

Stock Exchange Turnover

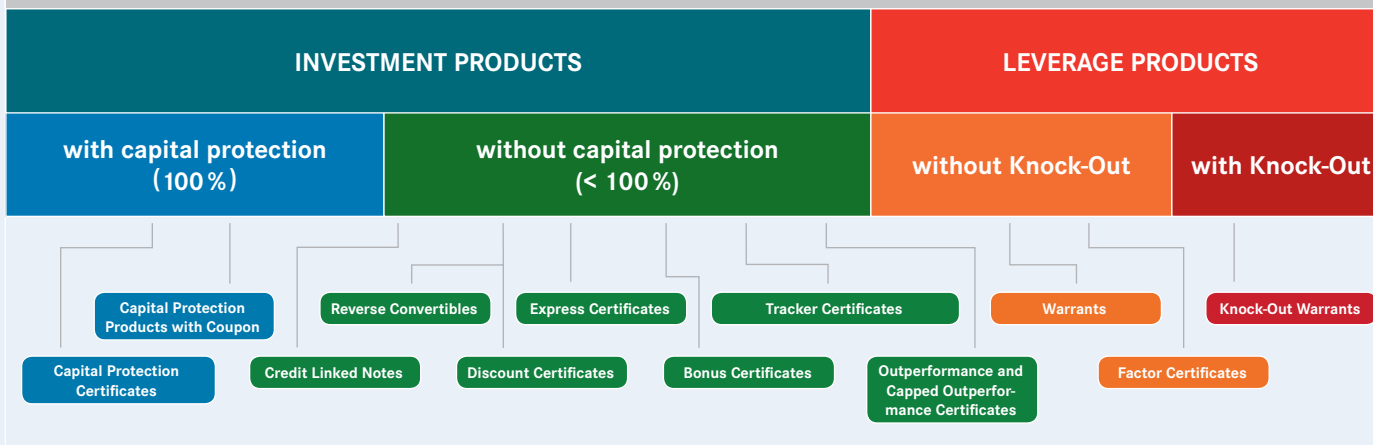
in Derivatives



Turnover rise on the structured products market

Marked increase in demand for Bonus Certificates and Discount Securities

STRUCTURED SECURITIES



DDV Classification System

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December | 2018

- The exchanges in Stuttgart and Frankfurt generated turnover of EUR 3.1 billion in investment and leverage products in December.
- Growth in investment products' exchange turnover (24.0 percent) outperformed the market as a whole. This product category accounted for a percentage of 47.9 percent of the aggregate trading volume.
- Bonus Certificates saw an above-average increase in turnover, which rocketed by 47.3 percent to EUR 574.7 million.
- Investment products with indices as an underlying expanded their market share to 55.3 percent.

Turnover rise on the structured products market

Marked increase in demand for Bonus Certificates and Discount Securities

Developments on the capital markets prompted an increase in trading in structured securities on the exchanges in Stuttgart and Frankfurt at the end of the year. Exchange turnover in structured products and leverage products totalled EUR 3.1 billion. This corresponded to a month-on-month increase of 6.1 percent. The number of executed customer orders fell by 16.7 percent to 427,536, whereas the average order size rose by 27.3 percent to EUR 7,321.

The trading volume for investment products totalled EUR 1.5 billion in December. This corresponded to a share of the aggregate turnover of 47.9 percent. The average order size was EUR 36,673.

Turnover in leverage products stood at just under EUR 1.6 billion in the period under review. This product category thus accounted for a percentage of 52.1 percent of the total turnover. The average order size was EUR 4,220.

New issues

Banks issued 72,947 new investment products and 299,964 new leverage products in the month of December. As a result, a total of 530,073 investment products and 1,157,142 leverage products were available at the Stuttgart and Frankfurt Exchanges

Exchange turnover by product category

Investment products

After a fall in turnover in the previous month, positive signs prevailed at the end of the year. In absolute terms, in particular **Bonus Certificates** and **Discount Securities** significantly gained in turnover. The turnover figure for **Bonus Certificates** climbed to EUR 574.7 million in December. Trading with **Discount Securities** stood at EUR 564.0 million in the reporting month. **Reverse Convertibles** and **Express Certificates** also reported marked increases. Bucking the general

trend, exchange turnover in **Capital Protection Products offering full capital protection** dropped to a total of EUR 12.8 million in December.

