

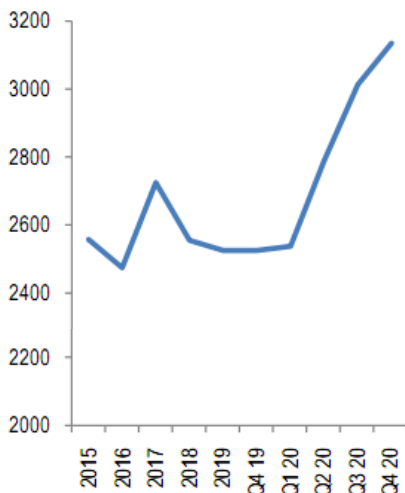
Sep - 2021

Germany Banking Assets

	Assets Euro bn\$
Germany total banking assets	
Commercial banks total	3445
Public banks total	1531.92
Cooperative banks total	872.43
Development banks total	534
Central bank	2471
Total	8854.35

Source Mdlincoln

Total credit to non-financial corporations (core debt) Eur bn



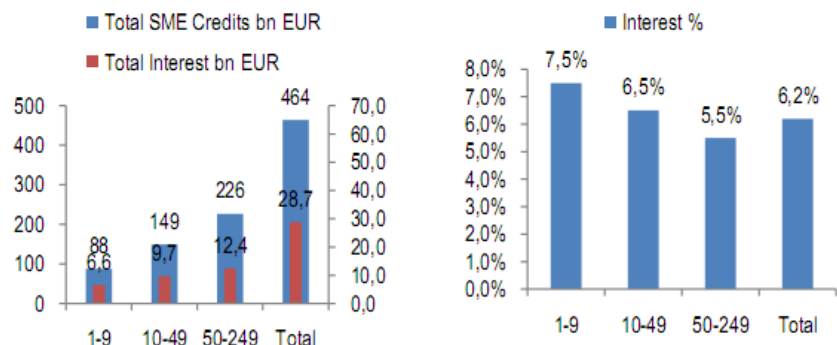
Source: BIS

Estimates of SME credit rates by sector

	Total
Manufacturing	6.1%
Construction industry	6.7%
Trade, maintenance and repair of motor vehicles	6.4%
Professional, scientific and technical services	6.9%
Real estate, Housing	5.8%
Energy supplies	5.7%
Water supply, disposal, removal of environmental pollut	5.9%
Mining and quarrying	6.1%
Transportation and storage	6.3%
Hospitality industry	6.5%
Information and communication	6.6%
Other economic services	6.4%
Repair of computer equipment and household goods	7.1%
Total	6.2%

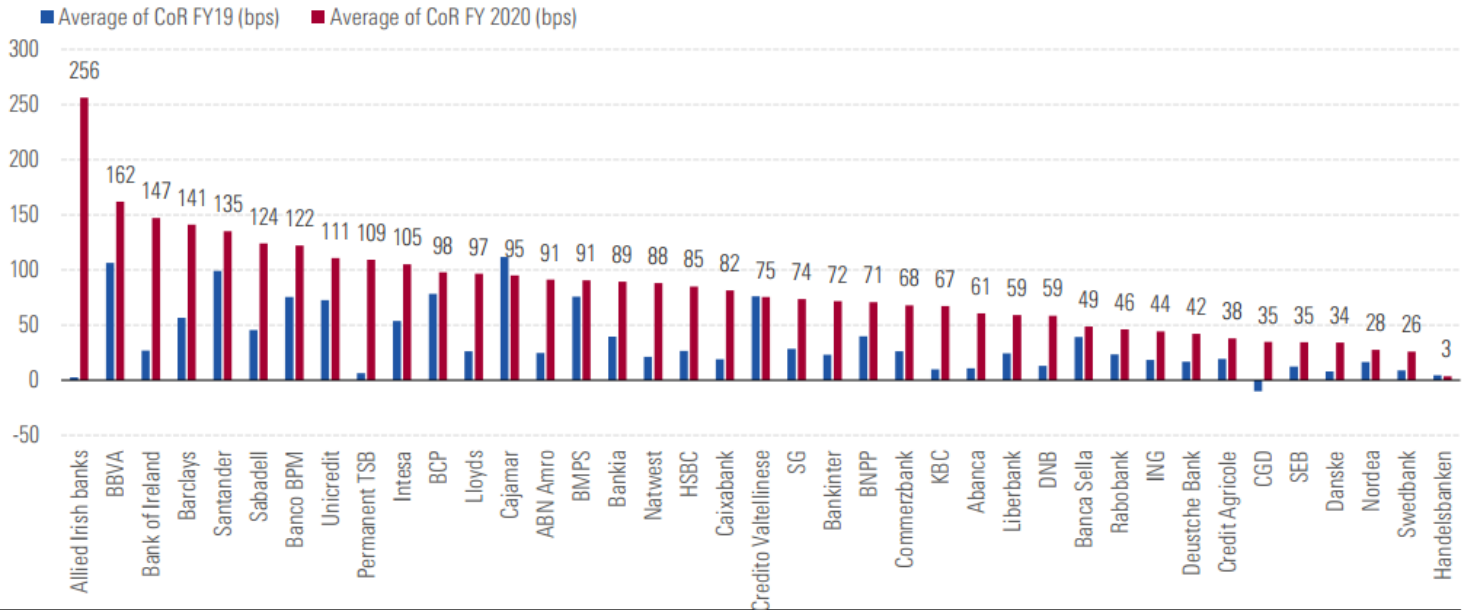
Germany Fixed Income Markets and SME Credits

