Sovereign debt, OTC derivatives and growth in the G7

Chiara OLDANI
Lecturer of Economics at University of Viterbo
Director of Research of Assonebb
Director for Italy of the G7/G8 Research Group

G7 PreSummit Conference
Rome 22nd May 2017

Abstract and motivation

Average G7 countries gross sovereign debt reached 119% in 2015 (IMF, 2016); debt sustainability depends on growth

Reduced macroeconomic policy coordination, regulatory arbitrage and *beggar thy neighbour* policies with growing public debt and sluggish economic conditions undermine debt's sustainability, especially for countries with a debt over GDP ratio greater than 100%, like Italy, Japan and the US

Abstract and motivation

After 1990 many countries managed outstanding debt with OTC contracts; gains and losses are difficult to evaluate

Supranational rules on sovereign debt restructuring do not eliminate moral hazard

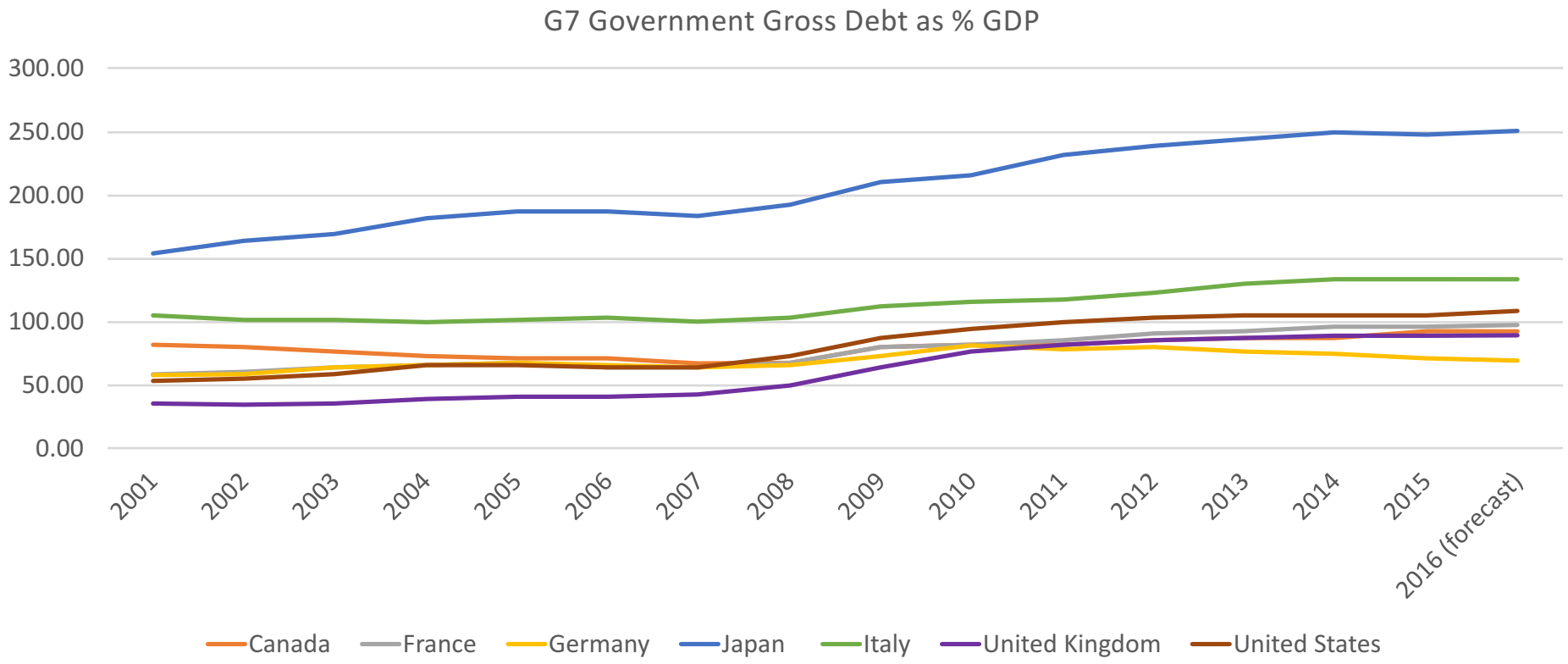
What matters are markets' expectations, and public debt management rules. Do economic fundamentals reflect in the sovereign risk?

