

LUMIA

DETTE EXTÉRIEURE: ANALYSE ET MESURE

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www.developingfinance.org

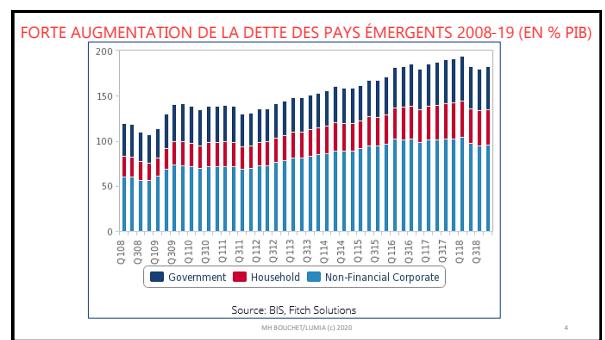
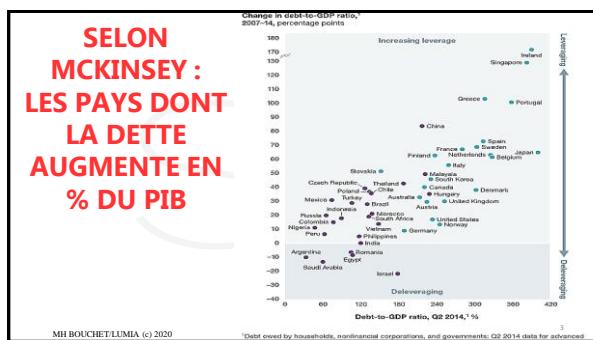
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- Reinhart C., Rogoff K.: This time it's different (Princeton, 2009)
- Paris Club 2020
- IIF 2020
- IMF, annual report 2020
- BIS reports 2020
- C-Bonds website

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2



ANALYSE DE L'ENDETTEMENT EXTÉRIEUR

Points majeurs:

1. Conséquences de la croissance financée par endettement extérieur et pression sur la balance des paiements
2. Structure de la dette: CT/LT, taux de change, maturités, taux d'intérêt, profil d'échéancier, créanciers
3. Ratios de solvabilité et de liquidité
4. Indicateurs avancés de crise financière: chocs extérieurs
5. Restructuration de la dette: rééchelonnement, swaps, refinancement, réduction et programmes de conversion

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5

LA DETTE TOTALE DES PAYS EN DEVELOPPEMENT EN 2020?

Dette totale: \$7800 milliards (a doublé depuis 2008!)

Dont:

- Publique: \$3000
- Privée: \$2600
- Court terme: \$2100

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6

CONDITIONS D'ÉQUILIBRE FINANCIER

Le revenu disponible?

$Y = \text{revenu brut} - \text{importations \& taxes} + \text{entrées de K}$

$$Y = C + I + G + X - M - T + (K_m - K_f)$$

Epargne = $Y - C$

$$(S - I) + (T - G) = (X - M) + (K_m - K_f)$$

Epargne nette Balance fiscale Balance commerciale Flux de K nets

STIMULER L'ÉPARGNE POUR FINANCER L'INVESTISSEMENT SANS DÉFICIT?

si $S < I \Rightarrow X < M$

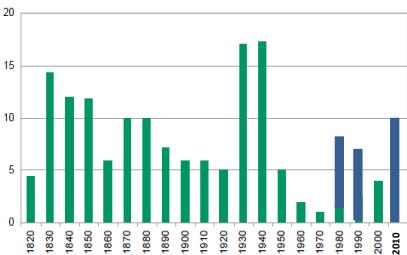
► a trade imbalance is always rooted in low savings and excessive domestic spending (absorption).

► It requires macroeconomic correction (interest rate hike, devaluation, ↑ taxation, credit reduction, ↑ reserve requirements...)

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8

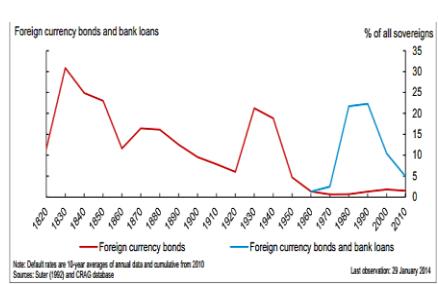
1. NOMBRE DE PAYS DÉBITEURS EN DÉFAUT /AN



Source : Standard and Poor's, Crédit Agricole S.A.

9

2. PROPORTION DE DÉFAUT SOUVERAIN SUR PRÊTS BANCAIRES ET OBLIGATIONS



Note: Default rates are 10-year averages of annual data and cumulative from 2010

Sources: Sater (1992) and CRAG database

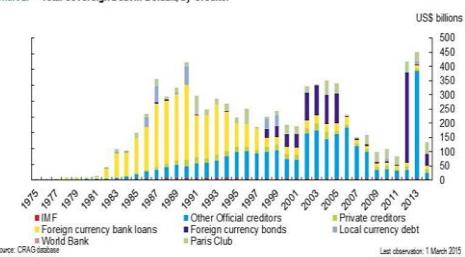
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Last observation: 31 January 2014

10

3. VOLUME DE DETTE EN DÉFAUT PAR TYPE DE CRÉANCIER

Chart 2: Total Sovereign Debt in Default, by Creditor

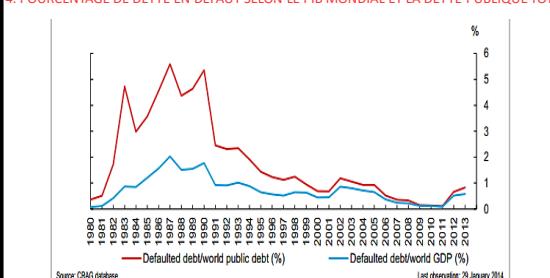


Source: CRAG database

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11

4. POURCENTAGE DE DETTE EN DÉFAUT SELON LE PIB MONDIAL ET LA DETTE PUBLIQUE TOTALE

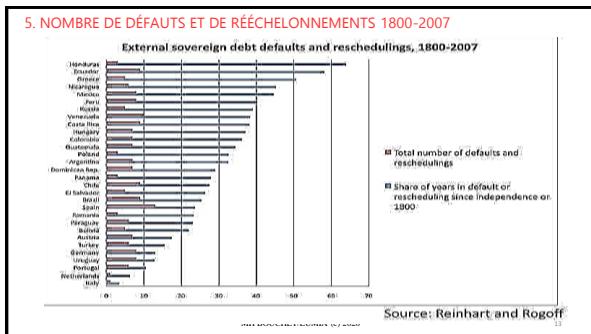


Source: CRAG database

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Last observation: 23 January 2014