- We estimate that SME lending in Germany stands at 465bn Euro currently and it is a much higher margin business than corporate lending or mortgages.
- The total corporate loans account for over 60% of the GDP in Germany at 2.8 trln EUR in q3 2020 according to BIS and is up from 1.6 trln Euros in 2015. SME credits (465 bn EUR estimate) constitute 16% of total corporate loans.
- Lending to households amounted to 1.9trln euro and up from 1.6 trln in 2016. Mortgage lending is roughly half of the total to households and remaining part is consumer loans.
- Margins remain low in Germany banking sector, cash deposits generate losses due to negative policy rates. In the ongoing transformation German banks already lose just under 1bn Euro to fintech annually. Further developments are likely to show that that fintech sector will play an even heavier role in the in the Germany banking sector and while large corporations and retail could in the near and medium term still be serviced by Germany legacy banks fintech lenders could focus on providing credits and banking services to SMEs.
- We estimate that Germany top 3 banks have circa 150 bn Euro exposure to SME credits.
- KfW has additional c.200 bn Euro exposure to the SME sector. In a regular year it disseminates on average 45bn EUR of promotional funds with for German SME and larger corporates. But in 2020 KfW distributed 106bn EUR to German SME and corporate – which is more than 100% increase in spending.
- The remainder 150bn Euro in credit exposure is via Germany savings banks and regional development banks.
- Credit rates for Germany SME according to our model depend on size and vary from 7.5% for micro SME to 6.2% to medium size business.



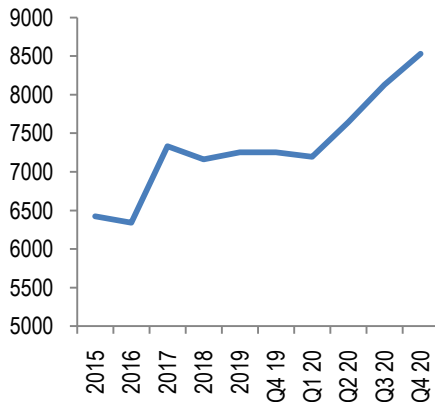
Cost of risk for key European Banks

Cost of risk for Germany banks are historically low numbers. There may have been slight increase in CoR on the back of Covid crisis but still it remains in the 40-70bps range for key German banks/

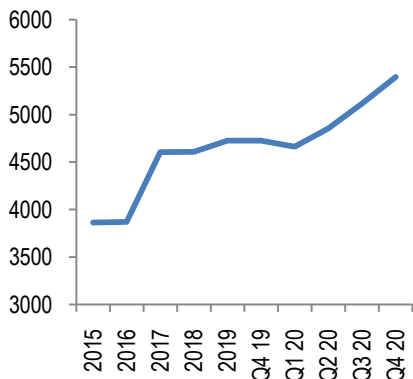


Source: DBRS Morningstar, Company Documents. Average refers to simple average and consolidated businesses including international subsidiaries

Total credit to the non-financial sector (core debt) financial sector Eur bn



Total credit to the private non-financial sector (core debt) Eur bn



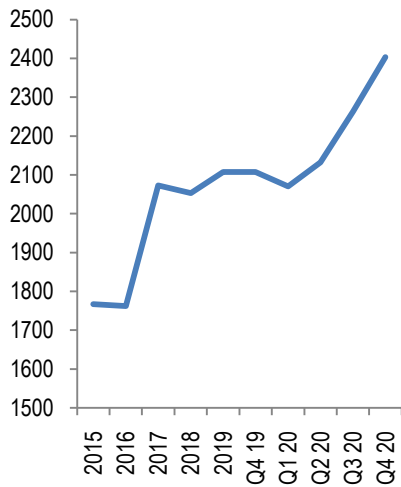
SME loans possess a higher credit risk.

We estimate that some indication of the cost of risk associated with Germany SME credits is 100-200bps or 20-30% of credit spread for B rated bonds for credits of duration 10 and longer. For shorter term credits credit risk is smaller and is 3-20% adopting o Elton et al 2001 methodology for expected loss derived from credit spreads on Germany high yield bonds.

Some examples of Germany high yield bonds yield levels.

