac{va^M}{N^M}\right)$$

Equation 430 Wage per worker paid by firms

$$\Delta \ln\left(w_p^F\right) = 0.5\Delta \ln\left(w_{p-1}^F\right) + \Delta \ln(w^M) - 0.5\Delta \ln(w_{-1}^M) - 0.2vc_{-1}$$

$$vc = \ln\left(w_p^F\right) + 0.02 - \ln(w^M)$$

Equation 431 Wage per worker paid by banks

$$\Delta \ln\left(w_p^B\right) = 0.01 + 0.9\Delta \ln(w^M) - 0.1vc_{-1}$$

$$vc = \ln\left(w_p^B\right) + 0.2 - 1.2 \ln(w^M)$$

Equation 432 Wage per worker paid by the public sector

$$\Delta \ln\left(w_p^G\right) = 0.5\Delta \ln\left(w_{p-1}^G\right) + 0.4\Delta \ln(w^M) - 0.1vc_{-1}$$

$$vc = \ln\left(w_p^G\right) + 0.3 - \ln(w^M)$$

Equation 433 Produced non-financial assets of the market sector, stock

$$K_1^M = K_1^F + K_1^B + K_1^H$$

Equation 434 Unemployment (number of unemployed)

$$U = AP - N$$

Equation 435 Unemployment rate

$$u = \left(\frac{U}{AP}\right)$$

Equation 436 Active population

$$\Delta \ln(AP) = 0.5\Delta \ln(N) + 0.5\Delta \ln(TAP) - 0.3vc_{-1}$$

$$vc = \ln(AP) - 0.5 \ln(N) - 0.4 \ln(TAP) - 0.002t$$

Equation 437 Interest rate received by firms

$$r_A^F = \left(\frac{Int_{r-1}^F}{D_{A-2}^F + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{F_G}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{F_G}} + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{F_R}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{F_R}} + L_{A-2}^F}\right)(1 - 0.06) + 0.06r_€$$

Equation 438 Interest rate paid by firms

$$r_L^F = \left(\frac{Int_{p-1}^F}{\boldsymbol{p}_{\boldsymbol{B_L-2}}^{\boldsymbol{F}} \boldsymbol{B}_{\boldsymbol{L-2}}^{\boldsymbol{F}} + L_{L-2}^F}\right)(1 - 0.04) + 0.04i_{10yrs}$$

Equation 439 Interest rate received by households

$$r_A^H = \left(\frac{Int_{r-1}^H}{D_{A-2}^H + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{H_R}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{H_R}} + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{H}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{H}}}\right)(1 - 0.11) + 0.11r_€$$

Equation 440 Interest rate paid by households

$$r_L^H = \left(\frac{Int_{p-1}^H}{L_{L-2}^F}\right)(1 - 0.32) + 0.32i_{10yrs}$$

Equation 441 Interest rate received by banks

$$r_A^B = \left(\frac{Int_{r-1}^B}{D_{A-2}^B + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{B_G}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{B_G}} + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{B_R}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{B_R}} + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{B}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{B}} + L_{A-2}^B}\right)(1 - 0.2) + 0.2i_{10yrs}$$

Equation 442 Interest rate paid by banks

$$r_L^B = \left[\frac{(Int_{p-1}^B - r_{€-1}RF_{-2})}{D_{L-2}^B + \boldsymbol{p}_{\boldsymbol{B_L-2}}^{\boldsymbol{B}} \boldsymbol{B}_{\boldsymbol{L-2}}^{\boldsymbol{B}}}\right](1 - 0.22) + 0.22i_{10yrs}$$

Equation 443 Interest rate received by the government

$$r_A^G = \left[\frac{(Int_{p-1}^G - r_{D-1}D_{A-2}^{CB_G})}{D_{A-2}^G + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{G_R}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{G_R}} + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{G}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{G}}}\right](1 - 0.28) + 0.28r_€$$

