

TYCHOS SECTOR RISK REPORT

		2016	2017	2018	2019	2020 Q1
Total Private Debt	Debt to GDP	109%	110%	112%	114%	116%
	5 year % change	-2%	0%	1%	6%	9%
	Billion Euro	€3,395	€3,578	€3,740	€3,928	€3,981
Business Debt	Debt to GDP	55%	57%	58%	60%	61%
	5 year % change	4%	6%	6%	12%	14%
	Billion Euro	€1,724	€1,849	€1,947	€2,052	€2,092
Household Debt	Debt to GDP	53%	53%	54%	55%	55%
	5 year % change	-7%	-6%	-4%	1%	4%
	Billion Euro	€1,671	€1,729	€1,793	€1,876	€1,889

Areas of Concern

Corporate Sectors		2016	2017	2018	2019	2020 Q1
Information Technology	Loans to GDP	3.3%	3.3%	3.4%	3.7%	3.9%
	5 year % change	0%	2%	5%	15%	21%
	Billion Euro	€102	€107	€113	€127	€133

Private Debt Lenders		2016	2017	2018	2019	2020 Q1
Foreign Loans	Debt to GDP	11.0%	13.0%	14.0%	15.0%	15.0%
	5 year % change	19%	26%	25%	43%	45%
	Billion Euro	€355	€407	€470	€500	€517
Other Financial Institutions	Debt to GDP	7.0%	7.0%	8.0%	8.0%	8.0%
	5 year % change	12%	12%	15%	28%	31%
	Billion Euro	€216	€229	€257	€263	€264
Corporate Bonds	Debt to GDP	6.0%	6.0%	6.0%	6.0%	7.0%
	5 year % change	43%	36%	14%	21%	26%
	Billion Euro	€184	€211	€188	€214	€229

▲ High Concern
▲ Concern
▲ Low Concern
▲ Current or recent crisis
+ No Current Concern

n/a: Data Not Available

Business Debt

Bank Loans by Industry		2016	2017	2018	2019	2020 Q1	
Real Estate	Debt to GDP	12.3%	12.4%	13.0%	13.3%	13.7%	
	5 year % change	-7%	-7%	0%	8%	13%	⚠
	Billion Euro	€386	€401	€434	€458	€470	
Manufacturing	Loans to GDP	4.0%	4.0%	4.2%	4.3%	4.6%	
	5 year % change	-20%	-15%	-8%	2%	7%	+
	Billion Euro	€125	€131	€139	€147	€156	
Wholesale and Retail	Loans to GDP	4.1%	4.1%	4.1%	4.1%	4.2%	
	5 year % change	-11%	-11%	-6%	-2%	0%	+
	Billion Euro	€128	€133	€139	€142	€144	
Information Technology	Loans to GDP	3.3%	3.3%	3.4%	3.7%	3.9%	
	5 year % change	0%	2%	5%	15%	21%	⚠
	Billion Euro	€102	€107	€113	€127	€133	
Utilities	Loans to GDP	3.3%	3.5%	3.5%	3.5%	3.5%	
	5 year % change	7%	3%	1%	1%	5%	+
	Billion Euro	€105	€113	€117	€119	€120	
Health Care	Loans to GDP	2.5%	2.5%	2.5%	2.5%	2.5%	
	5 year % change	-12%	-15%	-13%	-7%	-4%	+
	Billion Euro	€78	€81	€82	€85	€85	
Construction	Loans to GDP	2.0%	2.1%	2.1%	2.2%	2.3%	
	5 year % change	-10%	-5%	3%	10%	14%	⚠
	Billion Euro	€62	€67	€72	€77	€79	
Agriculture	Loans to GDP	1.6%	1.5%	1.6%	1.6%	1.6%	
	5 year % change	2%	-5%	-2%	-3%	-1%	+
	Billion Euro	€51	€50	€53	€54	€54	
Transportation and Communication	Loans to GDP	1.8%	1.6%	1.5%	1.5%	1.5%	
	5 year % change	-39%	-43%	-39%	-37%	-34%	+
	Billion Euro	€57	€52	€51	€50	€53	
Hotels and Restaurants	Loans to GDP	0.7%	0.7%	0.7%	0.8%	0.8%	
	5 year % change	-8%	-7%	-2%	4%	6%	+
	Billion Euro	€23	€24	€25	€26	€27	
Other Services	Loans to GDP	1.7%	1.7%	1.6%	1.6%	1.4%	
	5 year % change	-22%	-22%	-19%	-13%	-23%	+
	Billion Euro	€54	€55	€55	€56	€48	