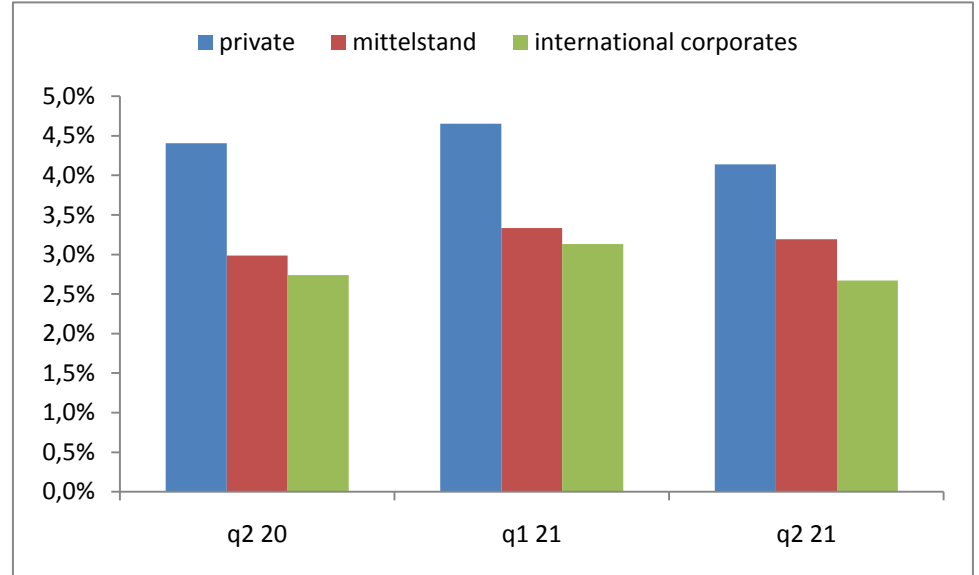
Name	Sector	Coupon	Maturity	Duration	Price	Currency	YTW
DOUGLAS GMBH RegS	Consumer Cyclical	6	Apr 08, 2026	3.99	118.03	EUR	6.26
TUI CRUISES GMBH RegS	Consumer Cyclical	6.5	May 15, 2026	3.58	121.48	EUR	5.91
HP PELZER HOLDING GMBH RegS	Consumer Cyclical	4.13	Apr 01, 2024	2.53	115.38	EUR	5.37
VERTICAL HOLDCO GMBH 144A	Capital Goods	7.63	Jul 15, 2028	3.18	108.2	USD	5.04
NIDDA BONDGO GMBH RegS	Consumer Non-Cyclical	5	Sep 30, 2025	1.7	118.89	EUR	5
VERTICAL HOLDCO GMBH RegS	Capital Goods	6.63	Jul 15, 2028	2.58	126.37	EUR	4.87
CT INVESTMENT GMBH RegS	Consumer Cyclical	5.5	Apr 15, 2026	3.53	121.71	EUR	4.83
BLITZ F18-675 GMBH RegS	Industrial Other	6	Jul 30, 2026	1.51	122.12	EUR	4.58
CTC BONDGO GMBH RegS	Basic Industry	5.25	Dec 15, 2025	1.04	120.84	EUR	4
PCF GMBH RegS	Capital Goods	4.75	Apr 15, 2026	3.53	122.22	EUR	3.95
VERTICAL US NEWCO INC 144A	Capital Goods	5.25	Jul 15, 2027	3.48	105.38	USD	3.68
TELE COLUMBUS AG RegS	Communications	3.88	May 02, 2025	1.85	119.38	EUR	3.62
GRUENENTHAL GMBH RegS	Consumer Non-Cyclical	4.13	May 15, 2028	5.07	122.06	EUR	3.53
NIDDA HEALTHCARE HOLDING AG RegS	Consumer Non-Cyclical	3.5	Sep 30, 2024	1.55	118.84	EUR	3.51
CHEPLAPHARM ARZNEIMITTEL GMBH RegS	Consumer Non-Cyclical	4.38	Jan 15, 2028	4.18	123.45	EUR	3.45
DEUTSCHE BANK AG (NEW YORK BRANCH)	Banking	3.73	Jan 14, 2032	8	103.31	USD	3.32
DEUTSCHE BANK AG (NEW YORK BRANCH)	Banking	4.88	Dec 01, 2032	5.41	109.24	USD	3.25

Total credit to households (core debt) Eur bn



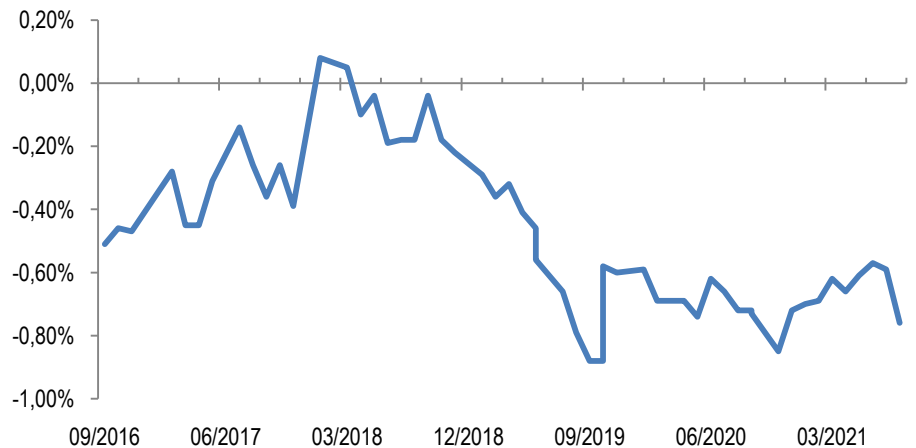
Remainder of the report highlights yields on various German fixed income assets, followed by some NPL data and credit risk model.