Equation 444 Interest rate paid by the government

$$r_L^G = \left[\frac{Int_{p-1}^G}{D_{L-2}^G + \boldsymbol{p}_{\boldsymbol{B_L-2}}^{\boldsymbol{G}} \boldsymbol{B}_{\boldsymbol{L-2}}^{\boldsymbol{G}} + L_{L-2}^G}\right](1 - 0.11) + 0.11i_{10yrs}$$

Equation 445 Interest rate received by the rest of the world

$$r_A^R = \frac{Int_{r-1}^R}{D_{A-2}^R + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{R_G}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{R_G}} + \boldsymbol{p}_{\boldsymbol{B_A-2}}^{\boldsymbol{R}} \boldsymbol{B}_{\boldsymbol{A-2}}^{\boldsymbol{R}} + L_{A-2}^R}(1 - 0.14) + 0.14i_{10yrs}$$

Equation 446 Interest rate paid by the rest of the world

$$r_L^R \quad \text{exogeneous}$$

Equation 447 Interest rate on credit, long-term

$$i^{LT_{cr}} = 1.3 + 0.9i_{10yrs}$$

Equation 448 Interest rate on deposits, short-term

$$r_D = 1.4 + 0.5r_€$$

Equation 449 Interest rate ECB

$$r_€ = r_{CB} \text{ exogeneous}$$

Equation 450 Long-term interest rate, 10-yr public bonds

$$i_{10yr} \quad \text{exogenous}$$

Exogenous parameters and variables

Exogenous parameters change over time (thus, they do not have a single value), depending on the values of the variables of the corresponding equations they belong to. Example, α_{VA}^{H} (in Equation 7) is calculated as $\alpha_{VA}^{H} = VA^{H}/(VA - VA^{B} - VA^{G})$, so that the parameter varies across periods. Note that $\theta_{RES-D_L^B}$ does not appear in the system of equations for simulations starting after 2007.

In the projections, exogenous parameters are either given the last value or they follow a trend (increasing or decreasing). The same is also true for exogenous variables. For variables related to the ocv or revaluation, example $OCV_{D_L}^{B}$ (in Equation 220), they are exogenous in the projection and are set to zero.

Exogenous parameters

$\alpha_{VA}^{H}, \alpha_{VA}^{B}, \alpha_{VA}^{G}, \kappa, \gamma_{\Delta s}, \gamma_{N}^{B}, \gamma_{N}^{H}$

$\beta_{LC}^{F}, \beta_{TL}^{F}, \gamma_{div_p}^{F}, \gamma_{div_r}^{F}, r_{FDI}^{F}, r_{A_A}^{F}, rent_{p}^{F}, \theta_{T}^{F}, \gamma_{SB_p}^{F}, \theta_{SC}^{F}, \theta_{Tr_p}^{F}, \theta_{NP_p}^{F}, \theta_{TrK_r}^{F}, \theta_{p_{K1}}^{F}, \delta_{K_1}^{F}, \psi_{H}^{F}, \psi_{EH}^{F}, \psi_{F1}, \psi_{p_{BA}}^{F_G}, \psi_{F2}, \psi_{p_{BA}}^{F_R}, \psi_{p_{EA}}^{F_R}, \psi_{A_A}^{F}, \theta_{Z}^{F}, \theta_{p_{E_L}}^{F},$

$\beta_{LC}^{H}, \beta_{TL}^{H}, \gamma_{div_r}^{H}, r_{A_A}^{H}, rent_{r}^{H}, \theta_{T}^{H}, \theta_{SC}^{H}, \theta_{NP_p}^{H}, \theta_{Tr_K}^{H}, \delta_{K_1}^{H}, \psi_{H}^{H}, \psi_{EH}^{H}, \psi_{D_A}^{H}, \psi_{B_A}^{H_R}, \psi_{p_{BA}}^{H_R}, \psi_{B_A}^{H}, \psi_{p_{BA}}^{H}, \psi_{E}^{H}, \eta_{p_{EA}}^{H_{FR}}, \psi_{Z}^{H}$

