



FCF Bank Monitor

Q1 2023



THE FINANCING SPECIALIST



EXECUTIVE SUMMARY

Executive Summary

The FCF Bank Monitor is a standardized report on Credit Default Swap spreads, ratings and the fundamental performance of German and foreign banks, most active in the German and Austrian midcap market and is a reference for investors, corporates and professionals

More advanced, detailed and / or customized reports are available upon request

FCF Bank Monitor

is a comprehensive quarterly analysis of the historic and current spreads of Credit Default Swaps (CDS), ratings (“Market View”) and fundamental performance indicators (“Fundamental View”) for banks most active in the German and Austrian corporate lending market. The analysis provides the short-term, medium-term and long-term market view on such banks’ credit default risks and is an indicator for banks’ (re-)financing costs in the capital markets. The rating and fundamental performance analysis provides an indication of the solidity and “pedigree” of the banks as lending partners

Selection of Financial Institutions

The selection of financial institutions is based on FCF’s financing expertise in the German midcap market and includes the most relevant institutions with respect to deal volumes of up to EUR 500m

- Only institutions with actively traded CDS instruments are included, and thus, several relevant regional banks are excluded (e.g. BTV, Oberbank, RLBOÖ, Sparkassen)
- Further, public institutions as KfW and the European Investment Bank (EIB) were not considered in the analyses

Customized Information

More advanced, detailed and / or customized reports can be ordered individually, offering subscribers the possibility to customize the following criteria (among others):

- Inclusion of international / US institutions
- Selection / deselection of specific institutions
- Specific solvency analysis (equity or debt analysis)
- Monthly updates

Recipients

The FCF Bank Monitor targets the following audience:

- Financial Institutions
- Investors
- Corporates with existing bank financings and with further financing needs

Availability

The FCF Bank Monitor is available on FCF’s website at 'www.fcf.de'

Data

All input data is provided by S&P Capital IQ and is not independently verified by FCF. Ratio and multiple calculations are driven based on the input data available. For additional information and disclaimer, please refer to the last page

To recommend colleagues to be added to the mailing list, kindly send an email with the respective contact information

If you have questions, comments or ideas, please do not hesitate to contact us. Supporting information on CDS spreads can be found in the Appendix

FCF OVERVIEW



FCF seeks to provide its clients with financing solutions

- (i) at the lowest cost,
- (ii) with the highest flexibility,
- (iii) in the shortest period of time,
- (iv) with the highest closing probability, and with
- (v) financing partners that integrate well into their strategy

Who We Are

- Specialized Investment Bank and Financing Specialist
- Advising public and private small- / midcap companies
- Advisor for structuring and placement of financing transactions:
 - All instruments: Unbiased approach to all available corporate financing instruments (no product selling approach), allowing for customized financing structures
 - All investors: Close and trusted relationships with senior executives of virtually all relevant equity and debt investors
 - Fast process: Process management skills and direct / personal access to institutional debt and equity investors enable fast transactions
- More than 150 transactions with a total placement volume in excess of EUR 5.0 billion since foundation in 2005
- More than 15 professionals headquartered in Munich

Capital Markets Capabilities and Services

Equity	Private / Pre-IPO	<ul style="list-style-type: none"> ■ Venture capital ■ Growth capital 	<ul style="list-style-type: none"> ■ Private equity
	Public	<ul style="list-style-type: none"> ■ Initial Public Offering (IPO) / Capital increase ■ Dual-track (IPO and alternative transaction) 	<ul style="list-style-type: none"> ■ pursued in tandem ■ Private investment in Public Equity (PIPE) ■ Block trade
Debt	Short-term Debt	<ul style="list-style-type: none"> ■ Receivables / Factoring / Asset-backed securities ■ Borrowing base / Inventory 	<ul style="list-style-type: none"> ■ Working capital / Revolving credit facility ■ Guarantees / Letter of credit
	Long-term Debt	<ul style="list-style-type: none"> ■ Bank loan facility / Syndicated loans ■ Sale-and-lease-back / Leasing ■ Corporate bonds (public / private placement) ■ High yield / PIK bond 	<ul style="list-style-type: none"> ■ Promissory note (<i>Schuldscheindarlehen</i>) ■ Second lien / Subordinated loans ■ Venture debt ■ Unitranches
	Hybrid	<ul style="list-style-type: none"> ■ Mezzanine capital 	<ul style="list-style-type: none"> ■ Convertible bonds

Selected Transactions

<p>M&A (Sell-Side)</p> <p>ENERGIE INSEL</p> <p>Energieinsel</p> <p>[confidential]</p> <p>March 2023</p>	<p>M&A (Sell-Side)</p> <p>PMG</p> <p>PMG Projektraum Management GmbH</p> <p>[confidential]</p> <p>March 2023</p>	<p>M&A (Sell-Side)</p> <p>SER RUZ</p> <p>SER / RUZ Group</p> <p>[confidential]</p> <p>February 2023</p>	<p>European Investment Bank Debt Facility</p> <p>German Bionic</p> <p>German Bionic Systems GmbH</p> <p>EUR 15m</p> <p>December 2022</p>	<p>Financial Advisory</p> <p>MITTELDEUTSCHE AIRPORT HOLDING</p> <p>Mitteldeutsche Flughafen AG</p> <p>[confidential]</p> <p>December 2022</p>	<p>Syndicated Loan</p> <p>ante</p> <p>ante Holding GmbH & Co. KG</p> <p>[confidential]</p> <p>December 2022</p>	<p>Working Capital Facility</p> <p>KIK PARTNERS</p> <p>KKA Management GmbH</p> <p>EUR 7m</p> <p>November 2022</p>	<p>Software-Leasing Facility</p> <p>[confidential]</p> <p>Leading Global Device-as-a-Service Company</p> <p>EUR 10m</p> <p>October 2022</p>	<p>Interest Rate Hedging</p> <p>MITTELDEUTSCHE AIRPORT HOLDING</p> <p>Mitteldeutsche Flughafen AG</p> <p>EUR 150m</p> <p>October 2022</p>	<p>European Investment Bank Debt Facility</p> <p>EVUM MOTORS</p> <p>Evum Motors GmbH</p> <p>> EUR 12m</p> <p>September 2022</p>	<p>Factoring Facility</p> <p>FRANKENGUSS SACHSENGUSS</p> <p>JORA Holding GmbH & Co. KG</p> <p>EUR 25m</p> <p>September 2022</p>	<p>Equity Transaction – Joint Venture with Family Office</p> <p>Doppstadt</p> <p>Doppstadt Group</p> <p>> EUR 50m</p> <p>September 2022</p>
<p>Acquisition Loan and Working Capital Facility</p> <p>Bencis</p> <p>Bencis</p> <p>> EUR 20m</p> <p>May 2022</p>	<p>Acquisition Loan Facility</p> <p>Lloyd Fonds AG</p> <p>Lloyd Fonds AG</p> <p>[confidential]</p> <p>April 2022</p>	<p>European Investment Bank Debt Facility</p> <p>numares HEALTH</p> <p>numares AG</p> <p>EUR 20m</p> <p>February 2022</p>	<p>Syndicated Loan</p> <p>SCHNELLECKE LOGISTICS</p> <p>Schnellecke Logistics SE</p> <p>EUR 70m</p> <p>December 2021</p>	<p>Syndicated Loan</p> <p>KWD AUTOMOTIVE</p> <p>KWD Automotive AG & Co. KG</p> <p>EUR 70m</p> <p>December 2021</p>	<p>Syndicated Loan</p> <p>[confidential]</p> <p>Top 25 Pharmaceutical Company</p> <p>EUR 80m</p> <p>November 2021</p>	<p>Syndicated Loan, Factoring, Real Estate Sale & Lease-Back</p> <p>[confidential]</p> <p>Top 10 German Food Company</p> <p>EUR 85m</p> <p>October 2021</p>	<p>Venture Financing</p> <p>Precisis AG</p> <p>Precisis AG</p> <p>EUR 20m</p> <p>September 2021</p>	<p>Syndicated Loan</p> <p>ZIEGLER GROUP</p> <p>Ziegler Holzindustrie GmbH & Co. KG</p> <p>EUR 230m</p> <p>August 2021</p>	<p>Machinery Sale & Rent-Back and Debt Facilities</p> <p>KmB</p> <p>KmB Technologie GmbH</p> <p>≥ EUR 15m</p> <p>August 2021</p>	<p>Capital Increase and EIB Debt Facility</p> <p>quantum systems</p> <p>Quantum Systems GmbH</p> <p>> EUR 10m</p> <p>July / May 2021</p>	<p>Syndicated Loan</p> <p>[confidential]</p> <p>Asamer Baustoffe AG</p> <p>EUR 80m</p> <p>May 2021</p>