Credit Rates Derived from Commerzbank Accounts



Source: Commerzbank

5-Year Bobl Auction



➤ Bond yields highlights:

Average Germany Treasuries Yield

Average Treasuries EUR Currency Bond Yield



Largest German Commercial Banks by Total Assets 2018 (in EUR billion)

Deutsche Bank AG	1325
Commerzbank AG	462
Unicredit Bank AG	286
DB Privat- und Firmenkundenbank (ehemals Postbank)	276
ING-DiBa AG	171
Hamburg Commercial Bank (former HSH Nordbank 42.% owned by Cerberus)	130
Other	1033.5
Commercial banks total	3445

Largest German Saving Banks by Total Assets 2019 (in EUR billion)

Hamburger Sparkasse	46.6
Sparkasse Köln/Bonn	27.3
Kreissparkasse Köln	27
Stadtsparkasse München	20
Frankfurter Sparkasse	19.8
Sparkasse Hannover	16.6
Mittelbrandenburgische Sparkasse in Potsdam	14.2
Sparkasse Pforzheim Calw	13
Ostächsische Sparkasse Dresden	12.9
Kreissparkasse München Starnberg	12.7
Ebersberg	12.7
DekaBank*	113

Landesbank Baden-Württemberg (LBBW)	241
BayernLB	220
Helaba	219.3
Nord/LB	160
SaarLB	15
Other	353.52
Public banks total	1531.92

Largest German Cooperative Banks by Total Assets 2019 (in EUR billion)

DZ Bank AG	518
Deutsche Apotheker- und Ärztebank eG	49.7
Berliner Volksbank eG	14.7
Sparda-Bank Baden-Württemberg eG	14.1
BBBank eG, Karlsruhe	13.1
Sparda-Bank West eG	12.7
Frankfurter Volksbank eG	12.5
Sparda-Bank Südwest eG	10.5
Sparda-Bank München eG	8.9
Bank für Sozialwirtschaft AG	8.6
Volksbank Mittelhessen eG	8.3
Other	201.33
Cooperative banks total	872.43

German Development banks and other

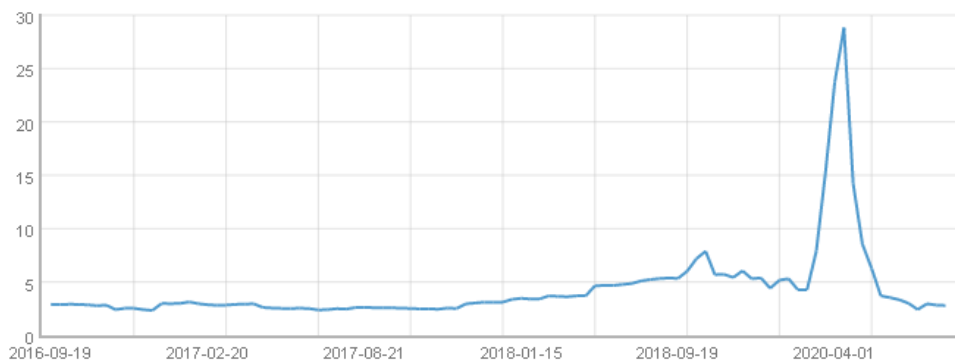
KfW	485
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Other including (LfA Förderbank Bayern, Baden-Württemberg: L-Bank, Investitionsbank Berlin, Investitionsbank des Landes Brandenburg, Bremer Aufbau-Bank, Hamburgische Investitions- und Förderbank) see the section on Government Support for the total list of Germany development banks

Development banks total	534
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Average Germany Consumer Cyclical Yield