Leverage products

As in the prior month, a decrease in turnover was seen across all product categories. Turnover in **Warrants** was down to EUR 412.2 million. Trading in **Knock-Out Warrants** fell to EUR 1.0 billion, and **Factor Certificates** generated a trading turnover of EUR 208.7 million.

Exchange turnover by underlying

Investment products

Trading activity in products with **indices as an underlying** grew to EUR 828.0 million in December. Indices were therefore the most popular underlying among investment products, accounting for a 55.3 percent share. At EUR 539.2



million, turnover in investment products with **equities as an underlying** was also up. Turnover in investment products with **commodities as an underlying** strongly rose to EUR 14.8 million. Trading activity in products with **interest rates as an underlying** declined to EUR 8.8 million, having experienced a marked upturn one month earlier.

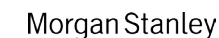
Leverage products

Whilst the share of products with **indices as an underlying** climbed to 62.1 percent, the market share of products with **equities as an underlying** plummeted to 26.0 percent. Following losses in the previous month, turnover in products

with **commodities as an underlying** rose to EUR 46.9 million, whereas the trading volume of leverage products with **currencies as an underlying** fell to EUR 26.8 million.

Exchange turnover

Stuttgart Exchange closed the year with a turnover volume of EUR 2.0 billion. Its market share of the total turnover was 63.7 percent. Frankfurt Exchange recorded a trading volume of EUR 1.1 billion. It accounted for 36.3 percent of the total exchange turnover and 42.8 percent of all customer orders, while Stuttgart Exchange handled 57.2 percent of the orders. ■



Deutscher Derivate Verband (DDV)

Deutscher Derivate Verband (DDV), the German Derivatives Association, is the industry representative body for the leading issuers of derivative securities in Germany, who represent more than 90 percent of the German structured products market: BayernLB, BNP Paribas, Citigroup, Commerzbank, DekaBank, Deutsche Bank, DZ BANK, Goldman Sachs, Helaba, HSBC Trinkaus, HypoVereinsbank, LBBW, Morgan Stanley, Société Générale, UBS and Vontobel. Furthermore, the Association's work is supported by seventeen sponsoring members, which include the Stuttgart and Frankfurt Exchanges, Baader Bank, the direct banks comdirect bank, Consorsbank, DAB Bank, flatex, ING-DiBa and S Broker, as well as finance portals and other service providers.

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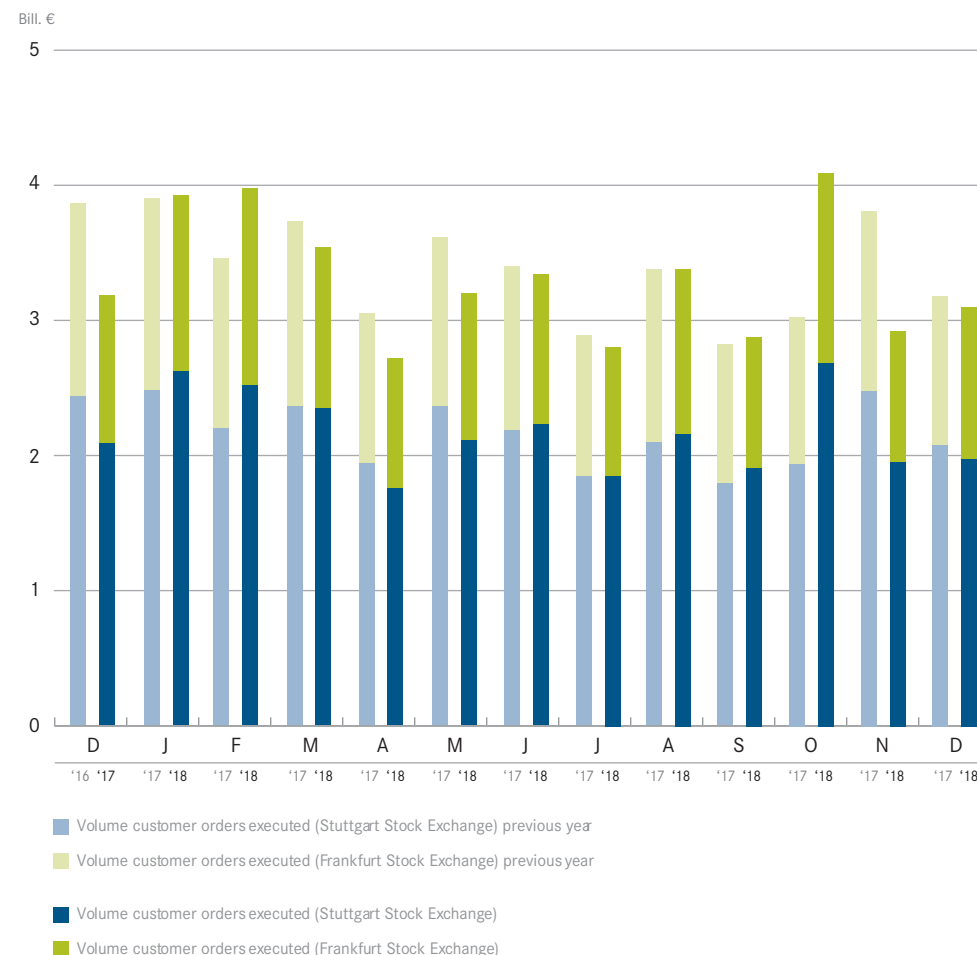
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Year Overview Stock Exchange Turnover December 2018