$\beta_{LC}^{B}, \beta_{TL}^{B}, \gamma_{div_p}^{B}, \gamma_{div_r}^{B}, r_{FDI_A}^{B}, r_{FDI_L}^{B}, \theta_{T}^{B}, \theta_{SC}^{B}, \theta_{SB_p}^{B}, \theta_{Tr_r}^{B}, \theta_{Tr_p}^{B}, \theta_{NP}^{B}, \theta_{Tr_K}^{B}, \delta_{K_1}^{B}, \psi_{p_{K2}}^{B}, \psi_{H}^{B}, \psi_{D}^{B}, \psi_{B_A}^{B_G}, \eta_{p_{EA}}^{B_{FR}}, \theta_{p_{EL}}^{B}, \psi_{B_A}^{B_G}$

$\gamma_{D_A}^{CB}, \gamma_{D_L}^{CB}, \gamma_{B_A}^{CB_G}, \gamma_{p_{BA}}^{CB_G}, \gamma_{B_A}^{CB_R}, \gamma_{p_{BA}}^{CB_R}, \gamma_{B_A}^{CB}, \gamma_{p_{BA}}^{CB}, \gamma_{L_A}^{CB}, \varphi_{RF}^{CB}, \varphi_{E_A}^{CB_{FR}}, \varphi_{E_A}^{CB_R}, \theta_{Z}^{CB}, \varphi_{E}^{CB}$

$\beta_{LC}^{G}, \beta_{TL}^{G}, \theta_{TPO}, \gamma_{div_r}^{G}, rent_{r}^{G}, \beta_{Tr_p}^{G}, \beta_{NP}^{G}, \psi_{p_{K2}}^{G}, \psi_{EH}^{G}, \psi_{D_A}^{G_{CB}}, \psi_{D_A}^{G}, \psi_{B_A}^{G_R}, \psi_{p_{BA}}^{G_R}, \psi_{p_{BA}}^{G}, \psi_{E_A}^{G}, \psi_{E}^{G}, \psi_{A}^{G}, \psi_{X_A}^{G}, \psi_{Z}^{G}, \psi_{D_L}^{G}$

$\beta_{LC}^{R}, \theta_{T_P}^{R}, \gamma_{Div_p}^{R}, r_{FDI}^{R_p}, r_{FDI}^{R_r}, r_{A_A}^{R}, \theta_{SC}^{R}, \beta_{SB_r}^{R}, \eta_{H}, \eta_{p_{BA}}^{R}, \eta_{p_{EA}}^{R}, \eta_{AR}, \eta_{X_L}^{R}$

Exogenous variables

$Sub_{r}^{F}, p_{K_{12}}^{F}, p_{E}^{FR}, Sub_{r}^{H}, \boldsymbol{p_{I_{12}}^{H}} \boldsymbol{I_{12}^{H}}, p_{E_A}^{H_R}, Sub_{r}^{B}, EH_{L}^{CB}, p_{E_A}^{CB_{FR}}, p_{E_A}^{CB_R}, \boldsymbol{p_{E_L}^{CB}} \boldsymbol{E_{L}^{CB}}, Sub, Sub_{r}^{G}, INS_{r}^{G}, SB_{p}^{G}, C^{G}, I_{1}^{G}, \boldsymbol{p_{B_A}^{G}} \boldsymbol{B_{A}^{G}}, p_{E_A}^{G_R}$

$W_{p}^{R}, Sub^{R}, Sub_{p}^{R}, T^{R}, SC_{p}^{R}, SB_{p}^{R}, p_{IM}, \Delta^{*}RF^{R}, p_{B_L}^{R}, TRGT2, \boldsymbol{p_{G}^{CB}} \Delta^{*} \boldsymbol{G^{CB}}, N^{G}, N^{NM}, r_{L}^{R}, r_{€}, r_{CB}, i_{10yr}, p_{E}^{*}, DepRatio_{old}, Y^{f}, p_{X*}, NEER, i^{LT*}, p_{gold}, TAP$