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financing advisor in Germany, purely focusing on corporate financing transactions



More than
15

investment banking professionals



More than
100

years of aggregated, investment banking / financing experience



More than
150

completed transactions



More than
5 bn

total volume of advised & closed transactions since 2005



Network

access to more than 4000 international financial institutions



2000

contacts to family offices and ultra-high-net-worth individuals worldwide



More than
25

international conferences organized



More than
150

articles and research papers published



Leading

advisor for financing transactions with EIB in the DACH region

KEY FINDINGS



Key Findings

The FCF Bank Monitor highlights the key developments of German and foreign banks most active in the German and Austrian mid-cap financing market

The FCF Bank Monitor outlines several key factors that should be considered when selecting banks during a (re)financing of existing financial liabilities

Key Findings (1Q23)

Macro findings

- In 1Q23, CDS spreads of all banks increased sharply following the collapse of SVB, Signature Bank and Credit Suisse and the ensuing market uncertainty. Widespread investor concerns remain regarding the liquidity and solvency of the financial institutions as they attempt to adapt their balance sheets to cope with the effects of the most aggressive tightening in monetary policy for over a century
- Mean CDS spreads of 92.1 bps (German and Foreign Institutions) are more than two times higher compared to 2021 levels (42.9 bps; all-time low levels) and match levels last seen in 2016
- The FCF ranking of German and foreign banks operating in the German and Austrian midcap segments, based on CDS spreads across 1-, 5- and 10-year terms, major credit ratings and key fundamental performance criteria gives an indication on the banks expected future stability and crisis resistance:
 - LBBW (score: 96.2) heads the league table followed by ING (score: 91.0) and Erste Bank (score: 90.8)
 - Deutsche Bank (score: 32.7) completes the league table ranking behind NORD/LB (score: 40.1) and Commerzbank (score: 44.1)
- The variation in CDS spreads and ratings highlights the importance of considering the perceived solvency of the bank prior to selecting an institution as a lending bank or transaction counterparty:
 - Across 1-year CDS spreads, the lowest CDS spread lies at 10.4 bps (ING) whilst the highest spread lies at 181.1 bps (Deutsche Bank), 17.4x higher
 - Across 5-year CDS spreads, the lowest CDS spread lies at 46.1 bps (ING) whilst the highest spread lies at 197.1 bps (Deutsche Bank), 4.3x higher
 - Across 10-year CDS spreads, the lowest CDS spread lies at 58.8 bps (ING) whilst the highest spread lies at 231.0 bps (RBI), 3.9x higher
 - Across S&P ratings, the highest rating is AA- (Helaba, LBBW) whilst the lowest rating is BBB- (Commerzbank, Deutsche Bank)
- The relationship between backward- and forward-looking indicators has weakened over the last quarter, and correlation & explanatory power decreased marginally to R² of 42%. RBI and Deutsche Bank are the largest outliers in 1Q23, suggesting these institutions show a higher probability of a future rating downgrade (displaying higher CDS spreads than their current rating would indicate)

Individual bank findings

- Despite solid fundamentals, Deutsche Bank shows the highest CDS spreads in 1Q23, reflecting growing investor unease among European banking institutions following the collapse of SVB, Signature Bank and Credit Suisse, especially among the largest and most exposed institutions
- The Austrian RBI continues to display very high CDS spreads in 1Q23 as investors continue to evaluate the full impact of the Russia/Ukraine war on RBI's large CEE-portfolio. In addition, RBI management is still working on a sale or spin-off of its Russia business

Combined Ranking Overview (Market & Fundamental)

Q1 2023

FCF allocated scores of 1 (low) to 22 (high) to the 22 banks, based on the **Market View** (CDS spread & volatility, public credit rating) and the **Fundamental View** (profitability, equity and non-performing loan ratios)

The combination of both single scores results in a **Combined View**, giving an indication on the banks' expected future stability, crisis resistance and overall wholesale funding costs – across maturities, rating agencies and fundamental criteria

LBBW (score 96.2) heads the league table, whereas Deutsche Bank ranks 22nd (32.7)

Rank	Trend	Bank	Country	Market View				Market View Score	Fundamental View					Fundamental View Score	Combined Total Score	Delta vs Market View
				CDS 1Y Score	CDS 5Y Score	CDS 10Y Score	Rating Score		RoE	RoA	Tier 1 Cap	% NPL	Cost Eff.			
1	↗	LBBW	Germany	20	21	21	21	62.0	3	4	11	18	21	34.2	96.2	0
2	↘	ING	Netherlands	22	22	22	14	58.0	12	12	10	12	9	33.0	91.0	0
3	↗	ERSTE Group	Austria	9	14	14	14	38.0	19	18	16	20	15	52.8	90.8	8
4	↘	Bayern LB	Germany	21	19	19	8	46.7	4	5	20	17	10	33.6	80.3	1
5	↗	Santander	Spain	17	13	13	14	42.7	20	16	7	1	17	36.6	79.3	3
5	↘	DZ BANK	Germany	17	20	20	8	45.7	9	9	12	15	11	33.6	79.3	1
7	↔	ABN-AMRO	Netherlands	16	17	17	8	41.0	15	14	19	10	4	37.2	78.2	2
8	↘	CRÉDIT AGRICOLE	France	19	17	18	14	49.3	13	10	5	7	12	28.2	77.5	-4
9	↗	中國銀行 BANK OF CHINA	China	9	6	5	14	27.0	17	19	8	13	20	46.2	73.2	4
10	↘	Helaba	Germany	16	15	14	21	50.7	7	8	1	16	5	22.2	72.9	-7
11	↗	J.P.Morgan	USA	6	9	9	4	19.3	21	20	13	19	13	51.6	70.9	7
12	↗	BNP PARIBAS	France	14	16	15	14	43.3	10	11	8	3	6	22.8	66.1	-5
13	↘	Crédit Mutuel	France	13	12	13	14	38.3	1	1	1	20	21	26.4	64.7	-3
14	↗	HSBC	UK	11	8	7	4	20.7	14	15	18	8	14	41.4	62.1	2
15	↘	Raiffeisen Bank International	Austria	2	2	2	4	7.7	22	22	21	5	19	53.4	61.1	6
16	↗	UniCredit	Italy	6	4	4	3	11.7	18	17	22	6	16	47.4	59.1	3
17	↔	NATIXIS BEYOND BANKING	France	11	13	13	8	31.7	6	6	6	11	3	19.2	50.9	-5
18	↔	SOCIETE GENERALE	France	8	10	11	8	26.7	5	7	17	2	7	22.8	49.5	-4
19	↘	Hamburg Commercial Bank	Germany	2	2	2	4	8.0	16	21	1	9	18	39.0	47.0	1
20	↔	COMMERZBANK	Germany	14	8	9	1	21.3	8	1	1	20	8	22.8	44.1	-5
21	↔	NORD/LB	Germany	4	6	8	8	19.7	2	3	14	14	1	20.4	40.1	-4
22	↔	Deutsche Bank	Germany	2	2	3	1	5.7	11	13	15	4	2	27.0	32.7	0

Source: S&P Capital IQ as of March 27th, 2023

Notes: Please see Appendix for a detailed overview of the market & fundamental data.