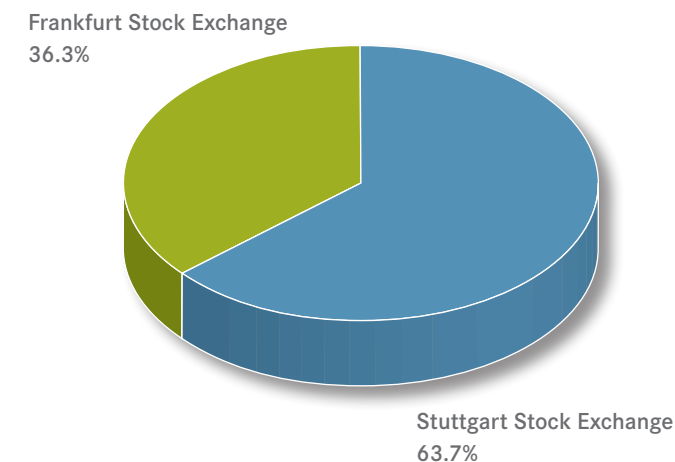
Month	Total		Stuttgart Stock Exchange		Frankfurt Stock Exchange	
	in T€	Number of orders	in T€	Number of orders	in T€	Number of orders
December 2017	3,178,408	443,457	2,083,628	247,558	1,094,780	195,899
January 2018	3,925,542	576,336	2,623,866	319,033	1,301,677	257,303
February 2018	3,978,912	606,726	2,519,290	330,209	1,459,622	276,517
March 2018	3,529,187	579,196	2,337,247	331,649	1,191,940	247,547
April 2018	2,699,781	419,262	1,739,813	242,480	959,967	176,782
May 2018	3,182,457	435,195	2,103,841	253,752	1,078,616	181,443
June 2018	3,321,895	481,069	2,213,430	280,744	1,108,465	200,325
July 2018	2,802,793	447,662	1,851,967	259,871	950,825	187,791
August 2018	3,369,222	500,422	2,156,137	282,702	1,213,085	217,720
September 2018	2,880,282	432,418	1,908,106	253,298	972,176	179,120
October 2018	4,087,224	651,980	2,688,959	384,280	1,398,265	267,700
November 2018	2,951,197	513,171	1,976,530	292,727	974,666	220,444
December 2018	3,130,096	427,537	1,993,650	244,763	1,136,447	182,774



Turnover volume by stock exchange December 2018

	Stuttgart Stock Exchange		Frankfurt Stock Exchange		Total	
	Volume	Share	Volume	Share	Volume	Share
Investment products with capital protection	6,350	0.3%	6,380	0.6%	12,730	0.4%
Investment products without capital protection	981,804	49.2%	503,799	44.3%	1,485,603	47.5%
Investment products total	988,154	49.6%	510,179	44.9%	1,498,333	47.9%
Leverage products without knock-out	623,875	31.3%	387,029	34.1%	1,010,904	32.3%
Leverage products with knock-out	381,620	19.1%	239,233	21.1%	620,853	19.8%
Leverage products total	1,005,496	50.4%	626,268	55.1%	1,631,763	52.1%
Total	1,993,650	100.0%	1,136,447	100.0%	3,130,096	100.0%