12



Fitch-Rated Sovereign IDR Defaults (1995–2011)

Argentina: Defaulted on more than USD80 billion of sovereign foreign currency bonds in December 2001, most of which were held by non-residents. Debt default partially cured in 2005, but some holdout investors remained, constraining the rating to 'RD' until July 2010.

Dominican Republic: Distressed debt exchange in 2005 affected more than USD1.1 billion of eligible foreign currency-denominated bond debt.

Ecuador: Missed coupon payment on its 2012 global bonds followed by an announcement that the government would selectively default on all global bonds. The rating was lowered to 'RD' in December 2008.

Indonesia: Paris and London Club rescheduling operations in June 1998; further rescheduling in 2000 and 2002. Indonesia maintained payments on the single Fitch-rated sovereign bond outstanding at the time.

Moldova: USD75 million eurobond restructured in 2002, followed by a Paris Club deal.

Russian Federation: Exceptionally, Fitch dates sovereign default to August 1998. Although this was when the Russian Federation defaulted on its local currency debt, it began to incur arrears on foreign currency debt owed to the Paris Club official bilateral creditors very quickly afterwards. Defaults on foreign currency debt instruments held by private creditors occurred in 1999, although payments on Russian Federation eurobonds were maintained and honored.

Uruguay: Distressed debt exchange in March 2003 affecting more than USD5 billion of sovereign foreign currency debt, mostly held by non-residents.

Jamaica: A coercive debt exchange in February 2010 affected the country's domestic

~~currency denominated instruments to which Fitch's foreign currency rating applied.~~

RD – Restricted default.

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ANALYSE DE LA DETTE EXTÉRIEURE

FLUX: Balance of payments analysis and capital flight

- ▶ Liquidity
 - ▶ Sustainability of external debt strategy (refinancing, market access, rescheduling, restructuring..)

STOCKS: Structure of debt by creditors, maturity (ST/LT), currency and interest rates (fixed/floating)

- ▶ Solvency ratios
 - ▶ London Club debt : secondary market discounts
 - ▶ Spread/margin over US T Bills and CDS

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15

LE COMPTE COURANT

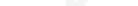
Des éléments moins liquides aux plus liquides!



Exportations de marchandises f.o.b.

- Importations f.o.b.

Balance commerciale

- + Exportations de services non financiers (tourisme)
 - Importations de services (transport)
 - + Revenus d'investissement (crédit)
 - Paiements d'intérêts (débit) 
 - + (-) Transferts privés
 - + (-) Transfers publics

= Balance courante

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Le Compte de capital

Compte de Capital (flux nets) *des flux moins liquides vers les flux plus liquides!*

- + (-) Investissement direct
- + (-) Investissement de Portefeuille
- + (-) Autres flux de capitaux à long-terme
- + (-) Autres flux de capitaux à court-terme
- + (-) Erreurs et Omissions (net)
- + (-) Contreparties (réévaluation de l'or...)
- + (-) Variation des Réserves

= **Balance des Capitaux**

- + Financement Exceptionnel



Source: IIE, MH BOUCHET/LUMIA (c) 2020

17



FLUX BRUTS ET FLUX NETS

► Gross Capital Inflows = Σ Long-term + Short-term capital flows

► Net Flows = Σ Gross Inflows - Principal Repayments

► Net Transfers = Σ Net Flows - Interest Payments

► Total debt service payments = Σ Principal payments + Interest payments

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18

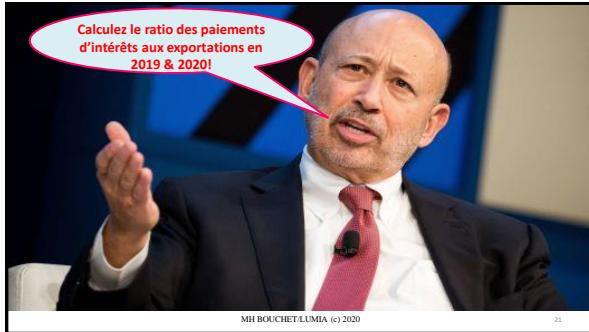
Emerging Market Economies: Capital Flows					
	2012	2013	2014	2015	\$ billion
Capital Inflows					
Total Inflows, Net	1,269	1,188	1,079	1,164	
Private Inflows, Net	1,232	1,156	1,036	1,112	
Equity Investment, Net	468	626	657	675	
Direct Investment, Net	545	548	540	560	
Portfolio Investment, Net	124	78	117	114	
Private Creditors, Net	564	530	375	437	
Commercial Banks, Net	118	193	124	151	
Nonbanks, Net	446	338	251	287	
Official Sector, Net	37	32	47	43	
International Financial Institutions	5	3	19	27	
Bilateral Creditors	31	35	28	24	
Capital Outflow					
Total Outflows, Net	-1,292	-1,260	-1,248	-1,329	
Private Outflows, Net	-.946	-.625	-.981	-.950	
Equity Investment Abroad, Net	-.332	-.403	-.368	-.381	
Resident Lending/Other, Net	-.614	-.422	-.613	-.570	
Reserves (- = Increase)	-.352	-.534	-.367	-.388	
Memo:					
Net Errors and Omissions	-.246	-.65	0	0	
Current Account Balance	.226	.236	.262	.174	