Market view score & fundamental view score are scaled down to achieve a 50/50 weight for the total score

Combined Ranking Overview (Market & Fundamental)

LTM Development

Dutch ING bank has been replaced by the German LBBW at the top of the league table after ranking first in the previous three quarters

Erste Bank shows the most positive development over the last four quarters, gaining five places from rank 8 in 2Q22 to rank 3 in 1Q23

Crédit Mutuel experienced the largest drop by six places over the past quarters from rank 7 in 2Q22 to rank 13 in 1Q23

Q2 2022	Q3 2022	Q4 2022	Q1 2023
1. ING	1. ING	1. ING	1. LBBW
2. DZ BANK	2. Bayern LB	2. Bayern LB	2. ING
3. Bayern LB	3. DZ BANK	3. LBBW	3. ERSTE
4. LBBW	4. LBBW	4. DZ BANK	4. Bayern LB
5. CRÉDIT AGRICOLE	5. Helaba	5. CRÉDIT AGRICOLE	5. DZ BANK
6. Santander	6. CRÉDIT AGRICOLE	6. ERSTE	6. Santander
7. Crédit Mutuel	7. ERSTE	7. ABN-AMRO	7. ABN-AMRO
8. ERSTE	8. Santander	8. Helaba	8. CRÉDIT AGRICOLE
9. 中國銀行 BANK OF CHINA	9. Crédit Mutuel	9. Crédit Mutuel	9. 中國銀行 BANK OF CHINA
10. BNP PARIBAS	10. 中國銀行 BANK OF CHINA	10. Santander	10. Helaba
11. J.P.Morgan	11. J.P.Morgan	11. 中國銀行 BANK OF CHINA	11. J.P.Morgan
12. ABN-AMRO	12. ABN-AMRO	12. J.P.Morgan	12. BNP PARIBAS
13. Helaba	13. BNP PARIBAS	13. BNP PARIBAS	13. Crédit Mutuel
14. Hamburg Commercial Bank	14. HSBC	14. Raiffeisen Bank International	14. HSBC
15. SOCIETE GENERALE	15. Hamburg Commercial Bank	15. HSBC	15. Raiffeisen Bank International
16. NATIXIS	16. NATIXIS	16. Hamburg Commercial Bank	16. UniCredit
17. HSBC	17. Raiffeisen Bank International	17. NATIXIS	17. NATIXIS
18. Raiffeisen Bank International	18. SOCIETE GENERALE	18. SOCIETE GENERALE	18. SOCIETE GENERALE
19. NORD/LB	19. NORD/LB	19. UniCredit	19. Hamburg Commercial Bank
20. COMMERZBANK	20. COMMERZBANK	20. COMMERZBANK	20. COMMERZBANK
21. UniCredit	21. UniCredit	21. NORD/LB	21. NORD/LB
22. Deutsche Bank	22. Deutsche Bank	22. Deutsche Bank	22. Deutsche Bank

5-YEAR CDS SPREADS



5-Year CDS Spreads

Overview & Historical Analysis

1 Over the last 3 years, CDS spreads have generally trended upwards. In 1Q23, CDS spreads of foreign & domestic banks trade at a mean of 94.7 bps

2 Since 2021, all banks showed a significant increase (e.g., deterioration) in CDS spreads, in particular driven by the Russian invasion into Ukraine and due to global sanctions, increasing inflation and high economic uncertainty

3 In 1Q23, Hamburg Commercial received an upgrade from Moody's by one notch on the basis of a strengthened solvency profile

German Institutions	1 10-Year Price Development (in bps)											2 3-Year Changes (in %)			Volatility	3 Long-Term Ratings		
	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Mar-23	Δ 20-23	Δ 21-23	Δ 22-23	90 Days	S&P	Moody's	Fitch
Bayern LB	101.0	77.2	75.8	68.6	32.9	38.3	35.3	64.4	37.4	57.2	54.2	-15.9%	45.0%	-5.2%	3.8%	-	A2	A-
Commerzbank	110.7	83.6	90.6	117.3	54.5	124.7	35.2	38.7	44.4	85.9	98.6	154.7%	121.9%	14.8%	4.4%	BBB-	Baa2	-
Deutsche Bank	84.3	79.7	96.5	162.3	72.4	204.6	60.9	54.5	45.8	123.0	197.1	261.9%	330.4%	60.2%	5.5%	BBB-	Ba1	BBB+
DZ Bank	82.4	75.9	78.1	78.6	70.2	66.1	62.0	62.5	33.6	57.7	53.5	-14.3%	59.2%	-7.2%	2.0%	A	A3	AA-
Hamburg Commercial	189.3	193.8	187.0	172.1	147.6	149.0	109.0	75.2	66.1	198.5	151.8	101.7%	129.8%	-23.6%	2.9%	-	A3	-
Helaba	67.2	58.3	58.2	52.3	46.2	46.9	42.3	56.0	39.7	67.3	67.9	21.1%	70.9%	0.8%	4.3%	-	Aa3	A+
LBBW	80.8	61.4	64.8	50.0	36.6	38.8	48.0	46.9	33.1	48.3	51.8	10.4%	56.5%	7.3%	2.5%	-	Aa3	A-
NORD/LB	na	104.6	114.1	115.8	72.8	93.5	67.2	95.1	69.2	109.0	120.5	26.7%	74.2%	10.5%	3.4%	-	A3	A
Min	67.2	58.3	58.2	50.0	32.9	38.3	35.2	38.7	33.1	48.3	51.8	-15.9%	45.0%	-23.6%	2.0%			
Max	189.3	193.8	187.0	172.1	147.6	204.6	109.0	95.1	69.2	198.5	197.1	261.9%	330.4%	60.2%	5.5%			
Median	84.3	78.4	84.3	97.2	62.4	79.8	54.5	59.2	42.1	76.6	83.2	23.9%	72.6%	4.0%	3.6%			
Mean	102.2	91.8	95.7	102.1	66.6	95.3	57.5	61.7	46.2	93.4	99.4	68.3%	111.0%	7.2%	3.6%			

Foreign Institutions	1 10-Year Price Development (in bps)											2 3-Year Changes (in %)			Volatility	3 Long-Term Ratings		
	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Mar-23	Δ 20-23	Δ 21-23	Δ 22-23	90 Days	S&P	Moody's	Fitch
ABN AMRO	90.2	62.1	66.2	65.4	45.0	64.0	19.6	21.2	39.4	59.4	65.4	209.4%	66.1%	10.1%	2.6%	A	A1	A
Bank of China	113.6	120.1	130.4	142.4	66.1	81.8	35.5	34.3	56.6	94.1	102.9	200.4%	81.9%	9.3%	3.7%	A+	Aa3	A
BNP Paribas	83.3	69.6	70.8	85.6	22.5	73.0	25.4	32.0	33.7	63.2	73.9	131.2%	119.5%	17.1%	3.8%	A+	Aa3	AA-
Credit Agricole	104.1	70.3	70.6	73.7	19.8	65.0	23.1	27.7	30.9	55.9	70.2	153.8%	127.2%	25.5%	4.0%	A+	Aa3	A+
Crédit Mutuel	109.1	64.8	41.9	24.0	26.5	40.6	37.2	44.2	39.6	63.3	74.7	69.1%	88.3%	18.0%	3.3%	A+	Aa3	A+
Erste Group Bank	116.8	159.3	123.2	127.7	47.3	52.8	47.5	42.6	39.6	62.5	80.9	89.9%	104.3%	29.5%	3.4%	A+	A2	A-
HSBC	65.4	52.1	83.1	81.2	35.3	91.3	50.2	44.1	45.6	91.6	92.1	108.8%	101.7%	0.5%	3.3%	A-	A3	A+
ING Bank	81.2	54.8	52.4	64.4	16.9	39.1	19.6	21.4	23.8	44.4	46.1	116.0%	93.8%	3.8%	3.0%	A+	A1	AA-
JP Morgan	67.0	62.9	72.7	63.8	37.4	69.0	33.0	46.7	48.1	79.5	98.6	111.2%	105.2%	24.0%	3.5%	A-	A1	AA-
Natixis	100.9	58.3	68.5	80.2	30.2	62.0	50.6	34.1	35.8	63.7	91.6	168.4%	155.8%	43.8%	4.0%	A	A1	A
RBI	126.4	239.6	211.5	142.4	62.8	80.8	75.5	47.0	38.7	186.9	193.1	310.5%	398.8%	3.3%	0.5%	A-	A2	-
Santander	123.2	79.6	139.7	119.3	31.8	74.9	27.9	35.3	37.8	67.9	76.9	118.0%	103.6%	13.2%	3.4%	A+	A2	A-
Societe Generale	102.1	93.7	69.7	84.6	23.4	74.0	26.7	32.8	37.0	68.7	96.6	194.8%	161.1%	40.5%	4.1%	A	Baa2	BBB
UniCredit	146.6	128.0	132.7	173.8	61.4	177.4	76.3	71.2	67.8	121.9	125.7	76.4%	85.3%	3.1%	3.1%	BBB	Baa1	BBB-
Min	65.4	52.1	41.9	24.0	16.9	39.1	19.6	21.2	23.8	44.4	46.1	69.1%	66.1%	0.5%	0.5%			
Max	146.6	239.6	211.5	173.8	66.1	177.4	76.3	71.2	67.8	186.9	193.1	310.5%	398.8%	43.8%	4.1%			
Median	103.1	69.9	71.7	82.9	33.6	71.0	34.3	34.8	39.1	65.8	86.3	124.6%	103.9%	15.1%	3.4%			
Mean	102.1	93.9	95.2	94.9	37.6	74.7	39.2	38.2	41.0	80.2	92.1	147.0%	128.0%	17.3%	3.3%			