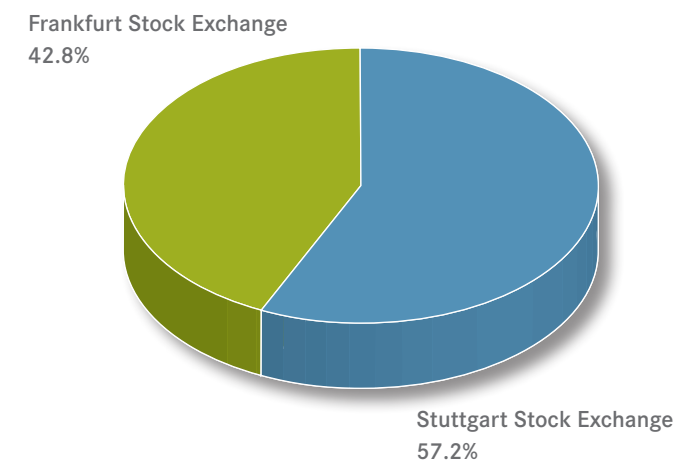
Turnover volume by stock exchange as a percentage



Number of customer orders by stock exchange December 2018

	Stuttgart Stock Exchange		Frankfurt Stock Exchange		Total	
	Number	Share	Number	Share	Number	Share
Investment products with capital protection	376	0.2%	255	0.1%	631	0.1%
Investment products without capital protection	27,209	11.1%	13,017	7.1%	40,226	9.4%
Investment products total	27,585	11.3%	13,272	7.3%	40,857	9.6%
Leverage products without knock-out	121,239	49.5%	106,688	58.4%	227,927	53.3%
Leverage products with knock-out	95,939	39.2%	62,813	34.4%	158,752	37.1%
Leverage products total	217,178	88.7%	169,502	92.7%	386,680	90.4%
Total	244,763	100.0%	182,774	100.0%	427,537	100.0%

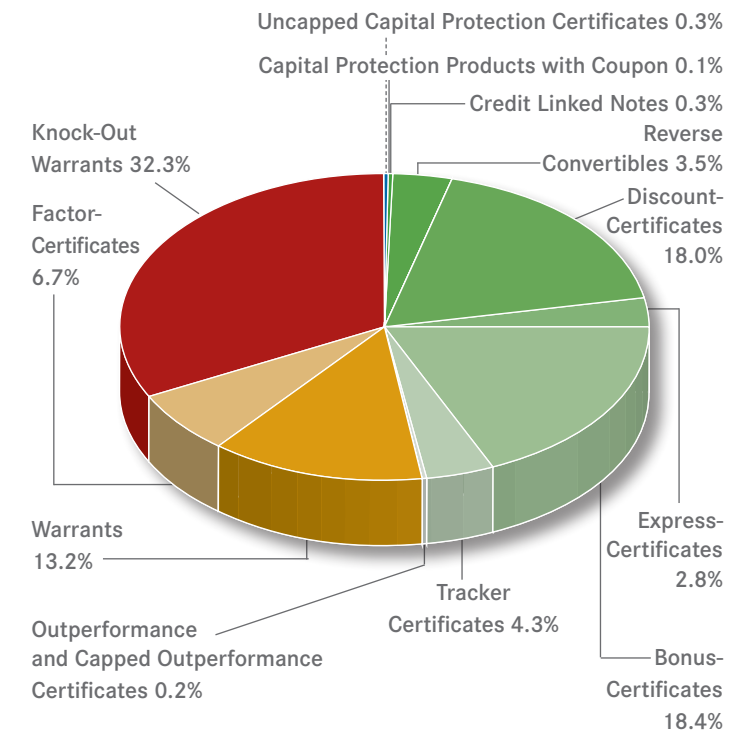
Number of customer orders by stock exchange as a percentage



Turnover by product category December 2018

Product categories	Change in comparison with previous month			Number of orders	Change in comparison with previous month		Change in comparison with previous month	
	Volume	Share	Share		Volume per order	Share	Share	Share
	in T €	in %	in %		#	in %	in %	in T €
■ Uncapped Capital Protection Certificates	10,619	-21.3	0.3	564	-27.3	0.1	18,828	8.3
■ Capital Protection Products with Coupon	2,111	-43.8	0.1	67	-9.5	0.0	31,510	-38.0
■ Credit Linked Notes	9,776	-31.4	0.3	350	-14.6	0.1	27,932	-19.6
■ Reverse Convertibles	108,794	19.4	3.5	5,031	8.2	1.2	21,625	10.3
■ Discount Certificates	564,043	18.2	18.0	10,772	16.6	2.5	52,362	1.4
■ Express Certificates	88,157	13.8	2.8	4,604	9.7	1.1	19,148	3.8
■ Bonus Certificates	574,728	47.3	18.4	10,220	-3.2	2.4	56,236	52.1
■ Tracker Certificates	134,876	-1.7	4.3	9,035	-2.2	2.1	14,928	0.5
■ Outperformance and Capped Outperformance Certificates	5,229	49.9	0.2	214	548.5	0.1	24,435	-76.9
Investment products	1,498,333	24.0	47.9	40,857	4.3	9.6	36,673	18.9
■ Warrants	412,200	-9.6	13.2	118,618	-18.0	27.7	3,475	10.3
■ Factor Certificates	208,653	-5.4	6.7	40,134	-16.2	9.4	5,199	12.9
■ Knock-Out Warrants	1,010,904	-5.2	32.3	227,927	-19.0	53.3	4,435	17.0
Leverage products	1,631,757	-6.4	52.1	386,679	-18.4	90.4	4,220	14.8
Total	3,130,090	6.1	100.0	427,536	-16.7	100.0	7,321	27.3