Average Consumer Cyclical EUR Currency Bond Yield



Average Germany Consumer non-Cyclical Yield

Average Consumer Non-Cyclical EUR Currency Bond Yield



Average Germany Banking Sector Yield

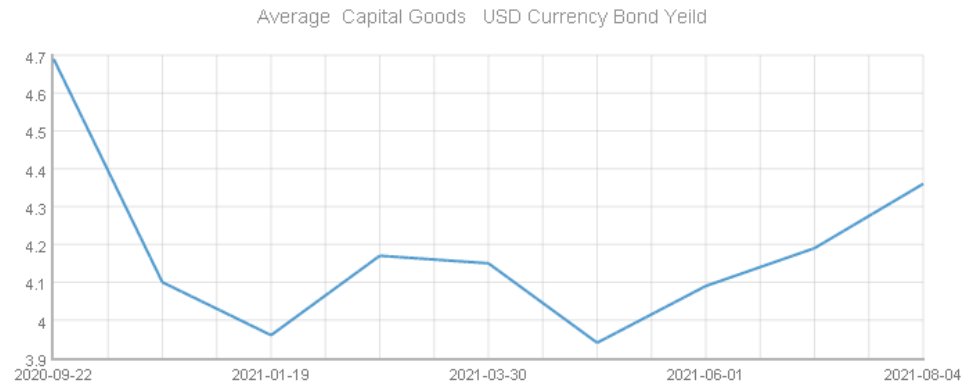
Average Banking USD Currency Bond Yield



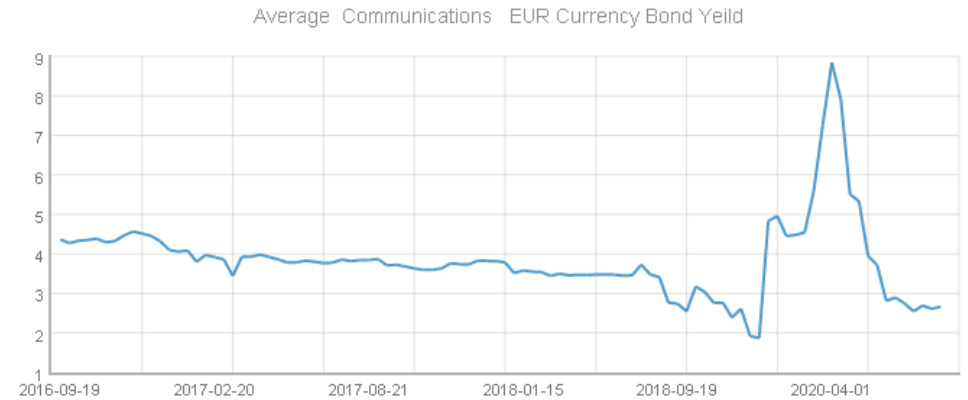
Country Average Sovereign+Corporate USD Yields
Ordered by Current YTM

country	Yield	YieldChange
Ethiopia	10.76	4.11
China	8.62	4.00
Tunisia	11.23	2.66
Luxembourg	5.10	1.22
Peru	4.72	1.00
Chile	3.92	0.70
Vietnam	3.39	0.70
Colombia	3.74	0.69
El Salvador	9.71	0.54
Panama	3.61	0.50
Guatemala	4.31	0.50
Senegal	6.04	0.48
Argentina	15.59	0.35
Bolivia	6.77	0.34
Paraguay	3.64	0.28
Cote D'Ivoire (Ivory Coast)	5.09	0.23
Kazakhstan	2.76	0.21
Indonesia	3.47	0.21
Jordan	4.98	0.19
Sri Lanka	19.57	0.18
Dominican Republic	4.61	0.15
Egypt	6.14	0.15
Trinidad and Tobago	3.30	0.13
Macau	4.58	0.12