All Institutions	1 10-Year Price Development (in bps)											2 3-Year Changes (in %)			Volatility	Long-Term Ratings		
	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Mar-23	Δ 20-23	Δ 21-23	Δ 22-23	90 Days	S&P	Moody's	Fitch
Min	65.4	52.1	41.9	24.0	16.9	38.3	19.6	21.2	23.8	44.4	46.1	-15.9%	45.0%	-23.6%	0.5%			
Max	189.3	239.6	211.5	173.8	147.6	204.6	109.0	95.1	69.2	198.5	197.1	310.5%	398.8%	60.2%	5.5%			
Median	101.0	76.6	77.0	82.9	41.2	71.0	39.7	44.1	39.5	67.6	86.3	113.6%	102.6%	10.3%	3.4%			
Mean	102.2	93.2	95.4	97.5	48.2	82.2	45.8	46.7	42.9	85.0	94.7	118.4%	121.8%	13.6%	3.4%			

5-Year Govt. Interest Rates	10-Year Price Development (in bps)											3-Year Changes (in %)			Volatility	Long-Term Ratings		
	Dec-13	Dec-14	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Mar-23	Δ 20-23	Δ 21-23	Δ 22-23	90 Days	S&P	Moody's	Fitch
EU Central Government Bond	107.1	7.1	1.7	-47.3	-16.6	-26.3	-44.6	-72.4	-47.9	245.1	210.0	390.0%	538.6%	-14.3%	3.3%	AAA	Aaa	AAA
United Kingdom Government Debt	204.2	113.1	125.6	48.0	72.0	90.7	60.6	-11.2	73.1	366.3	325.2	3,003.6%	344.9%	-11.2%	2.4%	AA	Aa3	AA-

5-Year CDS Spreads

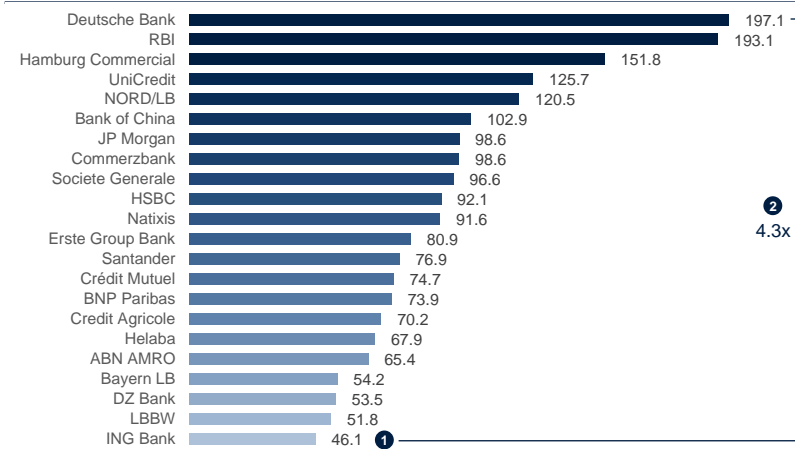
Pricing, Rating, Volatility & Development

1 Based on the latest 5-year CDS spreads, the most solvent bank is ING Bank with CDS spreads below 50 bps

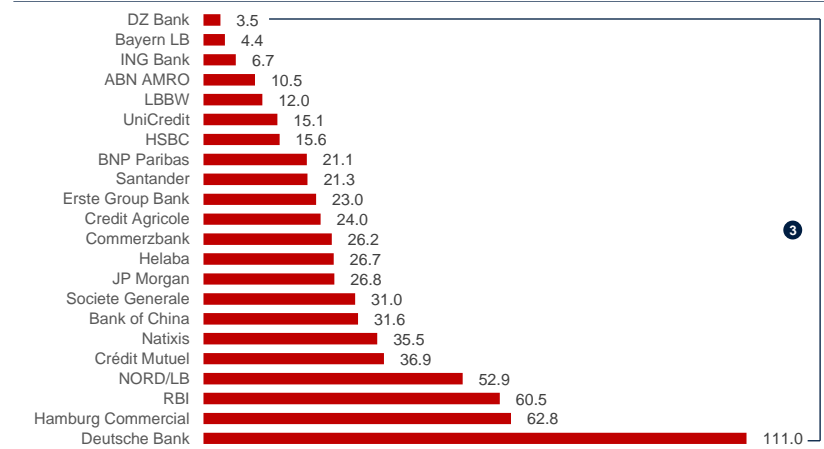
2 The ratio between the least and most solvent bank decreased from 4.5x (in 4Q22) to 4.3x (197.1 bps vs. 46.1 bps), driven by the market wide increase in CDS spreads

3 All banks experienced significantly higher CDS spreads than 12 months ago, especially German Deutsche Bank, HCOB and Austrian RBI

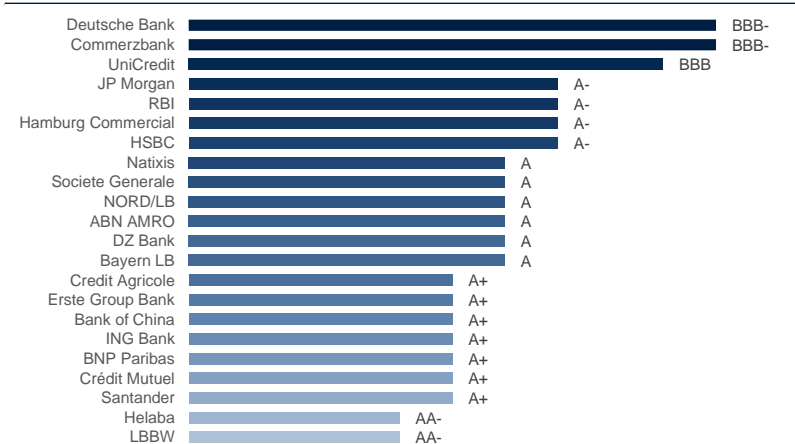
CDS Mid-Price as of 27/03/2023 (in bps)