Among G7, Italy, Germany and France share common public debt polices (and the euro); are these rules effective to guarantee debt sustainability (and favour growth)?

WeDEIM

aeb ASSONEBB

G7 countries gross public debt



SOURCE: IMF WEO October 2016

Outline

- Literature review
- Research questions
- Empirical findings
- Conclusion

Literature review – public debt

- Public debt continued to stockpile after 1998 in G7 countries (measured with gross debt; net debt has a flatter path and reached 80% in 2015)
- Debt management is a challenging duty of Governments (moral hazard in the EMU, political risks)
- The possibility of postponing revenues and anticipating losses is highly controversial in the public finance literature (Giovannini 1997)
- Focusing on Italy: the prolonged economic recession does not allow a "reduction" of debt (Lombardi and Amand 2015)

Literature review – public debt

- Public debt restructuring program should ensure debt sustainability in probabilistic terms (Guzman and Stiglitz, 2016)
- After 1970 more than half of sovereign debt restructuring were followed by default in five years with large negative social consequences (Guzman and Stiglitz, 2016)
- UN (2015) introduced 9 principles as the basis for restructuring process (sovereignty, good faith, transparency, impartiality, sovereign immunity, legitimacy, sustainability, majority restructuring)
    - ➢Should translate these principles in domestic rule of law

WeDEIM

aeb ASSONEBB

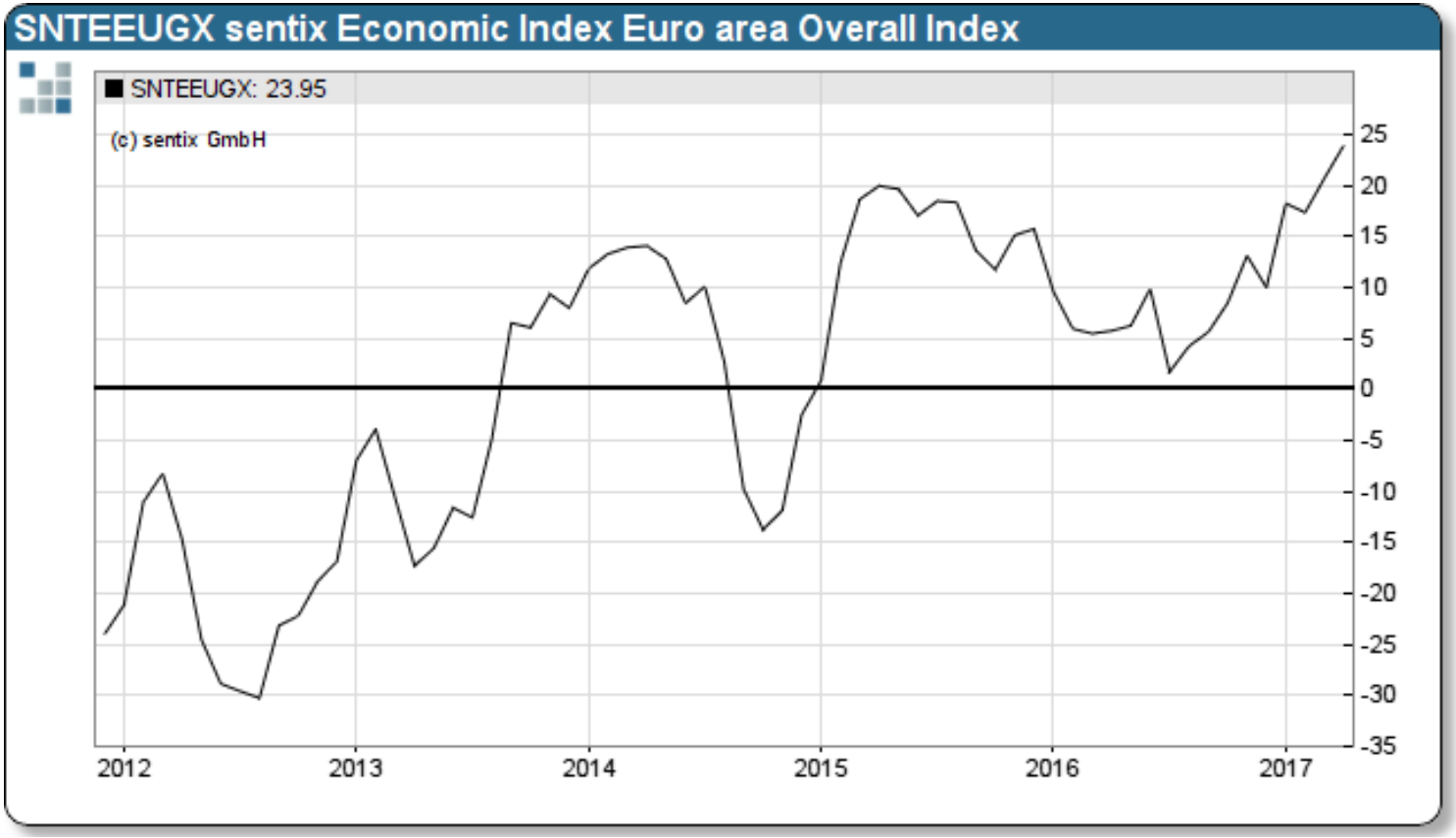
Literature review – public debt & OTC derivatives