Source: IIE

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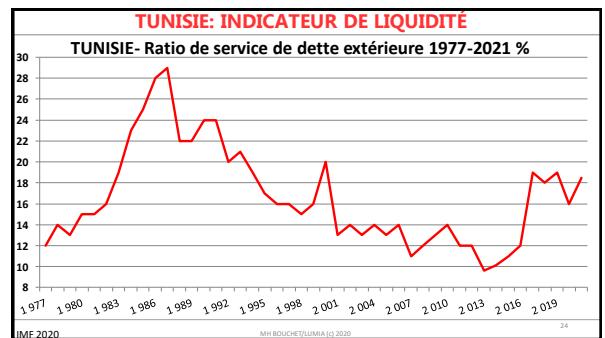
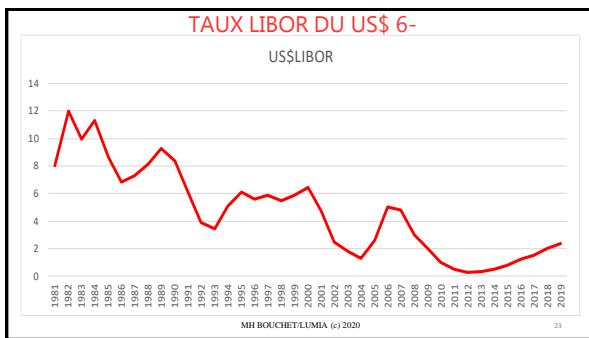
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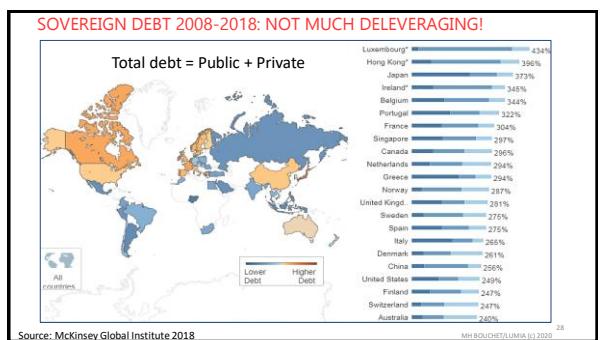
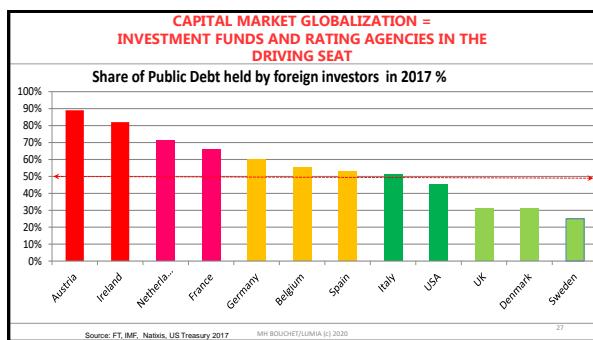
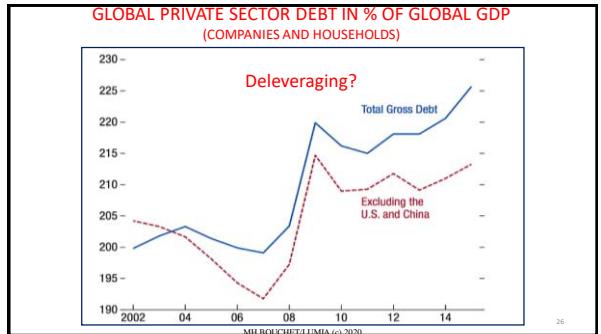
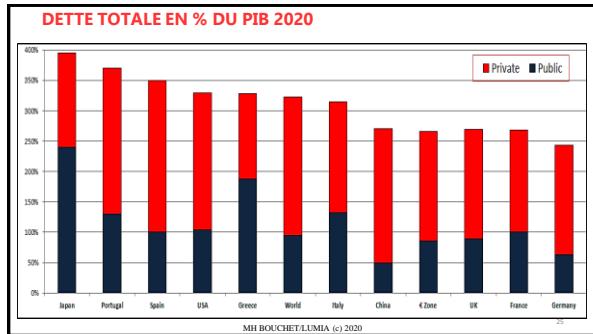


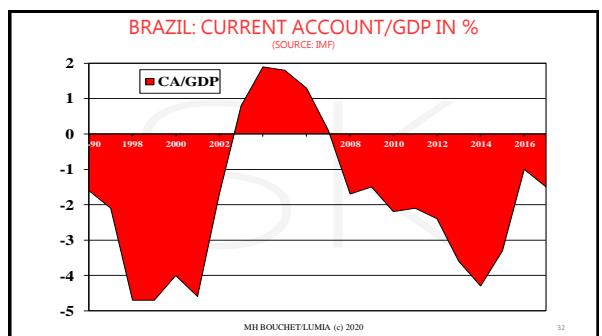
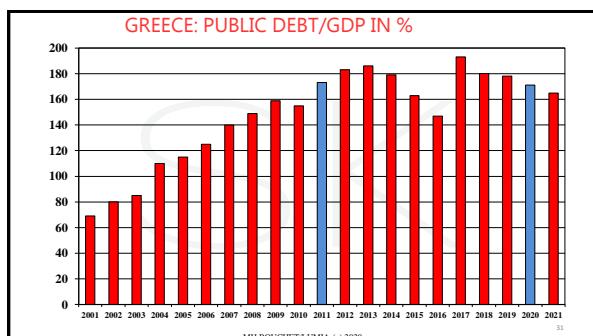
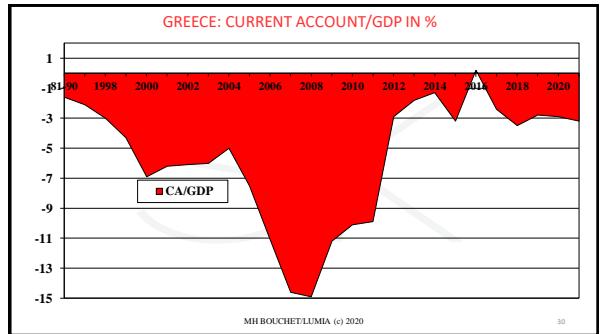
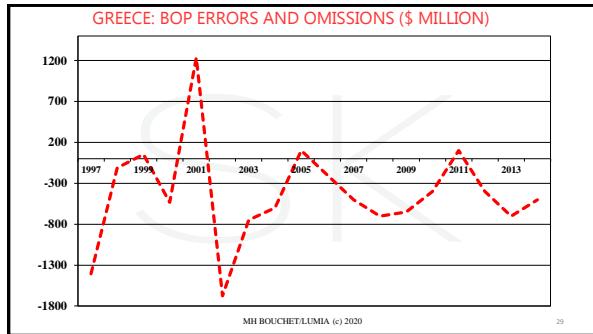