* Real Estate industry includes all debt

⚠ High Concern ⚠ Concern ⚠ Low Concern ⚠ Current or recent crisis + No Current Concern

n/a: Data Not Available

Business Debt

Debt by Industry		2016	2017	2018	2019	2020 Q1	
Commercial Real Estate	Debt to GDP	14.3%	14.4%	15.1%	15.6%	16.1%	⚠
	5 year % change	-8%	-6%	-0%	8%	13%	⚠
	Billion Euro	€449	€469	€506	€536	€549	⚠
Consumer Discretionary	Debt to GDP	13.3%	13.2%	14.1%	n/a	n/a	⚠
	5 year % change	31%	16%	25%	n/a	n/a	⚠
	Billion Euro	€419	€429	€478	n/a	n/a	⚠
	Default Rate	2.5%	2.7%	2.6%	n/a	n/a	⚠
Industrials	Debt to GDP	4.5%	4.4%	4.7%	n/a	n/a	⚠
	5 year % change	7%	1%	13%	n/a	n/a	⚠
	Billion Euro	€142	€143	€160	n/a	n/a	⚠
	Default Rate	2.6%	5.6%	4.5%	n/a	n/a	⚠
Health Care	Debt to GDP	2.0%	1.9%	2.6%	n/a	n/a	⚠
	5 year % change	26%	27%	73%	n/a	n/a	⚠
	Billion Euro	€64	€63	€89	n/a	n/a	⚠
	Default Rate	n/a	n/a	n/a	n/a	n/a	⚠
Communication Services	Debt to GDP	2.9%	2.6%	2.7%	n/a	n/a	+
	5 year % change	19%	10%	6%	n/a	n/a	+
	Billion Euro	€91	€85	€92	n/a	n/a	+
	Default Rate	6.4%	5.3%	5.1%	n/a	n/a	+
Materials	Debt to GDP	1.9%	1.8%	1.8%	n/a	n/a	+
	5 year % change	-2%	-4%	-6%	n/a	n/a	+
	Billion Euro	€59	€59	€60	n/a	n/a	+
	Default Rate	0.2%	0.2%	0.2%	n/a	n/a	+
Utilities	Debt to GDP	2.1%	1.9%	1.3%	n/a	n/a	+
	5 year % change	-30%	-29%	-48%	n/a	n/a	+
	Billion Euro	€65	€62	€45	n/a	n/a	+
	Default Rate	0.4%	0.4%	0.5%	n/a	n/a	+
Information Technology	Debt to GDP	0.4%	0.4%	0.6%	n/a	n/a	⚠
	5 year % change	57%	27%	87%	n/a	n/a	⚠
	Billion Euro	€14	€13	€19	n/a	n/a	⚠
	Default Rate	1.3%	1.5%	0.9%	n/a	n/a	⚠
Consumer Staples	Debt to GDP	0.4%	0.4%	0.4%	n/a	n/a	⚠
	5 year % change	-26%	-17%	18%	n/a	n/a	⚠
	Billion Euro	€11	€13	€15	n/a	n/a	⚠
	Default Rate	3.2%	3.2%	3.5%	n/a	n/a	⚠
Energy	Debt to GDP	0.0%	0.0%	0.0%	n/a	n/a	+
	5 year % change	-31%	-18%	-3%	n/a	n/a	+
	Billion Euro	€1	€1	€1	n/a	n/a	+
	Default Rate	19.9%	21.3%	18.8%	n/a	n/a	+

Household Debt

Household Debt, by Type		2016	2017	2018	2019	2020 Q1	
Mortgage Debt	Debt to GDP	36.0%	36.0%	37.0%	38.0%	39.0%	+
	5 year % change	-1%	-1%	2%	6%	9%	+
	Billion Euro	€1,126	€1,175	€1,231	€1,301	€1,317	+
Consumer Credit	Debt to GDP	5.9%	5.9%	5.8%	5.9%	5.9%	+
	5 year % change	-15%	-10%	-6%	-1%	2%	+
	Billion Euro	€184	€192	€196	€202	€202	+
Other	Debt to GDP	11.5%	11.2%	10.9%	10.8%	10.8%	+
	5 year % change	-17%	-18%	-17%	-13%	-11%	+
	Billion Euro	€361	€362	€366	€373	€370	+