- OTC contracts can be used to smooth the cost of debt, to hedge the debt outstanding or to raise cash with up-front clause (Oldani 2008)
- Certain preconditions (back office, regulation, liquidity, market rules) should be satisfied before a country engages in OTC derivatives to manage its public debt; risk management and accounting/reporting practices should be properly implemented (OECD 2007)
- Some European countries employed OTC contracts to match the EMU accessing criteria (Piga 2001)
- Do local administrations (Italian Regions) employ OTC derivatives to hedge or to speculate? (Fantini, Oldani 2017)
- Costs - benefits of OTC derivatives & public debt management are difficult to measure (scenario, probability) and the political risks can directly impact on the costs of debt (e.g. toxic contracts, Perignon Valle 2013)

WeDEIM

aeb ASSONEBB

Risk sentiment in the Euro area (Sentix) significantly increased since 2016, signalling strong concerns on the strength of the euro zone (date: May 1, 2017).



Literature review – OTC derivatives regulation

The G7 never took a direct position on OTC derivatives, except in 2009

"We commit to vigorously pursue the work necessary to ensure global financial stability and an international level playing field, including on compensation structures, definition of capital and the appropriate incentives for risk management of securitisation, accounting and prudential standards, regulation and oversight of systemically important hedge funds, standardisation and resilience of OTC derivative markets, establishment of central clearing counterparties for these products, and regulation and transparency of credit rating agencies."

WeDEIM

aeb ASSONEBB

Literature review – OTC derivatives regulation

- BIS (2014) measured the impact of reforms that incentive central clearing, and concluded that "if an end user is not subject to capital requirements for counterparty credit risk, its incentive for central clearing is reduced because the absence of capital costs lowers the cost of bilateral trading" (p. 19)… that is the case of Sovereigns
- Persistent lack of transatlantic consistency of financial regulatory efforts after 2009 (Oldani 2015)
- Donnelly (2014) "The dominance of power politics ensures that European economic governance not only remains institutionally and financially incapable of properly providing for financial stability, but deliberately so for the foreseeable future, despite strong incentives to Europeanize the institutional and financial environment that supports financial stability"