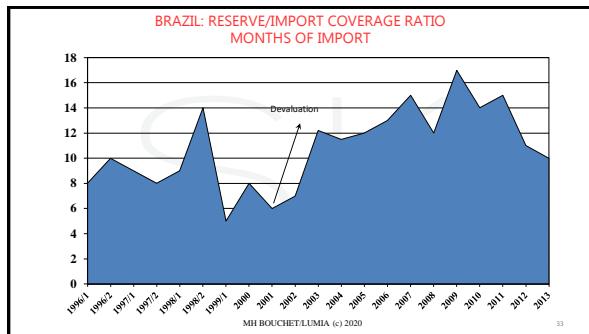
CALCULER LE RATIO INTÉRÊTS/EXPORTS DE BS												
	2016	2017		2018		2019		2020		2016	2017	
	Annual	Annual	Q1	Q2	Q3	Q4	Annual	Annual	Q1	Q2	Q3	
	Est.											
Current account balance	-3,901	-4,080	-1,164	-1,122	-1,164	-1,053	-4,474	-3,909	-81	-1,059	-902	-805
Trade balance	-4,806	-5,308	-1,483	-1,483	-1,483	-1,399	-5,345	-4,479	-1,120	-1,415	-1,291	-1,168
Exports	12,940	14,120	4,171	4,171	4,171	3,845	15,452	14,479	3,271	3,630	3,494	3,120
Energy	765	846	239	239	239	211	251	251	680	710	707	713
Non-energy	12,175	13,284	3,934	3,824	3,824	3,671	14,195	13,152	3,214	3,773	3,238	3,754
of which non-food	13,368	13,844	3,276	3,268	3,268	3,206	12,561	12,625	3,451	3,312	3,039	3,374
Imports	18,274	18,538	5,207	5,238	5,238	5,206	21,457	21,608	5,281	5,347	5,218	5,647
Energy	3,204	2,913	852	857	857	842	7,781	7,781	665	701	680	571
Non-energy	15,351	17,032	4,551	4,394	4,394	4,359	18,276	18,357	4,443	4,538	4,578	4,473
of which non-food	16,657	15,191	4,028	4,319	4,319	4,154	16,288	16,272	4,575	4,138	4,039	3,961
Services and transfers (net)	905	1,228	21	361	755	337	1,476	1,565	295	351	659	724
Services	113	305	44	137	421	269	714	714	26	563	563	563
of which tourism	1,105	1,170	239	231	237	239	1,546	1,467	257	757	757	757
Transfers (net)	790	923	64	204	333	137	762	917	71	72	277	104
of which workers' remittances	1,794	1,861	437	444	583	380	1,845	2,026	589	470	457	399
of which interest payments on external debt	-756	-607	-234	-147	-197	-108	-405	-204	-295	-131	-382	-408

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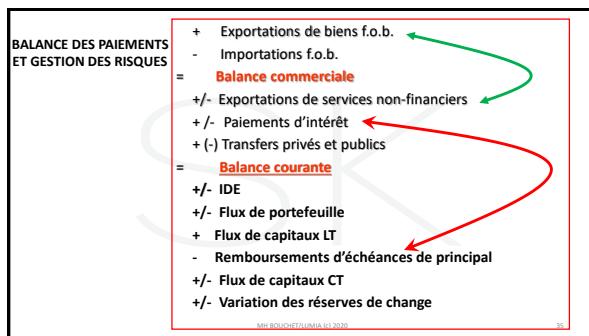


33

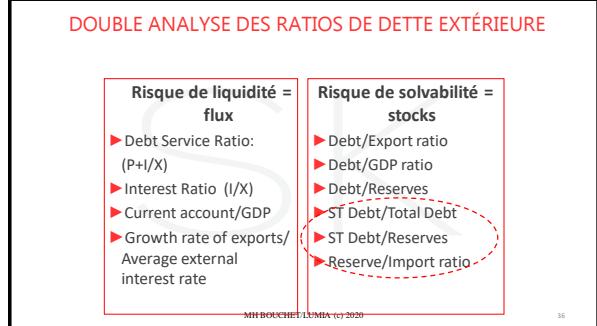
	2003	2004	2005	2006	2007
Trade Balance	-1 130	-411	-1 577	-2 494	-5 100
Merchandise exports	4 830	5 147	7 041	8 141	9 600
Merchandise imports	-6 912	-6 562	-9 487	-10 556	-13 600
Services & Income	42	178	114	-385	-1 331
Services & income receipts	849	1 013	1 262	1 277	1 404
Services & income payments	-749	-1 144	-1 115	-1 100	-1 175
Interest receipts	160	125	115	110	115
Other services & income receipts	2	11	11	10	10
Services & income payments	-1 030	-1 130	-1 773	-2 064	-3 165
Interest payments	-962	-984	-1 423	-1 583	-2 040
Other services & income payments	-152	-152	-203	-203	-200
Other services & income payments	-4	-12	-29	-33	-50
Transfers, net	214	295	626	691	419
Household, net	203	193	259	259	259
Official transfers, net	111	113	305	199	150
Current Account	-1 088	-233	-1 463	-2 879	-4 431
Foreign investment, net	14	416	600	642	600
Foreign Direct Investment (disbursed, net)	14	348	417	400	400
Portfolio equity investment, net	-73	75	-31	0	142
International financial institutions	137	134	134	150	150
IMF	137	134	134	150	150
World Bank	0	0	0	0	0
Other multilateral creditors	137	119	208	120	50
Paris Club and other bilateral creditors	85	69	348	132	126
London Club	35	651	277	726	1 630
Central bank	70	60	25	53	53
Interest arrears	0	0	0	0	0
Reserve assets	26	65	65	65	65
Other private creditors (bond market)	-4	10	1 000	1 500	200
Resident lending abroad, net	541	683	439	19	481
Errors and omissions, net	152	93	-158	-258	-366
Gold reserve variation	50	86	38	47	-91
(Reserves excluding gold = increase)	-7	-831	-624	254	1 568