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n/a: Data Not Available

Private Debt by Lender/Holder

Private Debt Lenders		2016	2017	2018	2019	2020 Q1	
Commercial and Savings Banks	Debt to GDP	46.0%	47.0%	48.0%	49.0%	51.0%	
	5 year % change	-5%	-3%	5%	9%	13%	⚠
	Billion Euro	€1,437	€1,512	€1,617	€1,700	€1,730	
Mortgage and Land Banks	Debt to GDP	13.9%	13.4%	12.4%	12.6%	13.0%	
	5 year % change	-32%	-29%	-26%	-20%	-16%	+
	Billion Euro	€433	€436	€416	€433	€443	
Credit Institutions	Debt to GDP	16.5%	16.8%	17.2%	17.8%	18.1%	
	5 year % change	7%	6%	7%	10%	14%	⚠
	Billion Euro	€517	€546	€577	€611	€619	
Foreign Loans	Debt to GDP	11.4%	12.5%	14.0%	14.5%	15.1%	
	5 year % change	19%	26%	25%	43%	45%	⚠
	Billion Euro	€355	€407	€470	€500	€517	
Other Financial Institutions	Debt to GDP	6.9%	7.1%	7.7%	7.6%	7.7%	
	5 year % change	12%	12%	15%	28%	31%	⚠
	Billion Euro	€216	€229	€257	€263	€264	
Corporate Bonds	Debt to GDP	5.9%	6.5%	5.6%	6.2%	6.7%	
	5 year % change	43%	36%	14%	21%	26%	⚠
	Billion Euro	€184	€211	€188	€214	€229	

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Portfolio Loans & Investment (Total Economy) - Germany into Foreign Countries

Debt Security Investment		2015	2016	2017	2018	2019 Q2	
Germany Holdings of Foreign Debt Securities	to GDP	58.9%	58.2%	58.4%	56.4%	60.6%	
	5 year % change	13%	22%	3%	-0%	4%	+
	Billion Euro	€1,783	€1,825	€1,895	€1,886	€2,051	
France	to GDP	8.5%	8.2%	8.4%	8.2%	9.1%	
	5 year % change	26%	18%	-5%	-4%	-0%	+
	Billion Euro	€258	€258	€273	€275	€308	
United States	to GDP	6.2%	7.0%	6.8%	6.3%	6.8%	
	5 year % change	39%	78%	67%	49%	60%	!
	Billion Euro	€186	€219	€222	€209	€232	
Netherlands	to GDP	6.1%	6.0%	6.0%	6.3%	6.7%	
	5 year % change	-1%	-0%	-13%	-6%	-1%	+
	Billion Euro	€184	€190	€195	€209	€228	
Equity and Investment Fund Shares		2015	2016	2017	2018	2019 Q2	
Germany Holdings of Foreign Equity and Investment Fund Shares	to GDP	28.7%	29.9%	33.7%	30.0%	34.3%	
	5 year % change	35%	68%	61%	25%	36%	!
	Billion Euro	€869	€936	€1,093	€1,004	€1,161	
Luxembourg	to GDP	13.2%	13.6%	15.1%	13.4%	14.8%	
	5 year % change	18%	46%	43%	19%	27%	!
	Billion Euro	€399	€426	€489	€448	€502	
United States	to GDP	3.5%	3.8%	4.1%	3.9%	4.7%	
	5 year % change	113%	129%	98%	47%	65%	!
	Billion Euro	€106	€119	€133	€130	€159	
Ireland	to GDP	2.0%	2.4%	2.9%	2.9%	3.6%	
	5 year % change	166%	209%	169%	113%	129%	!
	Billion Euro	€61	€74	€93	€97	€122	
Loans		2015	2016	2017	2018	2019 Q2	
Germany Holding of Foreign Loans	to GDP	33.7%	33.2%	32.7%	33.2%	35.2%	
	5 year % change	0%	1%	-4%	1%	6%	+
	Billion Euro	€1,020	€1,041	€1,065	€1,116	€1,197	
Germany Holding of Foreign Loans: Short Term	to GDP	12.5%	11.8%	11.8%	11.7%	13.6%	
	5 year % change	-0%	-1%	-2%	-1%	5%	+
	Billion Euro	€379	€383	€392	€462	€370	
Germany Holding of Foreign Loans: Long Term	to GDP	21.2%	21.4%	20.9%	21.6%	21.6%	
	5 year % change	0%	2%	-5%	2%	6%	+
	Billion Euro	€641	€671	€682	€724	€734	