WeDEIM

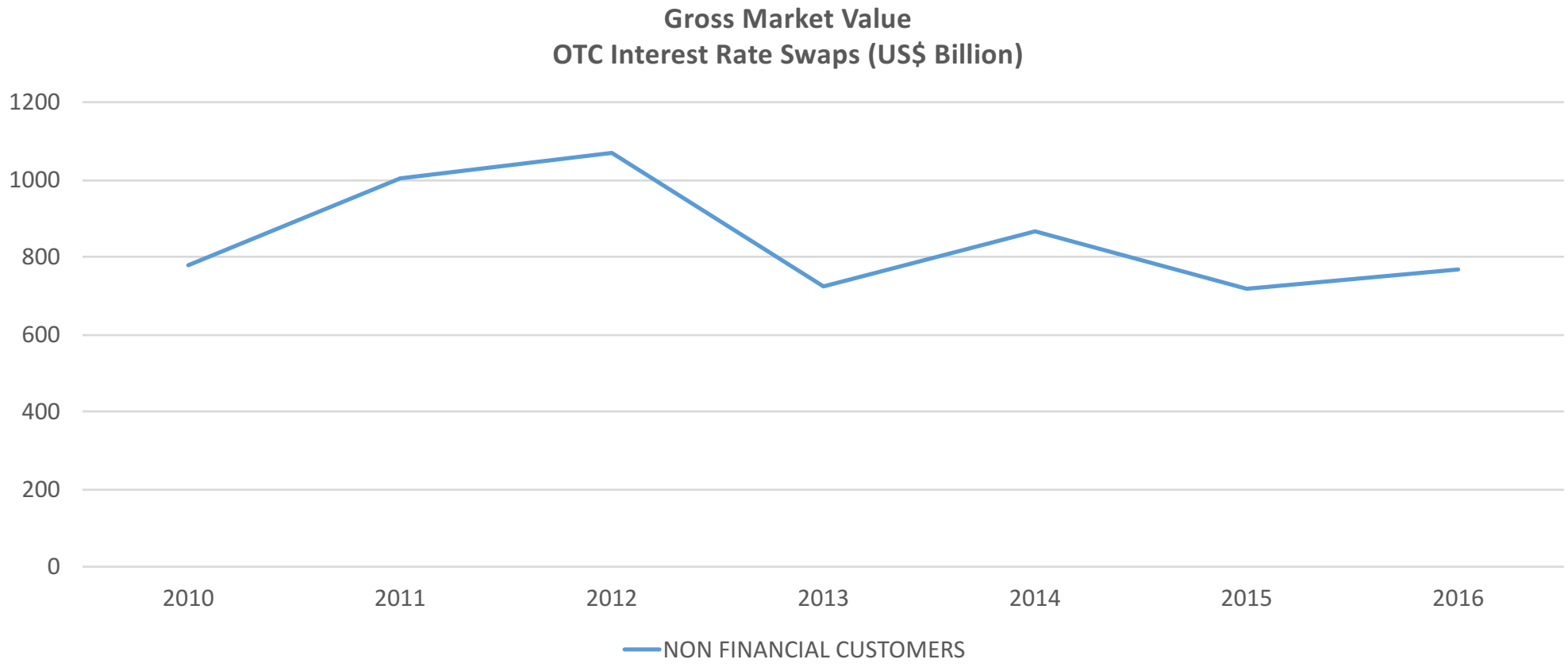
aeb ASSONEBB

Literature review – public debt & OTC derivatives

- After 2011 excessive public spending, reduced growth and increasing unemployment lead to the sovereign debt crisis that had significant political impacts (Arghyrou and Kontonikas, 2012)
- Governments make extensive use of OTC derivatives in their funds management activities - I.R.S (OECD 2011)
- Financial regulatory reforms undertaken after 2010 (promoted by the G20-FSB) to strengthen the settlement and trading of OTC contracts had certain impact on costs associated to OTC contracts (central clearing) (BIS 2014)
- Non financial operators, like Governments had not reduced their OTC trading after 2010 (basing on BIS data)

WeDEIM

aeb ASSONEBB



SOURCE: BIS DERIVATIVES STATISTICS (APRIL 2017)

Italy, France, Germany OTC contracts' payments

Payments (+) and Inflows (-) related to OTC derivative contracts (€ million)				
	2011	2012	2013	2014
Germany	-856.5	-975.4	1275	1510
France	0	482	-864	304
Italy	2193.2	3876.5	2713.9	3629.2
Payments (+) and Inflows (-) related to renegotiated OTC derivative contracts (with negative MTM (€ million)				
	2011	2012	2013	2014
Germany	0	0	0	0
France	-1337	-298	-495	-504
Italy	221	1668.5	800	1829.1
Source: Eurostat, April 2015.				

ITALY'S GOVERNMENT DERIVATIVES UNDERWRITTEN 2006-2015 (€BN)				
	Mark to Market- net derivatives	Negative flows	GDP	Negative flows as a % of GDP
2006	(22.8)	(0.1)	1,548.5	(0.0%)
2007	(18.1)	(0.1)	1,609.6	(0.0%)
2008	(26.8)	(0.9)	1,632.2	(0.1%)
2009	(21.4)	(0.8)	1,572.9	(0.1%)
2010	(18.8)	(2.0)	1,604.5	(0.1%)
2011	(27.6)	(2.4)	1,637.5	(0.1%)
2012	(34.3)	(5.6)	1,613.3	(0.3%)
2013	(29.0)	(3.5)	1,604.6	(0.2%)
2014	(42.1)	(5.5)	1,620.4	(0.3%)
2015	(36.7)	(6.8)	1,642.4	(0.4%)
2016		(5.5)	1,673.3	(0.3%)
MtM Potential Loss as a % of GDP 2015			2.2%	
Cumulated Loss last 6 years			(29.2)	
Cumulated Loss last 6 years as a % of GDP 2015			1.8%	