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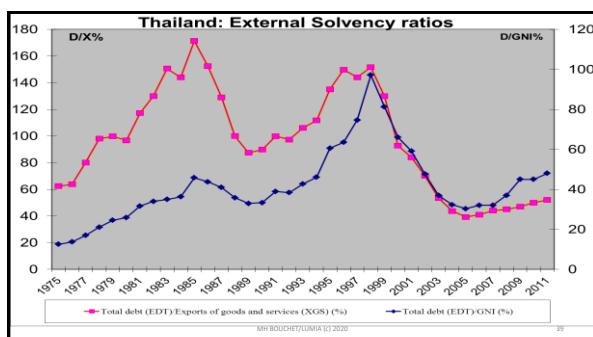
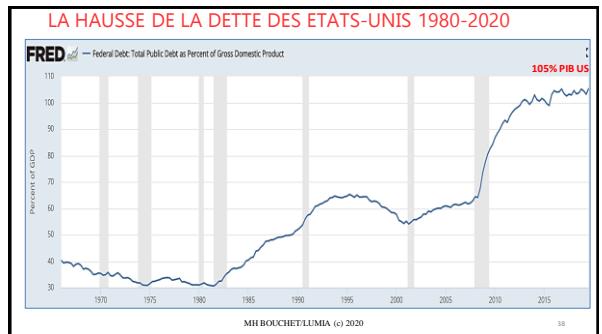
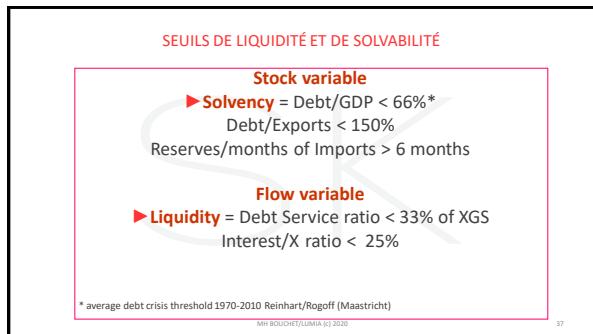
34



35



36



**CALCULER LA DETTE EXTERIEURE TOTALE:
LE SYSTEME DE RAPPORTS DES CREANCIERS**

Joint External Debt Hub JEDH

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Tableau joint BIS-MI-OECD-World Bank Statistics on External Debt (mill. US\$)						
	2018Q2	2019Q3	2018Q4	2019Q1	2019Q2	
A.1. Loans and other credits (Debt of)						
Crude Oil Import, by BIS reporting banks	3,215	3,210	3,271	3,248	3,198	
o/w to nonresidents	2,291	2,268	2,295	2,315	2,407	
03. Official bilateral loans, total						
o/w old loans	—	—	—	—	—	
05. o/w new loans	—	—	—	—	—	
06. Multilateral loans, total	7,804	8,277	8,365	8,040	8,271	
07. o/w IMF	1,655	1,780	1,901	1,741	1,868	
08. o/w other institutions	6,139	6,496	6,464	6,295	6,362	
09. Crude Oil Import credit, Berne Union	3,812	3,812	3,812	3,812	3,812	
10. o/w short term	3,157	3,157	3,083	3,083	2,371	
11. SDR allocations	384	381	379	379	379	
A.2. Loans and other credits (Debt due within a year)						
12. Liabilities to BIS banks (cons.), short term	602	613	605	646	629	
13. Multilateral loans, IMF, short term	633	488	424	309	242	
14. Crude Oil Import credit	—	—	—	—	—	
15. Debt securities held by nonresidents	4,684	—	6,027	—	—	
A.3. Debt securities (short term, original maturity)						
16. Debt securities held by nonresidents	11	—	8	—	—	
C. Supplementary information on debt (liabilities)						
18. Liabilities to BIS banks, all maturities	6,599	6,654	7,071	7,022	7,098	
17. o/w issued by nonbanks	6,599	6,654	7,071	7,022	7,098	
18. International debt securities, short term	0	488	485	485	7,068	
19. o/w other institutions	0	488	485	485	940	
20. Paris Club claims (ODA)	—	—	2,797	—	—	
21. Paris Club claims (non ODA)	—	—	17	—	—	
22. Liabilities to BIS banks, locations, total	3,800	3,669	3,874	3,869	3,883	
23. Liabilities to BIS banks, consolidated, total	3,408	3,543	3,367	3,407	3,304	
D. Memorandum items: selected foreign assets						
24. International reserves (excluding gold)	4,916	4,918	6,382	6,721	6,309	

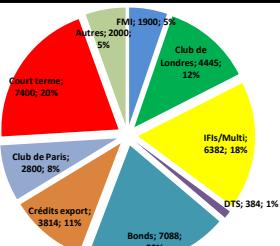
**TUNISIE:
DETTE EXTERNE TOTALE
2020**

**\$36 MILLIARDS =
105% PIB
205% DETTE/EXPORTS
RSD = 16%**

Maturité moyenne = 8 ans
15% détenus par fonds spéculatifs

Hypothèse du FMI: le taux d'endettement augmente jusqu'en 2019 avant de se stabiliser par une réduction du déficit des comptes courants de 8,5% 2019
à 7,8% 2020