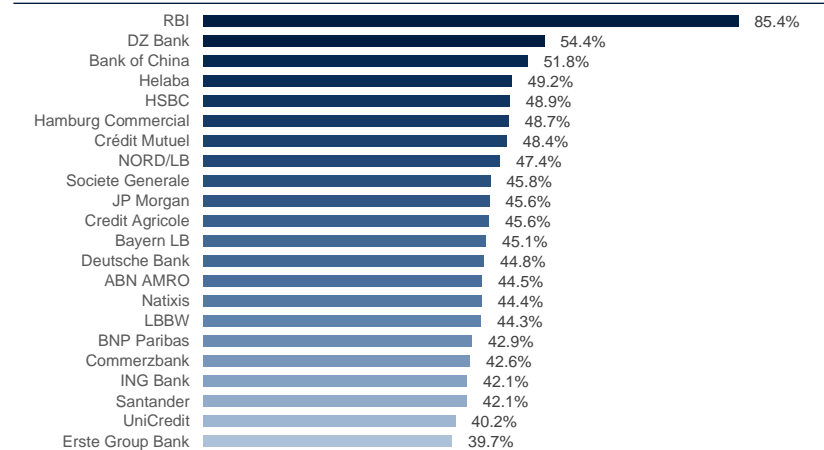
12 Month Change in CDS Mid-Price (in bps)



Long-Term Rating* as of 27/03/2023



3 Month (90 days) Volatility as of 27/03/2023



5-Year CDS Spreads

36 Month Spread Development of German vs. Foreign Institutions

German and foreign banks have showed similar trends over the past 3 years

- Following the initial market shock of the COVID-19 pandemic, financial markets could be stabilized with fiscal and monetary support measures
- In 1Q22, CDS spreads started to increase following the Russia / Ukraine war, peaking in 3Q22 due to increased energy prices, global inflation hikes and higher interest rates
- The collapse of major banking institutions in the USA (SVB) and in Europe (Credit Suisse) has caused market uncertainty and rising CDS spreads



I Outbreak COVID-19 **II** Outbreak Russia/Ukraine War **III** Bond Market Uncertainty / Growing Recession Fears **IV** Banking Crisis: Collapse of SVB & Credit Suisse

5-Year CDS Spreads

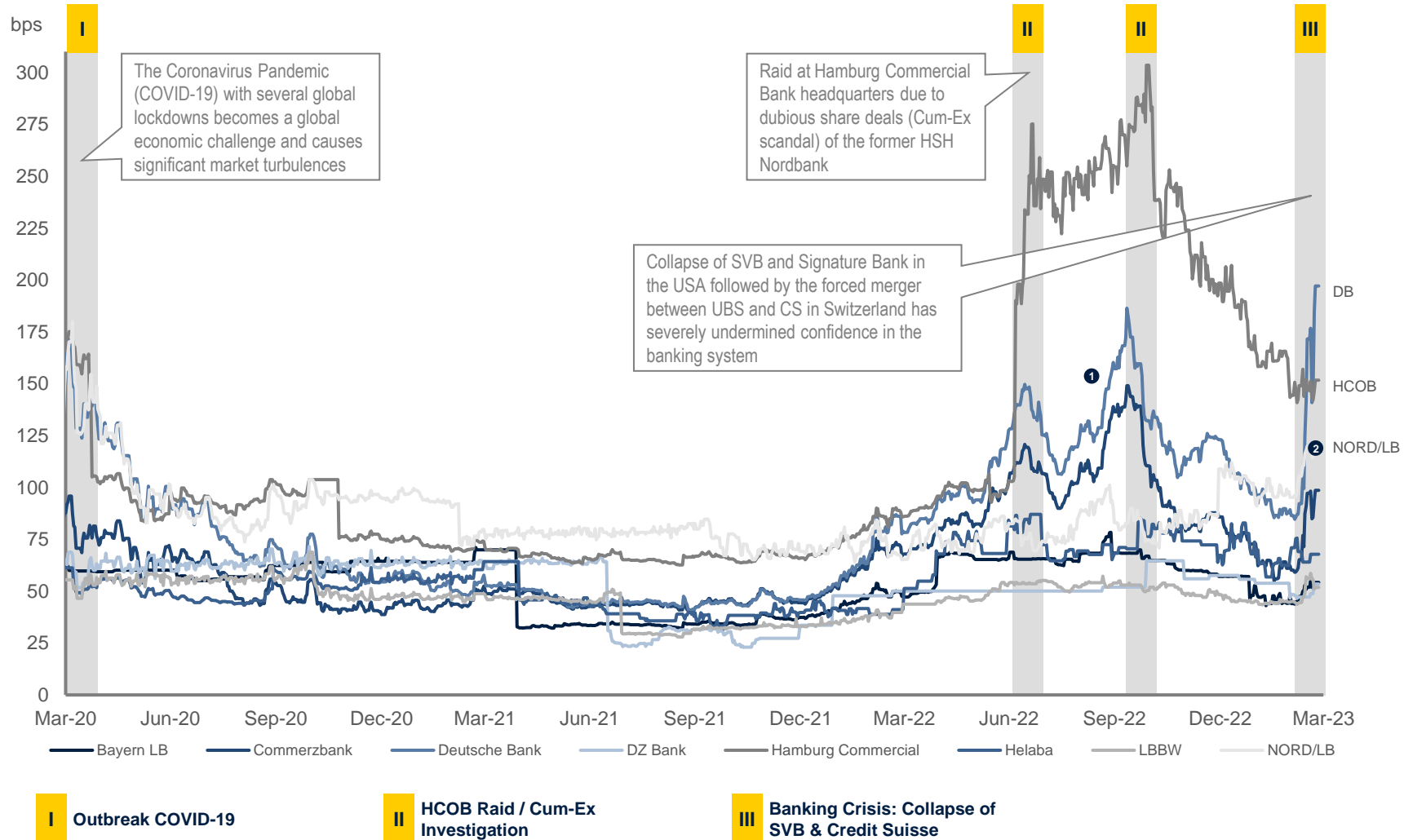
36 Month Spread Development of German Institutions

Over the last 3 years, HCOB and Deutsche Bank were the most volatile German banks with standard deviations of 64 bps and 36 bps, respectively

LBBW and Helaba were the least volatile (standard deviations 9 bps and 14 bps, respectively)

1 Growing investor fears of a deep recession peaked in 3Q22 due to aggressive monetary tightening

2 The collapse of major banking institutions in the USA (SVB) and in Europe (Credit Suisse) has caused market uncertainty and rising CDS spreads