* Total Economy includes Financial, Non-Financial and General Government sectors

! High Concern ! Concern ! Low Concern ! Current or recent crisis + No Current Concern

n/a: Data Not Available

Portfolio Loans & Investment (Total Economy) - Foreign Countries into Germany

Debt Security Investment		2015	2016	2017	2018	2019 Q2	
Foreign Holdings of Germany's Debt Securities	to GDP	223.0%	237.5%	217.3%	225.4%	158.2%	
	5 year % change	29%	41%	24%	38%	12%	⚠
	Billion Euro	€6,756	€7,445	€7,052	€7,537	€5,359	
Cayman Islands	to GDP	20.0%	22.3%	19.2%	29.6%	29.5%	
	5 year % change	2799%	3620%	3927%	5845%	10377%	⚠
	Billion Euro	€606	€699	€624	€991	€999	
Japan	to GDP	29.5%	32.7%	28.4%	26.9%	29.5%	
	5 year % change	18%	34%	14%	19%	32%	⚠
	Billion Euro	€893	€1,023	€921	€900	€998	
Luxembourg	to GDP	15.0%	16.0%	16.0%	15.4%	16.3%	
	5 year % change	74%	84%	45%	41%	40%	⚠
	Billion Euro	€453	€502	€518	€516	€552	
Equity and Investment Fund Shares		2015	2016	2017	2018	2019 Q2	
Foreign Holdings of Germany's Equity and Investment Fund Shares	to GDP	140.1%	146.2%	163.2%	150.4%	148.8%	
	5 year % change	106%	124%	111%	61%	74%	⚠
	Billion Euro	€4,246	€4,583	€5,295	€5,031	€5,040	
Canada	to GDP	16.0%	17.5%	20.3%	18.8%	22.0%	
	5 year % change	93%	103%	86%	46%	64%	⚠
	Billion Euro	€483	€547	€658	€628	€744	
United Kingdom	to GDP	16.6%	17.0%	21.2%	15.1%	17.2%	
	5 year % change	88%	111%	121%	26%	16%	⚠
	Billion Euro	€504	€534	€688	€504	€582	
Luxembourg	to GDP	11.7%	11.8%	13.1%	13.1%	15.3%	
	5 year % change	104%	116%	113%	56%	64%	⚠
	Billion Euro	€354	€370	€425	€438	€517	

* Total Economy includes Financial, Non-Financial and General Government sectors

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n/a: Data Not Available

Derivative Activity

OTC Derivative Activity by Contract Type		2015	2016	2017	2018	2019	
Interest Rate	to GDP	928.0%	965.0%	1160.0%	990.0%	964.0%	
	5 Year % Change	-49%	-47%	-26%	-34%	-25%	+
	Billion Euro	28,101	30,198	37,683	33,160	33,167	
Foreign Exchange	to GDP	169.0%	141.0%	138.0%	134.0%	134.0%	
	5 Year % Change	-14%	-29%	-27%	-20%	-26%	+
	Billion Euro	5,122	4,419	4,496	4,496	4,607	
Credit Derivatives	to GDP	44.0%	44.0%	49.0%	22.0%	19.0%	
	5 Year % Change	-56%	-55%	-28%	-64%	-61%	+
	Billion Euro	1,327	1,362	1,577	735	642	
Index and Stock-related	to GDP	17.0%	16.0%	14.0%	12.0%	5.0%	
	5 Year % Change	-34%	-28%	-33%	-34%	-70%	+
	Billion Euro	526	506	450	386	186	
Commodity contracts	to GDP	1.0%	1.0%	1.0%	1.0%	1.0%	
	5 Year % Change	-87%	-89%	-88%	-83%	-48%	+
	Billion Euro	31	29	19	22	26	
Total Notional	to GDP	1160.0%	1167.0%	1361.0%	1159.0%	1123.0%	
	5 Year % Change	-46%	-46%	-26%	-34%	-27%	+
	Billion Euro	35,107	36,514	44,225	38,799	38,628	

▲ High Concern
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n/a: Data Not Available