Source: Mediobanca Securities (2017)

CDS and sovereign debt

The presence of sophisticated financial tools, such as Credit Default Swaps (CDS), should have improved financial markets' efficiency

But sovereign CDS are opaque, fuel moral hazard and increase financial volatility

Guzman and Stiglitz (2016) suggest to ban any "speculative" trading of sovereign CDS (can be done after information is provided)

Literature review – sovereign risk & public debt

- ✓Aizenman, Hutchinson and Jinjarak (2013) investigated whether the CDS spreads (measure of sovereign risk of default) are related to economic fundamentals of 50 countries in the 2005-2010 period, and found that fiscal space and other economic fundamentals are important and robust predictors of CDS spreads

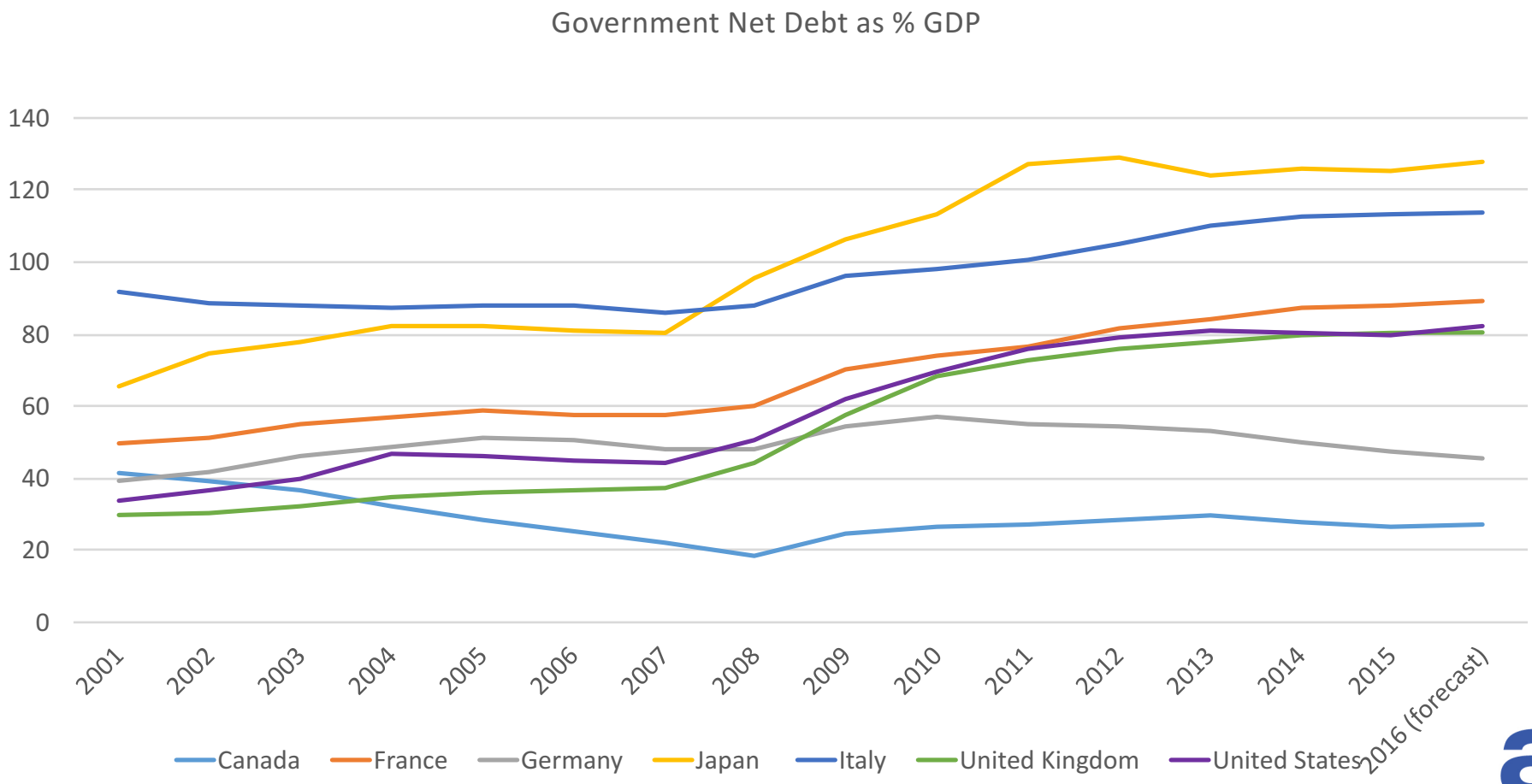
Research question

We investigate whether CDS spreads are related to economic fundamentals and fiscal space variables