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42

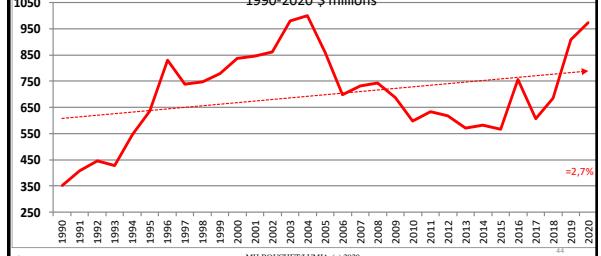
STRUCTURE DE LA DETTE EXTERIEURE DE LA TUNISIE
(SOURCE: IMF 2020)

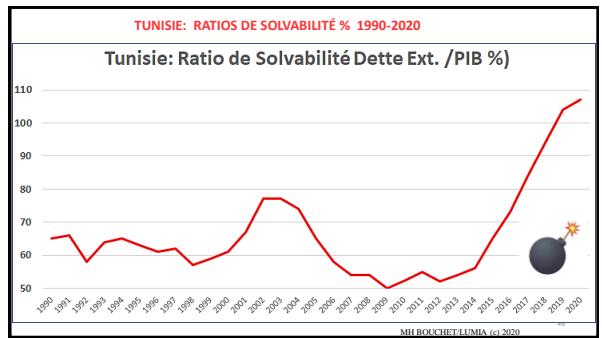
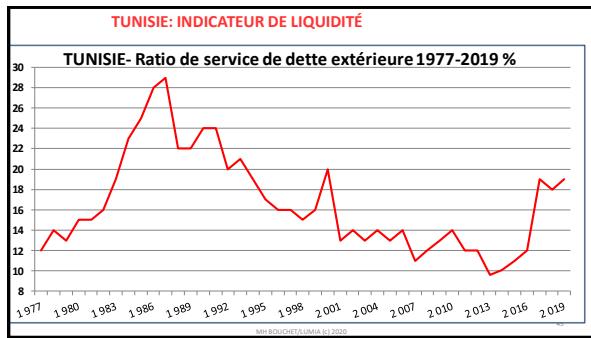
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	Total	USD Mds	EUR Mds	YEN Mds	% of total
Maturity					
M&L	75,634	26,200	74.4	79.0	
ST	20,807	6,949	19.7	21.0	
Currency					
USD	2,019	7,359	26.9	22.7	
EUR	51,189	18,431	52.3	55.6	
JPY	8,231	3,084	8.8	9.3	
Others	13,610	4,276	12.1	12.8	
Interest					
Fixed rates	76,674	73,466	67.0	71.2	
0% < i < 5%	62,634	20,917	59.4	63.1	
5% < i < 7%	7,544	2,519	7.2	7.6	
7% < i < 10%	10,100	3,432	10.3	10.7	
> 10%	0	0	0.0	0.0	
Variable rates	26,587	9,547	27.1	26.8	
Creditors					
Official	45,323	15,136	43.0	45.7	
Multilateral	32,852	10,971	31.1	33.1	
The ADB	12,751	4,231	13.7	14.3	
The EIB	4,755	2,256	6.4	6.8	
IDA	2,420	1,000	2.9	3.2	
The World Bank	8,117	2,711	7.7	8.2	
Bilateral	12,142	4,104	11.2	12.6	
G7	7,642	2,682	4.2	4.5	
o/w France	4,440	1,485	4.2	4.5	
Other	4,660	1,597	4.2	4.5	
o/w Saudi Arabia	4,820	1,617	4.6	4.9	
o/w Kuwait	189	63	0.2	0.2	
Market	17,196	5,744	16.3	17.8	
o/w guaranteed	17,196	5,744	16.3	17.8	
Bank	3,769	1,927	5.5	5.8	
Other (incl. subcls)	18,335	6,123	17.4	18.5	

LA MENACE DE LA HAUSSE DES TAUX DANS UN CONTEXTE D'ENDETTEMENT CROISSANT

**Tunisie-Paiements d'intérêts sur dette extérieure
1990-2020 \$ millions**





OBLIGATIONS EN DEVISES ÉMISES PAR LA TUNISIE 2017-33

	Corp	14 Govt	14 Years	14 P/E	14 CDS	14 CDS % Chg	14 Mkt	14 Fut	14 Options	14 IRS	14 TDS	14 Gen	All Column Settings
#	Exclude	Matured/Called (21)											
R	Name	Ticker	Coupon	Maturity	1	Series	B/E/B	My Type	Actions	Curr	USD/PX	Source	Type
1	Banque Centrale de Tunisie	BTUN	2.50%	04/23/2020	NR	BULLET	04/09/2002	USD	98.7636	EWAL			
2	Banque Centrale de Tunisie	BTUN	4.50%	04/23/2021	NR	BULLET	04/10/1997	USD	99.4580	EWAL			
3	Banque Centrale de Tunisie	BTUN	4.50%	04/23/2015	NR	BULLET	04/10/1997	USD	99.0038	EWAL			
4	Banque Centrale de Tunisie	BTUN	4.50%	04/23/2020	RESS	BULLET	04/09/2005	EUR	102.5820	EGBN			
5	Banque Centrale de Tunisie	BTUN	4.50%	04/22/2020	144A	NR	04/09/2005	EUR	102.3030	EGBN			
6	Banque Centrale de Tunisie	BTUN	1.10%	12/14/2022	A	NR	12/07/2002	USD	97.4130	EGBN			
7	Banque Centrale de Tunisie	BTUN	2.04%	06/07/2023	B	NR	01/10/2013	USD	104.9048	EGBN			
8	Banque Centrale de Tunisie	BTUN	1.60%	01/08/2024	C	NR	10/01/2014	USD	101.1770	EGBN			
9	Banque Centrale de Tunisie	BTUN	5.75%	01/08/2025	*S50	BB	01/05/2005	USD	102.7020	EGBN			
10	Banque Centrale de Tunisie	BTUN	5.75%	01/08/2026	144A	BB	01/05/2005	USD	102.4000	EGBN			
11	Banque Centrale de Tunisie	BTUN	2.20%	06/09/2027	7	NR	01/05/2007	USD	105.2270	EGBN			
12	Banque Centrale de Tunisie	BTUN	8.25%	05/09/2027	NR	NR	05/09/1997	USD	118.9420	EGBN			
13	Banque Centrale de Tunisie	BTUN	4.30%	06/02/2028	NR	NR	07/03/2000	USD	105.4750	EWAL			
14	Banque Centrale de Tunisie	BTUN	4.20%	03/07/2021	BB+	NR	03/09/2009	USD	102.9000	EGBN			
15	Banque Centrale de Tunisie	BTUN	3.50%	02/03/2023	NR	NR	02/04/2003	USD	94.7290	EGBN			