5-Year CDS Spreads

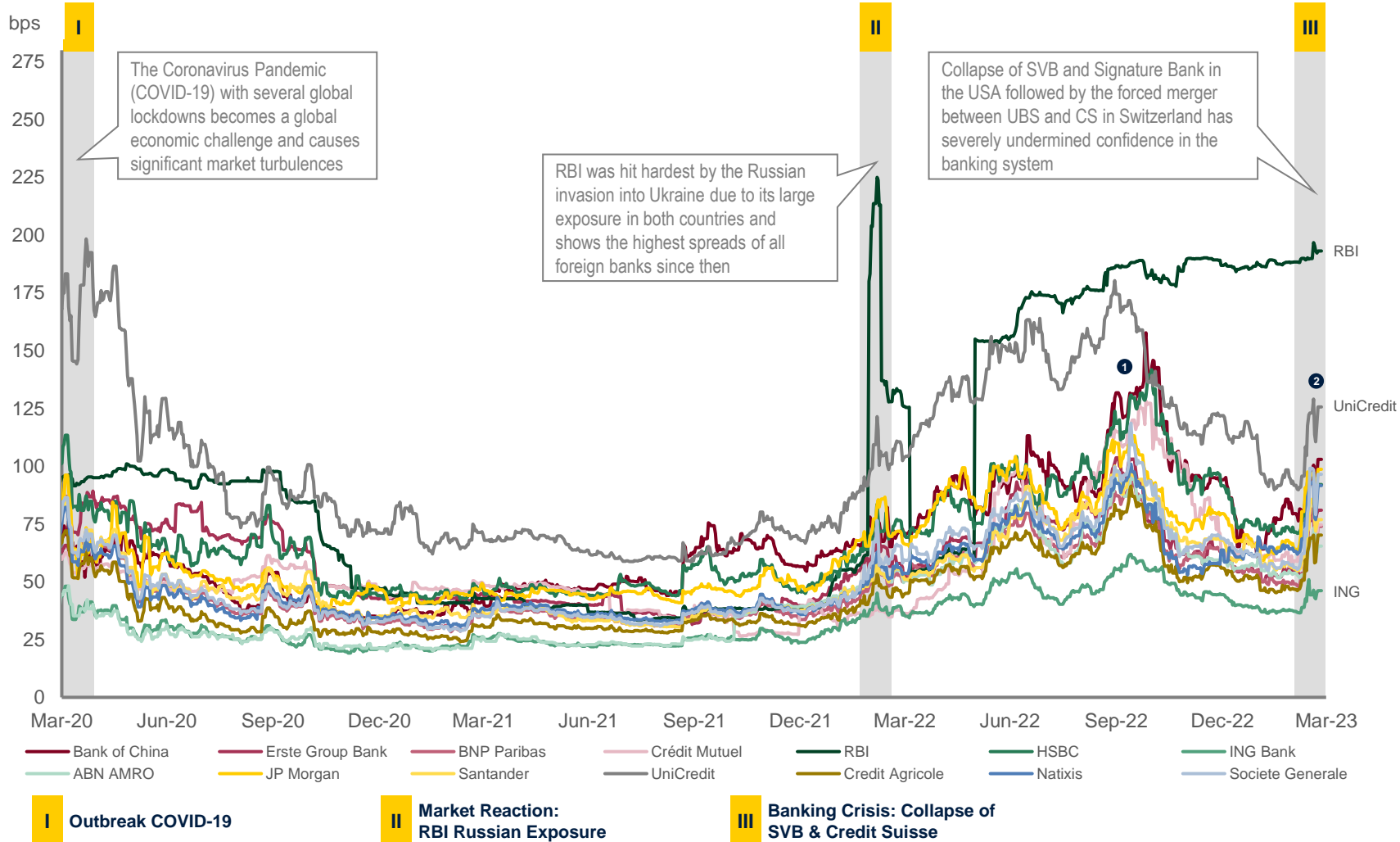
36 Month Spread Development of Foreign Institutions

Over the last 3 years, RBI and UniCredit were the most volatile foreign banks with standard deviations of 59 bps and 35 bps, respectively

ING Bank and Crédit Agricole were the least volatile (standard deviations of 11 bps and 15 bps, respectively)

1 Growing investor fears of a deep recession peaked in 3Q22 due to aggressive monetary tightening

2 The collapse of major banking institutions in the USA (SVB) and in Europe (Credit Suisse) has caused market uncertainty and rising CDS spreads



5-Year CDS Spreads

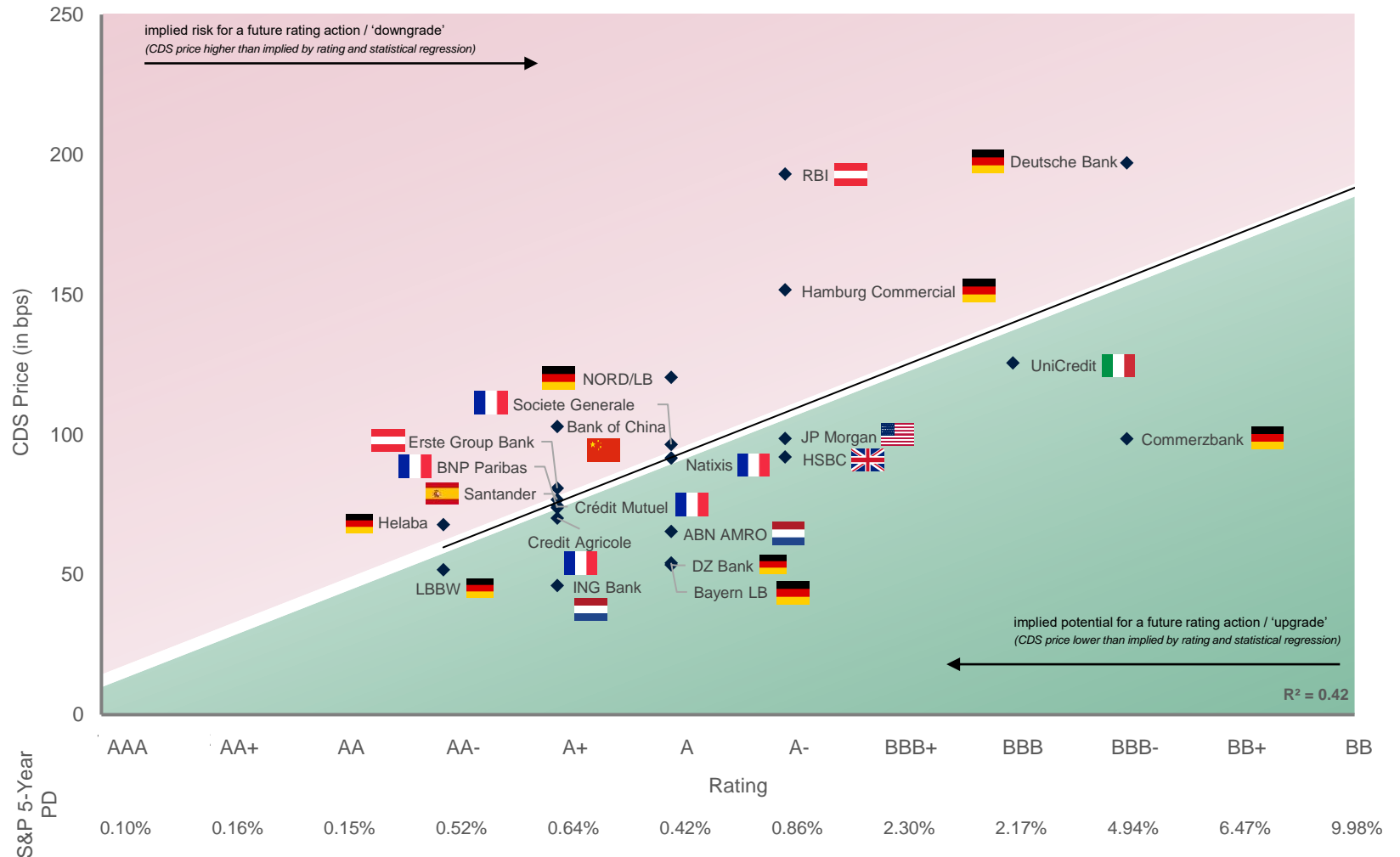
CDS vs. Rating for 5 Year Spreads

The comparison of current CDS spreads with current ratings highlights the relationship between these forward- and backward-looking solvency indicators

The correlation between CDS spreads and ratings decreased slightly from a R^2 of 47% in the previous quarter to 42% in 1Q23

The slope implies that (on average) a 1- notch drop in rating would result in a higher 5-Year CDS price by ca. 16.1 bps

Banks above the trendline seem to possess greater solvency risk than their rating would imply; a possible indicator for a future rating 'downgrade'



Source: S&P Capital IQ as of March 27th, 2023

Note: All calculations based on mid prices; rating according to S&P Rating notches, if available. Institutions without S&P Rating converted using best available Moody's or Fitch rating; S&P 5-Year PD represents the 5-year probability of default for each respective rating notch

APPENDIX



Market Ranking Overview

Q1 2023

FCF allocated scores of 1 (low) to 22 (high) to all banks to determine the market's view on each bank, based on:

- i. 1-Year CDS spread and volatility¹;
- ii. 5-Year CDS spread and volatility¹;
- iii. 10-Year CDS spread and volatility¹;
- iv. Public ratings (Fitch, Moody's, S&P)

The combined Weighted CDS and Rating Score result in an overall rank in the League Table, providing an indication on the banks' expected future stability and crisis resistance across maturities