To answer this question, we should refer to debt that is relevant for growth? *Gross vs net*

Eurostat (2014) suggested a harmonised measure for all member countries of **Net Public Debt** = Maastricht debt offset by assets in currency and deposits, loans, securities other than shares (excluding financial derivatives).

G7 net public debt



SOURCE: IMF WEO October 2016

Who owns G7 public debt? Expectations matter!
Over 50% of external creditors for France and Germany

Government Debt by Creditors (%) 2016 (IMF data)		
	Domestic creditors	**External creditors**
Canada	76.43%	23.57%
France*	38.00%	**62.00%**
Germany*	48.00%	**52.00%**
Italy	65.46%	34.54%
Japan		10.00%
United Kingdom	66.14%	33.86%
United States	64.14%	35.86%
* refers to 2015		

WeDEIM

aeb ASSONEBB

Empirical Findings

We investigate whether CDS spreads are related to economic fundamentals and fiscal space variables (Aizenman et al 2013) for Italy, France and Germany (2003-2016)

✓Expectations matter

✓Moral Hazard (banking industry)

✓EU fiscal rules

Empirical findings – Italy

(following Aizenman et al 2013)

Table 1A – Ordinary Least Squares (OLS) ITALY		
Dep. Var. CDS on 5Y GovBonds		
Trade Balance over GDP		-22.650
	p-value	0.108
Inflation		75.360**
	p-value	0.002
Gross Debt over GDP		12.240**
	p-value	0.002
Tax Revenue over GDP		11.650
	p-value	0.656
Structural Balance over GDP		-15.710
	p-value	0.637
Number of obs.		14
R-squared		0.9034
Legenda: data from 2003-2016; WEO and Bloomberg		

Table 1B – Ordinary Least Squares (OLS) ITALY		
Dep. Var. CDS on 5Y GovBonds		
Trade Balance over GDP		-27.260***
	p-value	0.001
Inflation		72.430***
	p-value	0.003
Net Debt over GDP		14.600***
	p-value	0.001
Tax Revenue over GDP		11.710
	p-value	0.674
Structural Balance over GDP		-9.160
	p-value	0.785
Number of obs.		14
R-squared		0.9086
Legenda: data from 2003-2016; WEO and Bloomberg		

WeDEIM

aeb ASSONEBE

Empirical findings – France

(following Aizenman et al 2013)

Table 2A – Ordinary Least Squares (OLS) FRANCE		
Dep. Var. CDS on 5Y GovBonds		
Trade Balance over GDP		35.470
	p-value	0.172
Inflation		41.340***
	p-value	0.002
Gross Debt over GDP		-0.830
	p-value	0.714
Tax Revenue over GDP		74.780*
	p-value	0.070
Structural Balance over GDP		-78.450**
	p-value	0.039
Number of obs.		14
R-squared		0.8891
Legenda: data from 2003-2016; WEO and Bloomberg		

Table 2B - Ordinary Least Squares (OLS) FRANCE		
Dep. Var. CDS on 5Y GovBonds		
Trade Balance over GDP		34.420
	p-value	0.152
Inflation		41.100***
	p-value	0.002
Net Debt over GDP		-0.821
	p-value	0.757
Tax Revenue over GDP		73.980*
	p-value	0.078
Structural Balance over GDP		-77.390**
	p-value	0.032
Number of obs.		14
R-squared		0.8888
Legenda: data from 2003-2016; WEO and Bloomberg		

WeDEIM

aeb ASSONEBB

Empirical findings – Germany

(following Aizenman et al 2013)

Table 3A – Ordinary Least Squares (OLS) GERMANY		
Dep. Var. CDS on 5Y GovBonds		
Trade Balance over GDP		8.380**
	p-value	0.024
Inflation		20.170***
	p-value	0.001
Gross Debt over GDP		2.240***
	p-value	0.000
Tax Revenue over GDP		37.180***
	p-value	0.001
Structural Balance over GDP		-25.680***
	p-value	0.005
Number of obs.		14
R-squared		0.8993
Legenda: data from 2003-2016; WEO and Bloomberg		