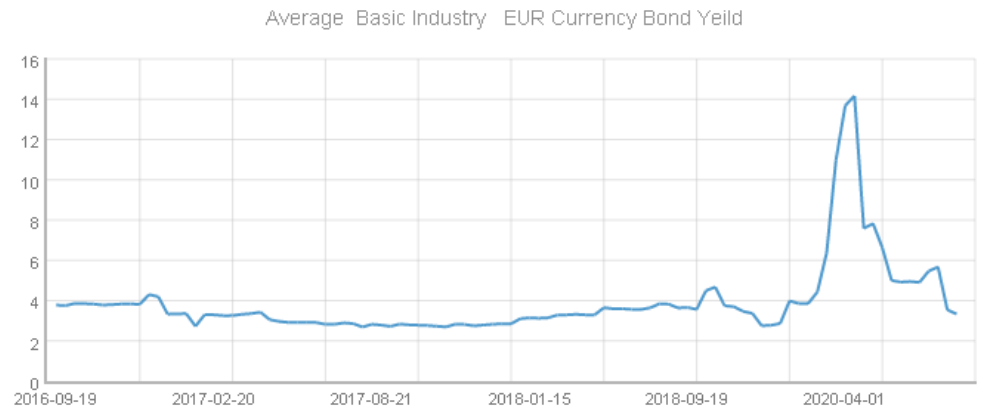
Average Germany Capital Goods Yield



Average Germany Communications Yield

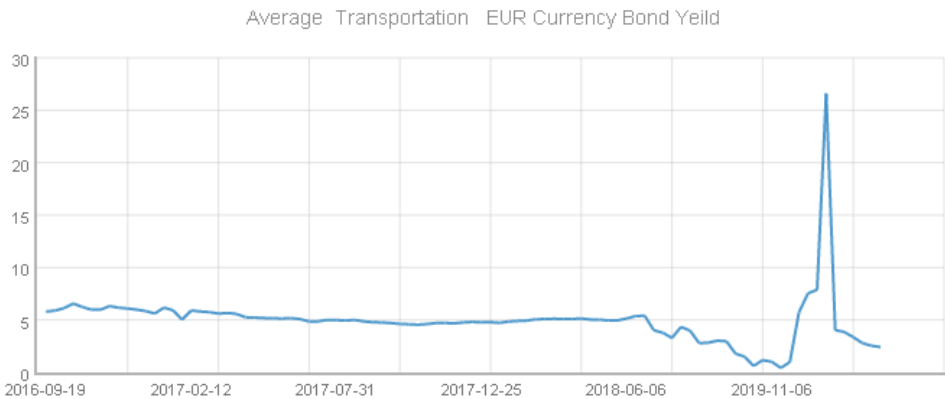


Average Germany Basic Industries Yield

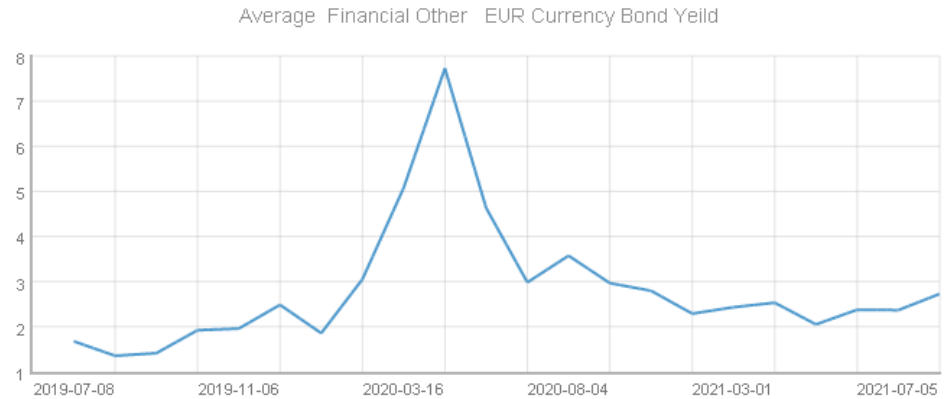


Uruguay	2.28	0.10
Bahrain	4.45	0.09
Romania	2.54	0.02
Lebanon	0.00	0.00
Venezuela	0.00	0.00
Poland	0.57	-0.03
Kuwait	3.78	-0.05
Malaysia	2.46	-0.07
Qatar	1.77	-0.08
Nigeria	5.71	-0.15
Ukraine	5.53	-0.18
Democratic Rep of Congo	4.22	-0.19
Hungary	1.10	-0.21
Israel	4.10	-0.21
Saudi Arabia	2.56	-0.23
Kenya	5.58	-0.25
Gabon	6.53	-0.25
Pakistan	5.75	-0.26
Morocco	3.29	-0.28
Korea (South)	1.51	-0.28
Russian Federation	2.75	-0.29
Singapore	1.75	-0.34
Thailand	2.80	-0.37
Brazil	4.80	-0.38
Mexico	4.39	-0.46
Italy	2.95	-0.48
Philippines	3.34	-0.49

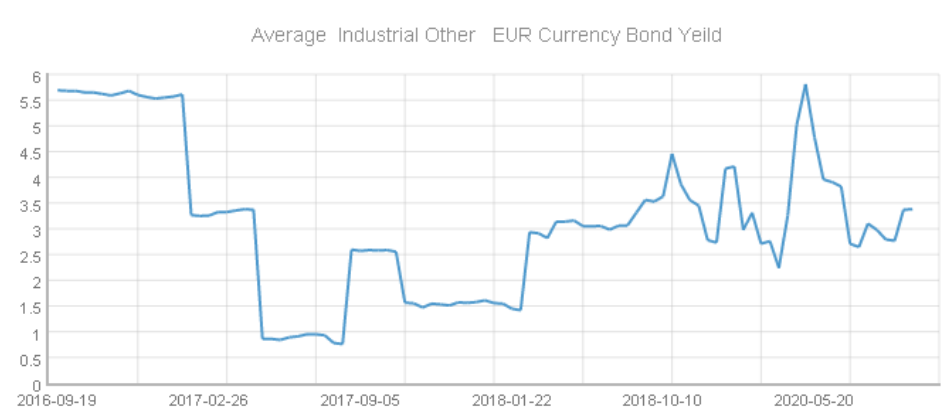
Average Germany Transportation Sector Yield