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4

OBLIGATIONS ÉMISES PAR LA TUNISIE: TDN, €, \$ ET YEN 2015-20

#	Name	Ticker	ISIN	Maturity	Series	BB	PP	Mo	Type	Allocation	Derr	Ex-Ex	Source	Type
1.	Turkish Republic Government Bond	TURB	7.000	11/01/2015	10YR	IS	BULLET	02/09/2005	TND	100.550%		EXCH		
2.	Turkish Republic Government Bond	TURB	5.000	30/11/2015	10YR	IS	BULLET	10/12/2012	TND	NA	0.00%	EXCH		
3.	Turkish Republic Government Bond	TURB	5.250	03/11/2016	10YR	IS	BULLET	01/11/2009	TND	NA	0.00%	EXCH		
4.	Turkish Treasury AB Bonds	AD	3.75	06/01/2016	10YR	IS	BONKABLE	03/01/2006	USD	108.550%	BINL			
5.	Turkish Republic Government Bond	TURB	5.000	30/11/2016	5YR	IS	BULLET	04/04/2013	TND	NA	0.00%	EXCH		
6.	Espagne Centrale de Turska SA	ETURN	2.500	25/01/2017	NA	IS	BULLET	12/12/2012	TND	NA	0.00%	EXCH		
7.	Espagne Centrale de Turska SA	ETURN	2.500	24/01/2017	NA	IS	BULLET	14/08/2012	EUR	98.76%	BINL			
8.	Turkish Republic Government Bond	TURB	7.750	01/11/2017	10YR	IS	BULLET	11/09/2007	TND	102.450%		EXCH		
9.	Espagne Centrale de Turska SA	ETURN	4.150	06/01/2017	4FR	IS	BULLET	07/11/1997	DEY	95.00%	BINL			
10.	Espagne Centrale de Turska SA	ETURN	4.150	05/01/2017	4FR	IS	BULLET	07/11/1997	DEY	99.00%	BINL			
11.	Turkish Republic Government Bond	TURB	3.000	01/01/2018	4FR	IS	BONKABLE	01/05/2015	TND	NA	0.00%	EXCH		
12.	Turkish Treasury AB Bonds	AD	4.750	01/01/2018	4FR	IS	BONKABLE	01/05/2015	USD	NA	0.00%	EXCH		
13.	Turkish Republic Government Bond	TURB	5.000	30/11/2018	7YR	IS	BULLET	10/10/2011	TND	NA	0.00%	EXCH		
14.	Turkish Republic Government Bond	TURB	5.000	30/11/2018	10YR	IS	BULLET	10/10/2011	TND	NA	0.00%	EXCH		
15.	Turkish Republic Government Bond	TURB	5.000	01/11/2019	10YR	IS	BULLET	01/11/2009	TND	NA	0.00%	EXCH		
16.	Turkish Treasury AB Bonds	AD	1.686	07/01/2019	NA	IS	BONKABLE	07/11/2012	USD	101.470%	TRNC			
17.	Turkish Treasury AB Bonds	AD	9.750	09/01/2019	NA	IS	CALL/ON	08/01/2019	USD	NA	0.00%	EXCH		
18.	Turkish Republic Government Bond	TURB	7.500	01/12/2020	7YR	IS	BULLET	05/07/2013	TND	NA	0.00%	EXCH		
19.	Espagne Centrale de Turska SA	ETURN	4.500	02/02/2020	REGS	IS	BULLET	06/09/2005	EUR	104.510%	BINL			
20.	Espagne Centrale de Turska SA	ETURN	4.500	02/02/2020	144M	IS	BULLET	06/09/2005	EUR	104.200%	BINL			

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48

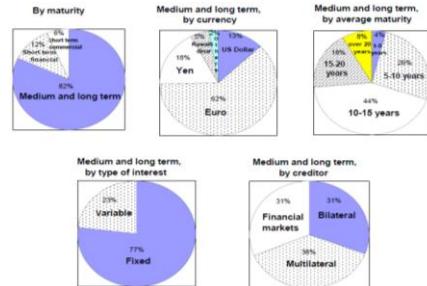
EMISSION OBLIGATAIRE JANVIER 2015

- ▶ Although Tunisia has issued debt over the past few years it has always come with assistance, guaranteed by the US government, through its Agency for International Development, or Japan.
- ▶ International investors keen to capitalize on the country's recent presidential elections put in orders > \$4bn for the \$1bn bond, allowing the country to borrow at a lower than expected rate of 5.875% over 10 years.

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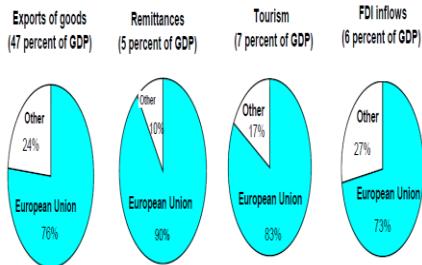
49

TUNISIE: SOUTENABILITÉ DE LA STRUCTURE DE DETTE EXTÉRIEURE?