Largest Individual Lenders

Individual Lenders		2015	2016	2017	2018	2019	
Deutsche Bank	Domestic Loans to GDP	6.7%	6.3%	6%	6.2%	6.2%	
	5 year % change	-17%	-15%	-15%	-13%	-10%	+
	Billion Euro	€204	€197	€200	€207	€214	
	Charge-off Rate	n/a	n/a	n/a	n/a	n/a	
KfW (State-Owned)	Domestic Loans to GDP	4.4%	4.4%	3.9%	3.8%	3.8%	
	5 year % change	n/a	-1%	-9%	-8%	-8%	+
	Billion Euro	€135	€137	€128	€127	€129	
	Charge-off Rate	n/a	n/a	n/a	n/a	n/a	
DZ Bank	Domestic Loans to GDP	3.6%	4.9%	4.9%	4.9%	5.1%	
	5 year % change	-9%	25%	37%	28%	38%	!
	Billion Euro	€110	€154	€158	€163	€175	
	Charge-off Rate	n/a	n/a	n/a	n/a	n/a	
Commerzbank	Domestic Loans to GDP	7.4%	8.6%	8.2%	7.4%	8%	
	5 year % change	-44%	-24%	-22%	-17%	-7%	+
	Billion Euro	€223	€271	€265	€249	€261	
	Charge-off Rate	n/a	n/a	n/a	n/a	n/a	

 High Concern
  Concern
  Low Concern
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n/a: Data Not Available

Real Estate

Total Debt		2016	2017	2018	2019	2020 Q1
Mortgage Debt	Debt to GDP	36.0%	36.0%	37.0%	38.0%	39.0%
	5 year % change	-1%	-1%	2%	6%	9%
	Billion Euro	€1,126	€1,175	€1,231	€1,301	€1,317



Quarterly Residential Housing Summary		Dec-2018	Mar-2019	Jun-2019	Sep-2019	Dec-2019	Mar-2020
Total Housing Units Approved for Construction	Volume	41,229	40,101	45,071	47,400	44,108	40,959
	Annual Change	-4.0%	1.0%	-2.0%	2.0%	7.0%	2.0%
Total Housing Units Construction Started	Volume	5,108	5,092	5,517	5,700	5,648	5,749
	Annual Change	2.0%	12.0%	3.0%	6.0%	11.0%	13.0%
Residential Property Price Index	Index (2015=100)	124.6	124.6	127.8	129.6	132.7	133.1
	Annual Change	6.0%	5.0%	6.0%	5.0%	7.0%	7.0%

▲ High Concern
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n/a: Data Not Available

Additional Data








Public Debt		2016	2017	2018	2019	2020 Q1
Total General Government Debt	Debt to GDP	69.0%	65.0%	62.0%	60.0%	62.0%
	5 Year % Change	-13%	-20%	-21%	-21%	-17%
	Billion Euro	€2,169	€2,119	€2,069	€2,053	€2,107
Total Federal Government Debt	Debt to GDP	44.0%	42.0%	40.0%	38.0%	39.0%
	5 Year % Change	-13%	-18%	-20%	-21%	-17%
	Billion Euro	€1,366	€1,351	€1,324	€1,300	€1,328
Total State and Local Government Debt	Debt to GDP	26.0%	24.0%	23.0%	22.0%	23.0%
	5 Year % Change	-15%	-22%	-24%	-21%	-18%
	Billion Euro	€817	€786	€763	€772	€796

Supplementary Data		2016	2017	2018	2019	2020 Q1
Nominal GDP	Billion Euro	€3,128	€3,249	€3,349	€3,441	€3,418
	Annual % Change	3.0%	4.0%	3.0%	3.0%	0.0%
Real GDP	Billion 2015 Euros	€3,092	€3,178	€3,227	€3,246	€3,174
	Annual % Change	2.0%	3.0%	2.0%	1.0%	-2.0%
Consumer Price Index (Inflation)	CPI (2015=100)	101.20	102.60	104.20	105.80	105.70
	Inflation Rate	1.5%	1.4%	1.6%	1.5%	1.4%
Unemployment	Person (Thousands)	2,628	2,439	2,260	2,278	2,264
	Unemployment Rate	5.9%	5.5%	5.0%	5.0%	5.0%
Current Account Balance	Billion Euros	€267	€254	€247	€245	€264
	to GDP	9.0%	8.0%	7.0%	7.0%	8.0%

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▲ Concern
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n/a: Data Not Available

Explanatory Notes

Color Code	Cell Description
	5 Year % Change > 40%
	5 Year % Change > 40%
	Debt to GDP < 1.5% (immaterial)
	5 Year % Change > 20% < 40%
	Debt to GDP < 1.5% (immaterial)
	5 Year % Change > 13% < 20%
	Debt to GDP < 1.5% (immaterial)
	Residual Risk Period

 High Concern
  Concern
  Low Concern
  Current or recent crisis
  No Current Concern

n/a: Data Not Available

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