Table3B – Ordinary Least Squares (OLS) GERMANY		
Dep. Var. CDS on 5Y GovBonds		
Trade Balance over GDP		10.790***
	p-value	0.003
Inflation		21.710***
	p-value	0.001
Net Debt over GDP		3.210***
	p-value	0.001
Tax Revenue over GDP		47.470***
	p-value	0.000
Structural Balance over GDP		-29.190***
	p-value	0.001
Number of obs.		14
R-squared		0.8872
Legenda: data from 2003-2016; WEO and Bloomberg		

Empirical findings – Panel

(following Aizenman et al 2013)

Table 4 - Germany, France and Italy CDS, Debt and Yield		
Fixed Effect (Within) Regression 2003-2016		
Dep. Var CDS Spread on 5 Years Gov Bonds		
Gross Debt GDP	5.21***	
s.e.	(0.86)	
Net Debt GDP		6.20***
s.e.		(0.98)
10Y Govern.Bond Yield	31.57***	36.21**
s.e.	(7.70))	(7.84)
Constant	-459.07***	-397.87***
s.e.	(84.89)	(72.26)
Number of observations	42	42
R-squared (within)	0.52	0.54
Note: *, **, *** significant at 10%, 5% and 1% respectively		

Table 5 - Germany, France and Italy CDS determinants		
Fixed Effect (Within) Regression 2003-2016		
Dep. Var CDS Spread on 5 Years Gov Bonds		
Gross Debt GDP	5.031***	
s.e.	(1.00)	
Net Debt GDP		5.22***
s.e.		(1.13)
Tax Revenue GDP	-1.1	1.83
s.e.	(2.80)	(2.78)
Structural Balance GDP	16.66*	13.65
s.e.	(8.25)	(8.68)
Trade Balance GDP	-16.98**	-12.18
s.e.	(7.46)	(7.66)
Inflation	35.71***	38.45***
s.e.	(10.25)	(10.82)
Constant	-344.77**	-398.27**
s.e.	(160.23)	(170.10)
Number of observations	42	42
R-squared (within)	0.53	0.49
Note: *, **, *** significant at 10%, 5% and 1% respectively		

Empirical findings

Empirical results cannot be generalised, but in the 2003 -2016 period in Italy, France and Germany fiscal space variables (structural balance, net/gross debt and tax revenue) and economic fundamentals (inflation and trade balance) significantly correlate with sovereign risk, as measured with CDS on 5 years Government bonds, both at individual country level and panel.

Gross or net debt? Net debt has stronger impact on CDS spreads.

✓Markets' expectations reflect fundamentals

✓Moral hazard cannot be ruled out

Empirical findings

Empirical results cannot be generalised, but in the 2003 -2016 period the CDS spread on 5Y Government bond of Italy, France and Germany significantly correlates with the Government bond yield and the gross/net debt over GDP.

✓Markets' expectations reflect fundamentals

✓Moral hazard cannot be ruled out

Fiscal policy credibility in the EU

Debt sustainability relies on probability (Guzman and Stiglitz, 2016)

EU criteria on budget and debt are defined on certain accounting measures and the success of matching them also depends on these measures

EU fiscal rules are mainly political rules; some even referred to them as *stupid* (President of the EU Commission, Romano Prodi)

"Badly-measured structural balance and its incorrect forecasts lead to erroneous policy recommendations" (Claeys et al. 2016, p.1).

→ *Rely on net debt* (and not gross debt)

Fiscal policy credibility in the EU

According to the European Commission (2016) a dozen European countries will not match the 60% debt to GDP target (in 2031) even if they comply with actual fiscal rules, because of poor growth (as underlined by Guzman and Stiglitz, 2016 is a matter of probability!)