Average Germany Financials non banking Yield

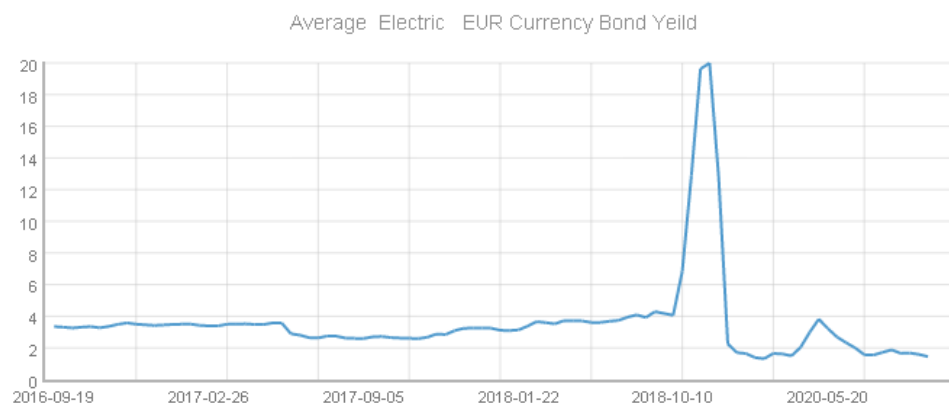


Average Germany Industrial Other Yield



Azerbaijan	2.42	-0.54
Netherlands	2.89	-0.60
South Africa	3.89	-0.68
Hong Kong	3.11	-0.74
Togo	6.72	-0.74
France	2.85	-0.77
Ghana	8.15	-0.78
Germany	2.64	-0.78
Turkey	4.89	-0.88
India	5.70	-0.95
United States	3.55	-0.97
Canada	3.72	-0.97
United Kingdom	3.40	-0.99
Oman	4.38	-1.21
United Arab Emirates	3.34	-1.26
Iraq	6.82	-1.61
Ecuador	9.17	-1.87
Costa Rica	6.12	-2.01
Zambia	7.98	-2.63
Angola	7.75	-2.67
Jamaica	6.79	-4.03