50

TUNISIE-STRUCTURE DES ÉCHANGES INTERNATIONAUX



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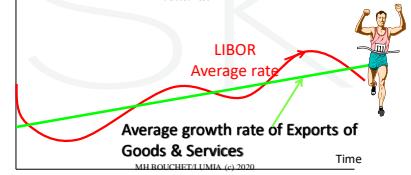
51

EXTERNAL DEBT ANALYSIS I

How to stabilize the Interest/Export ratio?

Necessary condition: the growth rate of exports must be at least equal to the average interest rate on total external indebtedness

Interest payments grow every year at the average interest rate * overall indebtedness



52

EXTERNAL DEBT ANALYSIS II

r = average rate of interest and g = average GDP growth rate

$$\begin{aligned} \text{► DEBT } t &= \text{DEBT } t-1 * (1+r) - \text{Primary Budget Balance} \\ \text{► GDP } t &= \text{GDP } t-1 * (1+g) \\ \text{► } \frac{\text{DEBT } t}{\text{GDP}} &= \frac{\text{DEBT } t-1 * (1+r)}{\text{GDP } t-1 * (1+g)} - \frac{\text{Primary Budget Balance}}{\text{GDP}} \end{aligned}$$

$$\frac{\text{DEBT}}{\text{GDP}} = \frac{\text{DEBT}}{\text{GDP } t-1} + \frac{1+r}{1+g} - \frac{\text{Primary Budget Balance}}{\text{GDP}}$$

Reducing DEBT = Reducing r , increasing g , or boosting primary surplus

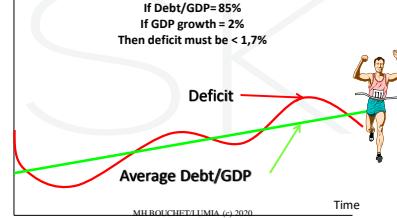
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53

EXTERNAL DEBT ANALYSIS III

How to stabilize the Debt/GDP ratio?

Necessary condition: Deficit must be $<$ (Debt/GDP * GDP growth rate)



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54

External Debt Analysis IV

How to stabilize the Debt/GDP ratio?

Necessary condition: Deficit must be $<$ (Debt/GDP * GDP growth rate)

g = growth rate of GDP and d = deficit/GDP ratio

$$\begin{aligned} \text{DEBT } t &= \text{DEBT } t-1 + \text{DEF } t-1 \quad \text{DEF } = d * Y_t \quad \Delta Y_t = Y_t - Y_{t-1} (1+g) \\ \text{DEBT } t &= \text{DEBT } t-1 + d * Y_{t-1} \end{aligned}$$

$$\frac{\text{DEBT } t}{Y_t} = \frac{\text{DEBT } t-1}{Y_{t-1}} * \frac{Y_{t-1}}{Y_t} + \frac{d}{1+g}$$

$$\frac{\text{DEBT } t}{Y_t} = \frac{\text{DEBT } t-1}{Y_{t-1}} * \frac{Y_{t-1}}{Y_t} + \frac{d}{1+g}$$

$$= \left(\frac{1}{1+g} \right) * \frac{\text{DEBT } t-1}{Y_{t-1}} + \frac{d}{1+g} = \frac{d}{1/(1+g)} = \frac{d}{g}$$

So, if $\text{DEBT}/Y < 120\%$, DEF should be $< 3\%$ for a 2,5% GDP growth rate

MH BOUCHET/SKEMA (c) 2019

ETUDE DE CAS: SOLVENCIA

SPRING 2020												(m€)	
COUNTRY RISK ANALYSIS/ GOOD SOLVENCIA													
													(net)
A DOMESTIC ECONOMY	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Nominal GDP (constant currency M€)	51 135	56 000	58 000	61 000	72 000	82 000	83 500	88 000	89 000	95 000	101 500	109 000	119 000
Nominal GDP % change	5,09%	7,93%	7,07%	19,17%	10,77%	11,88%	1,63%	2,38%	3,48%	6,74%	6,89%	7,34%	8,29%
Real GDP (real currency billion)	5 058	5 300	5 550	5 850	6 150	6 500	6 550	6 650	6 800	7 000	7 300	7 650	8 000
GDP growth rate %	3,05%	4,00%	4,72%	5,45%	5,75%	5,95%	0,77%	1,55%	2,85%	3,85%	4,29%	4,71%	5,83%
Real GDP index	103	104,05	104,72	105,41	105,13	105,89	100,77	101,53	102,28	102,84	104,29	104,79	104,58
Nominal GDP Index	105	107,58	107,27	107,17	110,72	113,89	101,83	102,80	103,49	104,74	106,89	107,34	108,36
GDP deflator	105,13	105,88	106,00	106,20	106,27	106,39	106,40	106,42	106,45	106,52	106,53	106,54	106,55
GDP defl. % change	1,51%	2,05%	2,44%	4,32%	3,57%	7,79%	1,05%	1,65%	1,25%	3,08%	2,99%	2,47%	3,32%
Exchange Rate	100	103	103	105	100	115	150	160	150	200	204	207	212
Real GDP per capita	100	102,23	102,23	102,23	102,23	102,23	102,23	102,23	102,23	102,23	102,23	102,23	102,23
Nominal GDP per capita	51 135	53,88	57,70	61,03	68,45	69,79	61,65	71,12	45,64	47,03	48,78	52,88	60,53
Nominal GDP per capita %	5,11%	5,26%	5,48%	5,74%	8,05%	8,38%	5,48%	4,54%	3,61%	3,98%	4,12%	4,38%	4,43%
B BALANCE OF PAYMENTS (€ million)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Trade balance	-1 150	-411	-5 577	-2 494	-4 000	-1 059	1 040	2 000	2 300	1 500	-1 500	-4 000	-5 500
Merchandise exports	4 862	8 181	7 910	8 361	9 000	10 500	11 000	12 000	13 000	14 000	15 000	15 000	15 000
Merchandise imports	4 012	4 582	4 487	4 555	4 980	5 150	4 980	5 000	5 150	5 200	5 250	5 300	5 350
Balance on Services, Income & Transfers	498	-429	-1 044	-2 201	3 281	-2 107	-75	738	703	785	-184	-1 001	-3 010

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