The market views LBBW (62.0) on the top of the ranking, whereas Deutsche Bank ranks last (5.7)

Rank	Trend	Bank	Country	CDS 1Y				CDS 5Y				CDS 10Y				CDS Weighted CDS Score	Rating		Total Overall Rank
				Last Price	Rank Score	90-Day Ø Price	Rank Score	Last Price	Rank Score	90-Day Ø Price	Rank Score	Last Price	Rank Score	90-Day Ø Price	Rank Score		Last Rating	Rank Score	
1	→	LBBW		31.9	20	28.3	19	51.8	21	48.9	21	64.9	21	62.7	21	41.0	4	21	62.0
2	↗	ING		10.4	22	13.6	22	46.1	22	45.5	22	58.8	22	59.7	22	44.0	5	14	58.0
3	↗	Helaba		34.9	19	32.0	13	67.9	17	71.7	12	87.7	17	94.4	11	29.7	4	21	50.7
4	→	CRÉDIT AGRICOLE		35.9	16	23.2	21	70.2	16	59.0	18	89.4	16	77.3	19	35.3	5	14	49.3
5	↘	BayernLB		26.0	21	24.3	20	54.2	19	57.3	19	78.0	19	81.8	18	38.7	6	8	46.7
6	↘	DZ BANK		35.0	18	31.4	15	53.5	20	55.7	20	66.4	20	69.1	20	37.7	6	8	45.7
7	→	BNP PARIBAS		40.8	13	31.8	14	73.9	15	64.2	17	107.8	12	83.8	17	29.3	5	14	43.3
8	↗	Santander		35.2	17	30.0	17	76.9	13	71.2	13	100.5	14	94.3	12	28.7	5	14	42.7
9	↘	ABN-AMRO		38.0	15	30.9	16	65.4	18	66.0	16	83.4	18	86.9	16	33.0	6	8	41.0
10	↗	Crédit Mutuel		39.4	14	32.5	11	74.7	14	83.4	9	96.5	15	105.2	10	24.3	5	14	38.3
11	→	ERSTE GROUP		43.3	11	39.8	6	80.9	12	67.2	15	104.6	13	87.4	15	24.0	5	14	38.0
12	↘	NATIXIS BEYOND BANKING		47.2	9	32.5	12	91.6	11	69.6	14	120.4	11	88.3	14	23.7	6	8	31.7
13	↗	中國銀行 BANK OF CHINA		49.4	8	33.1	10	102.9	6	97.4	5	140.6	5	136.1	5	13.0	5	14	27.0
14	↘	SOCIETE GENERALE		55.8	7	38.0	8	96.6	9	73.2	11	123.7	8	93.9	13	18.7	6	8	26.7
15	↗	COMMERZBANK		46.3	10	29.7	18	98.6	8	88.9	8	122.2	10	113.9	7	20.3	10	1	21.3
16	↗	HSBC		41.3	12	35.2	9	92.1	10	94.9	6	129.0	7	132.0	6	16.7	7	4	20.7
17	↘	NORD/LB		87.6	4	73.4	4	120.5	5	93.0	7	131.4	6	105.5	9	11.7	6	8	19.7
18	↘	J.P.Morgan		69.2	5	39.8	7	98.6	7	80.6	10	123.0	9	105.7	8	15.3	7	4	19.3
19	↗	UniCredit		67.2	6	53.1	5	125.7	4	121.4	4	154.8	4	151.9	3	8.7	9	3	11.7
20	↗	Hamburg Commercial Bank		95.1	3	104.7	1	151.8	3	205.8	1	184.3	3	238.1	1	4.0	7	4	8.0
21	↘	Raiffeisen Bank International		102.3	2	94.2	2	193.1	2	187.1	2	231.0	1	227.5	2	3.7	7	4	7.7
22	↘	Deutsche Bank		181.1	1	81.6	3	197.1	1	121.6	3	188.0	2	143.1	4	4.7	10	1	5.7

Market Ranking Overview

LTM Development

The German LBBW consistently tops the league table over the last four quarters

The German Helaba shows the most positive development over the last four quarters, gaining eight places from rank 11 in 2Q22 to rank 3 in 1Q23

	Q2 2022	Q3 2022	Q4 2022	Q1 2023
1.				
2.				
3.				
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21.				
22.				

Fundamental Ranking Overview

Q1 2023

FCF allocated scores of 1 (low) to 22 (high) to the 22 banks, based on:

- i. Return-on-Equity (RoE)
- ii. Return-on-Assets (RoA);
- iii. Tier-1 Capital Ratio;
- iv. Percentage of Non-Performing-Loans of Total Loans;
- v. Cost Efficiency (Cost-Income Ratio)

The equal weighting of the fundamental scores results in the Total Overall Score in the League Table

The ranking provides a key indication for each banks' stability and solvency based on the most recent fundamental performance

RBI (89.0) leads the ranking, whereas Natixis is last (32.0)

Rank	Trend	Bank	Country	Return on Equity		Return on Assets		Tier 1 Capital Ratio		% Non-perf. Loans		Cost Efficiency		Total Overall Rank	Delta vs Market View
				RoE	Rank Score	RoA	Rank Score	Tier 1 Ratio	Rank Score	% NPL	Rank Score	CIR	Rank Score		
1	↗	Raiffeisen Bank International		19.5	22	1.7	22	17.7	21	2.5	5	36.6	19	89.0	20
2	↗	ERSTE Group		10.9	19	0.8	18	15.8	16	0.0	20	53.4	15	88.0	9
3	↘	J.P.Morgan		12.8	21	1.0	20	14.9	13	0.6	19	58.0	13	86.0	15
4	↗	UniCredit		10.3	18	0.7	17	18.7	22	2.4	6	47.0	16	79.0	15
5	↘	中國銀行 BANK OF CHINA		9.8	17	0.9	19	13.9	8	1.3	13	28.2	20	77.0	8
6	↗	HSBC		8.3	14	0.6	15	16.6	18	2.0	8	55.0	14	69.0	10
7	↘	Hamburg Commercial Bank		8.6	16	1.4	21	0.0	1	2.0	9	44.0	18	65.0	13
8	↔	ABN-AMRO		8.3	15	0.5	14	16.7	19	2.0	10	69.2	4	62.0	1
9	↘	Santander		11.1	20	0.6	16	13.6	7	3.3	1	45.8	17	61.0	-1
10	↗	LB BW		3.2	3	0.1	4	14.7	11	0.7	18	0.0	21	57.0	-9
11	↗	Bayern LB		3.5	4	0.1	5	17.3	20	0.7	17	59.0	10	56.0	-6
11	↔	DZ BANK		6.2	9	0.3	9	14.8	12	0.9	15	58.9	11	56.0	-5
13	↘	ING		8.2	12	0.4	12	14.5	10	1.8	12	60.4	9	55.0	-11
14	↔	CRÉDIT AGRICOLE		8.2	13	0.3	10	13.0	5	2.3	7	58.2	12	47.0	-10
15	↗	Deutsche Bank		8.1	11	0.4	13	15.7	15	2.5	4	74.9	2	45.0	7
16	↘	Crédit Mutuel		0.0	1	0.0	1	0.0	1	0.0	20	0.0	21	44.0	-6
17	↘	BNP PARIBAS		8.0	10	0.4	11	13.9	8	2.8	3	66.8	6	38.0	-10
17	↗	COMMERZBANK		4.6	8	0.0	1	0.0	1	0.0	20	61.8	8	38.0	-2
17	↗	SOCIETE GENERALE		4.1	5	0.2	7	16.3	17	3.1	2	64.1	7	38.0	-3
20	↘	Helaba		4.5	7	0.2	8	0.0	1	0.8	16	67.5	5	37.0	-17
21	↔	NORD/LB		0.1	2	0.0	3	15.3	14	1.0	14	94.0	1	34.0	-4
22	↔	NATIXIS BEYOND BANKING		4.5	6	0.2	6	13.3	6	1.9	11	73.3	3	32.0	-10