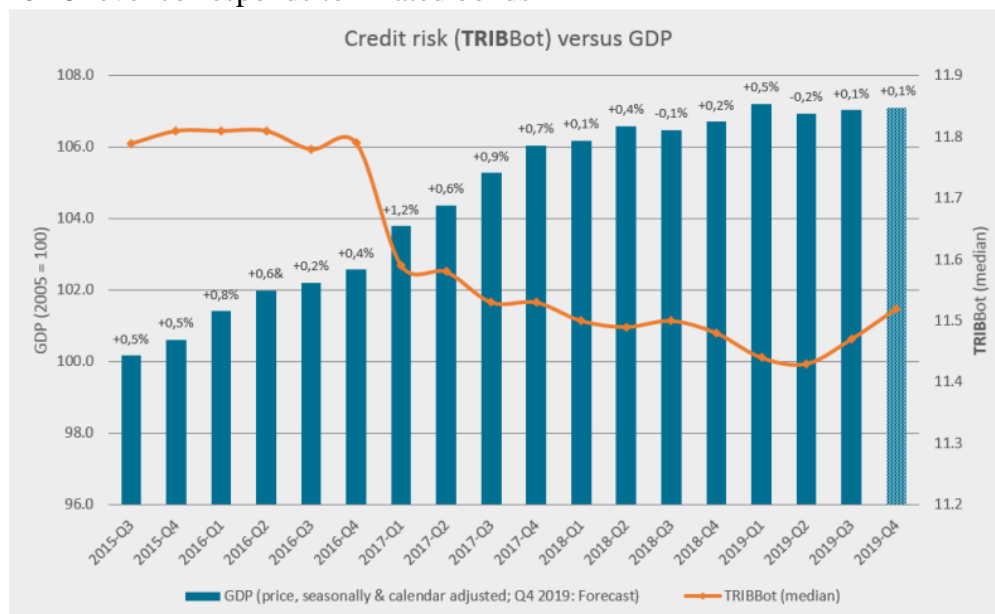
Average Electric Utilities Yield

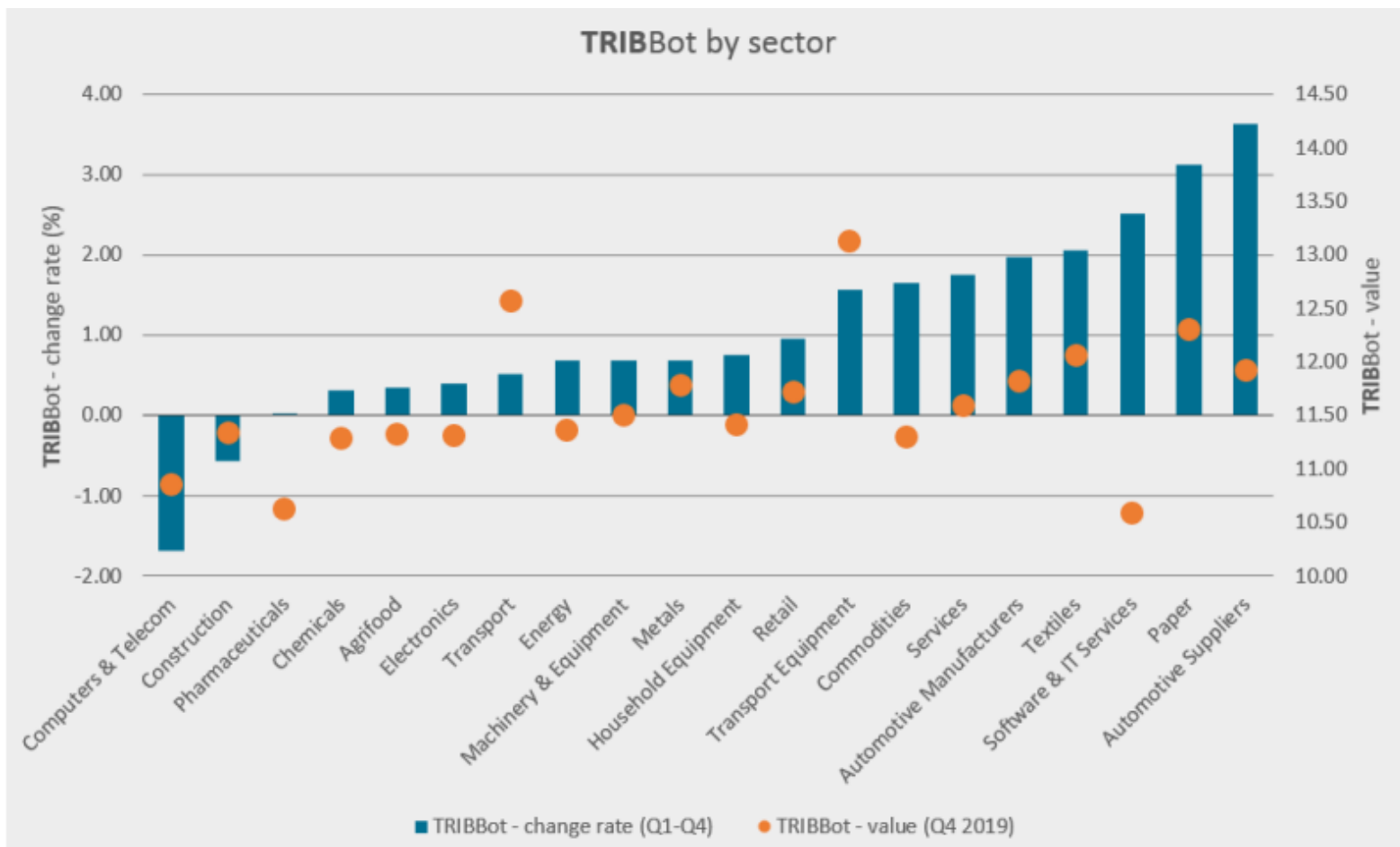


Source for the above charts: Midlincoln Indexes e

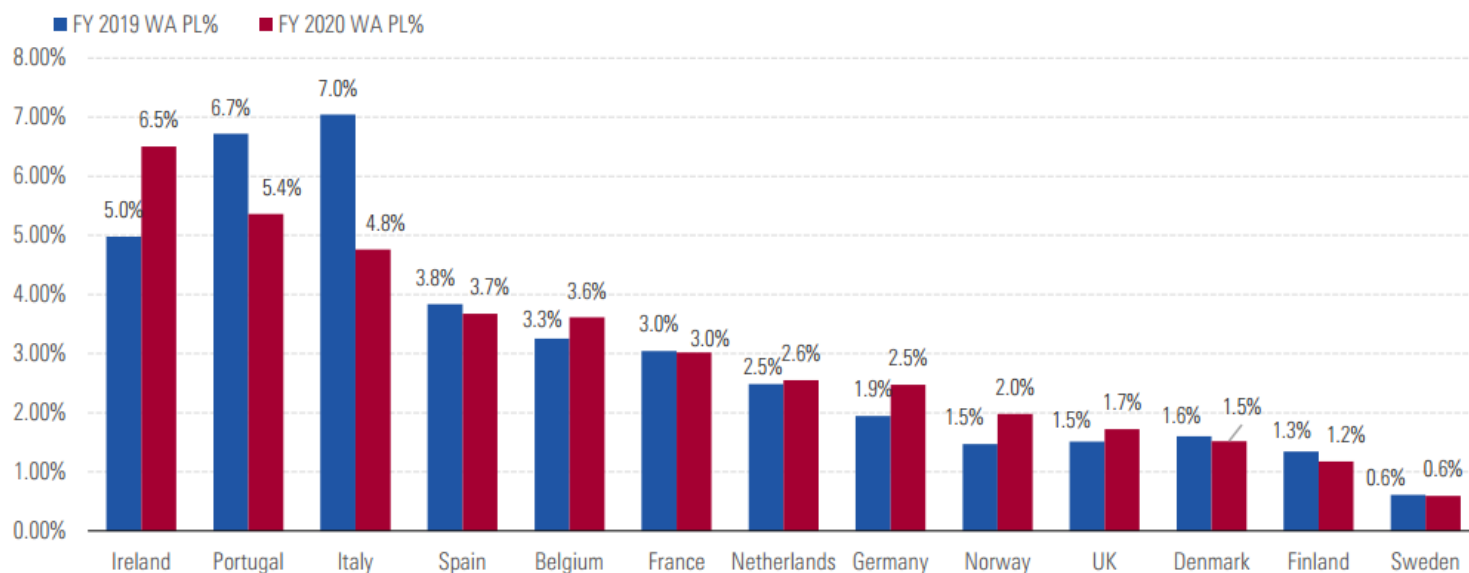
Euler Hermes model for Germany SME credit risk

10-13 level corresponds to B rated bonds





NPL Levels for varios European banks by country



Source: DBRS Morningstar, Company Documents. Average refers to weighted average and consolidated businesses including international subsidiaries and in reported currency. NPLs refers to NPLs EBA definition as reported by banks or Stage 3 loans if NPLs EBA definition are not available. HSBC data in GBP using an average of year spot exchange rate USD:GBP.

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