The problem to be solved is not debt, but growth; should not throw the baby away with the dirty water (i.e. keep the EU)

Claeys et al. (2016) suggest to "eliminate the structural balance rules and to introduce a new public expenditure rule with debt-correction feedback, embodied in a multi-annual framework, which would also support the central bank's inflation target"

WeDEIM

aeb ASSONEBB

Conclusions

G7 countries

- High debt and low growth: policy coordination is needed
- Balkanisation of financial markets should be limited, since the resilience depends on the soundness of its own infrastructures, including OTC trading
- Should introduce common rules for public administrations' trading of OTC (accounting, data, counterparty risk)

Conclusions

EU countries

- New fiscal rules are needed to guarantee effective debt sustainability
- Public debt should stabilize to foster growth; moral hazard (banks and governments) should be limited
- Common policies to sustain growth
- The “public expenditure rule with debt-correction feedback” is a (second best) solution and would preserve the *status quo* of EU institutions

WeDEIM

aeb ASSONEBB

References

- AIZENMANJ. , M. HUTCHISON, Y. JINJARAK (2013) What is the risk of European sovereign debt default? Fiscal space, CDS spreads and market pricing of risk. Journal of International Money and Finance, 34, 37-59.
- ARGHYROU M. G., and A. KONTONIKAS (2012), "The EMU sovereign debt crisis: fundamentals, expectations and contagion", *Journal of International Financial Markets, Institutions & Money*, vol. 22, pp. 658-677.
- BIS (2014), "Regulatory reforms of Over-The-Counter Derivatives: an assessment of incentives to clear centrally", Basel, October.
- CHAN D.(2016) In a funk over Trump – Research collection School of Social Sciences. Paper 2023 – Singapore Management University, Singapore.
- CLAEYS, G., Z. DARVAS and Á. ALEANDRO (2016) A proposal to revive the European Fiscal Framework, Bruegel Policy Contribution 2016/7.
- DOUGLAS J. ELLIOTT (January 16, 2017) Implications of the Trump administration for financial regulation, Oliver Wyman, Marsh & McLennan Companies, UK.
- EUROPEAN COMMISSION (2016) Fiscal Sustainability Report.
- EUROSTAT (2017) News Release Euro Indicators, Debt of Member Countries, January 23rd.
- EUROSTAT (2014) Measuring net government debt: theory and practice, Statistical paper, ISSN 2315-0807.
- GIOVANNINI A. (1997) Government Debt Management, *Oxford Review of Economic Policy,* 13(4): 43-52.
- GUZMAN M., and J.E. STIGLITZ (2016) A soft law mechanism for sovereign debt restructuring, International Policy Analysis, Friederich Ebert Stifung, October.
- INTERNATIONAL MONETARY FUND (2016), Wold Economic Outlook, Washington DC.
- INTERNATIONAL MONETARY FUND (2016), Global Financial Stability Report, Washington DC.
- LOMBARDI D., S. S. AMAND (2015) Italy's Sovereign Debt Crisis: Assessing its Origin and the Policy Response, ECONOMIA ITALIANA, vol. 1-2-3, pp.61-100.

WeDEIM

aeb ASSONEBB

References

- MAY T., and D.DAVIS (February 2017) The United Kingdom's exit from and new partnership with the European Union – Williams Lea Group, UK.
- MINENNA M. (17/11/2016) Il debito italiano al tempo della [nuova] lira – Gli Stati Generali srl, Milano
- MEDIOBANCA SECURITIES (2017) Re-denomination risk down as time goes by, London, January.
- OECD (2007) *Use of Derivatives for Debt Management and Domestic Market Development*. Paris: OECD Publishing.
- OECD (2011) *Regulatory Reform of OTC Derivatives and Its Implications for Sovereign Debt Management Practices: Report by the OECD Ad Hoc Expert Group on OTC Derivatives - Regulations and Implications for Sovereign Debt Management Practices*, OECD Working Papers on Sovereign Borrowing and Public Debt Management, No. 1, Paris: OECD Publishing.
- OLDANI C. (2015) The Risk of OTC Derivatives: Canadian Lessons for Europe and the G20**,** CIGI Papers No. 57.
- PERIGNON, c. and B. VALEE (2013). *Political Incentives and Financial Innovation: The Strategic Use of Toxic Loans by Local Governments. No. FIN-2013-1017*. Paris: HEC
- PIGA G. (2001) Do Governments Use Financial Derivatives Appropriately? Evidence from Sovereign Borrowers in Developed Economies, International Finance, DOI 10.1111/1468-2362.00071
- WOLF-GEORG RINGE (January 2017) The Irrelevance of Brexit for the European Financial Market, University of Oxford, Legal paper.
- VERGARA CAFFARELLI F. (2016) The Brexit fallout – Think Tank Longitudine edizioni, June.
- OLIVER WYMAN (2016) The impact of the UK's exit from the EU on the UK-based financial services sector – Marsh & McLennan Companies, UK

WeDEIM

aeb ASSONEBB