Fundamental Ranking Overview

LTM Development

The Austrian RBI has replaced the German Hamburg Commercial Bank at the top of the league table

Austrian RBI shows the most positive development over the last four quarters, gaining eight places from rank 9 in 2Q22 to rank 1 in 1Q23

Dutch ING Bank experienced the sharpest drop in the league table, falling seven places from rank 6 and 13

Q2 2022	Q3 2022	Q4 2022	Q1 2023
1. J.P.Morgan	1. Hamburg Commercial Bank	1. Hamburg Commercial Bank	1. Raiffeisen Bank International
2. Hamburg Commercial Bank	2. J.P.Morgan	2. J.P.Morgan	2. ERSTE Group
3. 中國銀行 BANK OF CHINA	3. 中國銀行 BANK OF CHINA	3. Raiffeisen Bank International	3. J.P.Morgan
4. ERSTE Group	4. ERSTE Group	4. 中國銀行 BANK OF CHINA	4. UniCredit
5. Crédit Mutuel	5. Raiffeisen Bank International	5. ERSTE Group	5. 中國銀行 BANK OF CHINA
6. ING	6. Crédit Mutuel	6. Crédit Mutuel	6. HSBC
7. DZ BANK	7. ING	7. ING	7. Hamburg Commercial Bank
8. Santander	8. HSBC	8. HSBC	8. ABN-AMRO
9. Raiffeisen Bank International	9. Santander	9. Santander	9. Santander
10. HSBC	10. DZ BANK	10. ABN-AMRO	10. LB≡BW
11. Bayern LB	11. Bayern LB	11. DZ BANK	11. Bayern LB
12. CRÉDIT AGRICOLE	12. ABN-AMRO	12. Bayern LB	12. DZ BANK
13. LB≡BW	13. Helaba S	13. UniCredit	13. ING
14. ABN-AMRO	14. UniCredit	14. CRÉDIT AGRICOLE	14. CRÉDIT AGRICOLE
15. Helaba S	15. CRÉDIT AGRICOLE	15. Helaba S	15. Deutsche Bank
16. SOCIETE GENERALE	16. COMMERZBANK	16. BNP PARIBAS	16. Crédit Mutuel
17. UniCredit	17. LB≡BW	17. LB≡BW	17. BNP PARIBAS
18. BNP PARIBAS	18. BNP PARIBAS	18. COMMERZBANK	18. COMMERZBANK
19. NATIXIS BEYOND BANKING	19. SOCIETE GENERALE	19. Deutsche Bank	19. SOCIETE GENERALE
20. COMMERZBANK	20. NORD/LB	20. SOCIETE GENERALE	20. Helaba S
21. NORD/LB	21. Deutsche Bank	21. NORD/LB	21. NORD/LB
22. Deutsche Bank	22. NATIXIS BEYOND BANKING	22. NATIXIS BEYOND BANKING	22. NATIXIS BEYOND BANKING

Credit Default Swaps

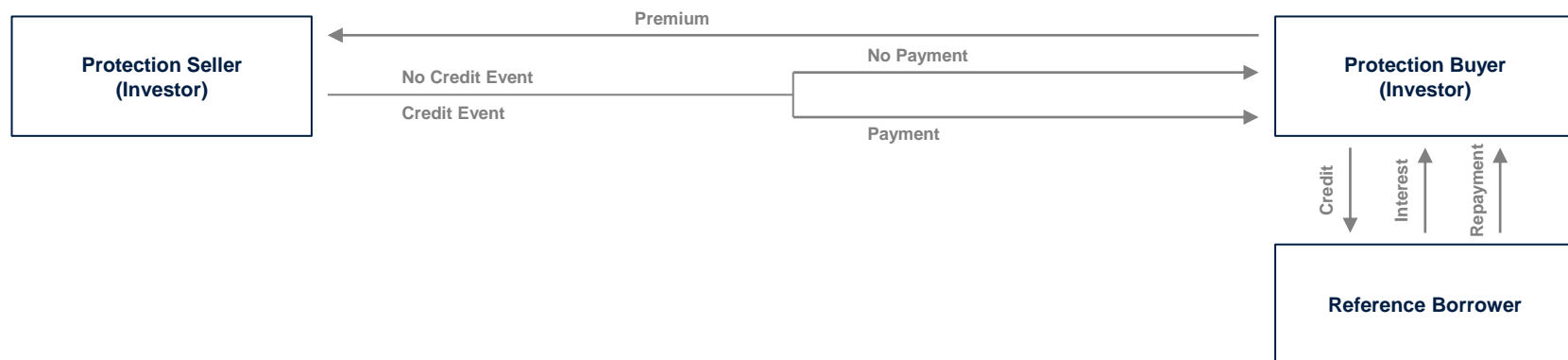
Credit Default Swaps (CDS) are, in simplest terms, very much like insurance policies. The main difference between a classical insurance policy and a CDS is that those buying the CDS can trade in and out of their contracts.

A CDS is a privately negotiated contract in which one party, the Protection Buyer (the one seeking to shed the risk, for example a lender to a bank), pays a fee (also premium or 'spread') to the Protection Seller (the one taking on the risk, for example specialized financial institutions) for protection against a loss that may be incurred from the exposure to a loan in case of unforeseen developments (e.g., non-repayment of / default on the loan). The development is known as a credit event, indicating that the borrower (the reference entity) on which the CDS contract is written is unable to pay its debts. If such a credit event occurs, the Protection Seller will make a payment to the Protection Buyer of the contract.

For example: A typical contract provides for the Protection Buyer to pay the Protection Seller 500 bps per year (5.0% p.a.) for protection against a default of Bank A on its senior debt. The contract's notional size is for EUR 10m. This means that the Protection Buyer pays EUR 500,000 per year (4 quarterly payments of EUR 125,000). If another bank, Bank B, has a CDS spread priced at 250 bps (2.5% p.a.), Bank B is perceived to have a lower credit risk than Bank A.

The higher the credit risk of a bank (as seen in the CDS spread), the greater the funding costs that a bank incurs will be. Funding costs represent the rate at which the bank is able to borrow from the institutional / inter-bank market (funding cost risk premium). As a direct consequence, the funding cost risk premium has a direct impact on the rates that a bank will charge its clients: Bank B will be able to offer i) cheaper, longer financing conditions and ii) greater flexibility during periods of stress with their clients (corporates), ceteris paribus.

Aside from the direct impact on banks' lending rates, the CDS spread is also a good proxy of a banks' current / future behavior towards its corporate clients in times of market (macro) or client specific (micro) volatility / stress.



The FCF Bank Monitor highlights the key developments of German and foreign banks most active in the German and Austrian midcap financing market

The FCF Bank Monitor outlines several key factors that should be considered when selecting banks during a (re)financing of existing financial liabilities

Background Information

- CDS spreads of banks reveal two fundamental market principles that have significant implications for borrowers:
 - **Solvency / crisis resistance:** CDS spreads put a price on the future solvency of a bank according to all information currently available in the market and signal the bank's ability to remain operational in periods of crisis / illiquid markets.
 - Banks with lower, more stable CDS spreads should respond less erratically during periods of stress with their borrowers (i.e., breach of covenant), ceteris paribus
 - **Refinancing costs / ability to lend at low rates:** CDS spreads indicate the perceived solvency of banks, hence their future ability to refinance in the future (funding costs). Consequently, banks with lower, more stable CDS spreads generally have to pay lower risk premia as part of their funding costs, enabling them to offer cheaper, longer financing conditions to their customers / borrowers, ceteris paribus
- Reference bonds of banks and their corresponding CDS spreads are strongly impacted by regulatory changes / events:
 - In '18, the SAG was modified to also allow German commercial banks to issue 'preferred' bonds as of May '19
 - The corresponding reference CDS spreads of German commercial banks (e.g., Deutsche Bank, Commerzbank) decreased sharply in May '19 and can now be compared 'like-for-like' with their European competitors

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