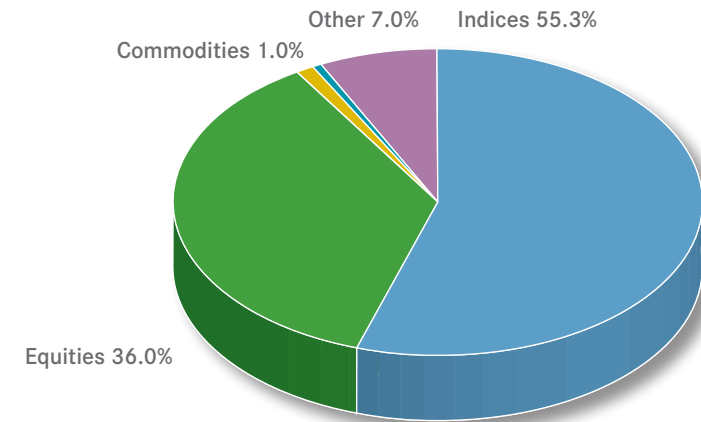
Share in total volume



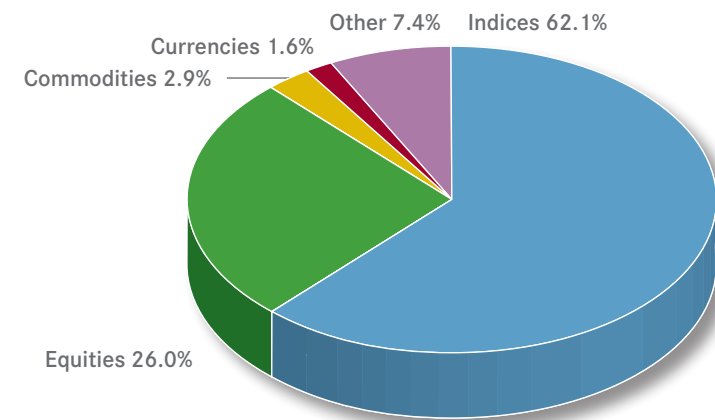
Turnover by underlying December 2018

Underlying	Volume	Change in comparison with previous month	Share
	in T €	in %	in %
Investment products			
Indices	828,002	42.2%	55.3%
Equities	539,211	2.6%	36.0%
Commodities	14,836	219.0%	1.0%
Currencies	728	551.4%	0.0%
Interest rates	8,848	-31.5%	0.6%
Investment funds	1,158	314.8%	0.1%
Other	105,550	27.8%	7.0%
Investment products total	1,498,333	24.0%	100.0%
Leverage products			
Indices	1,013,612	8.3%	62.1%
Equities	423,565	-31.2%	26.0%
Commodities	46,857	28.2%	2.9%
Currencies	26,824	-4.2%	1.6%
Interest rates	0	0%	0.0%
Investment funds	0	0%	0.0%
Other	120,906	-4.5%	7.4%
Leverage products total	1,631,763	-6.4%	100.0%
Total	3,130,090	6.1%	

Investment products by underlying



Leverage products by underlying



Number of new issues December 2018

Month	Investment products									Leverage products			Total
	With capital protection		Without capital protection							Without knock-out	With knock-out		
	Uncapped Capital Protection Certificates	Capital Protection Products with Coupon	Credit Linked Notes	Reverse Convertibles	Discount Certificates	Express Certificates	Bonus Certificates	Tracker Certificates	Outperformance and Capped Outperformance Certificates	Warrants	Factor Certificates	Knock-Out Warrants	
January 2018	6		21	10,245	16,415	369	23,889	130	4	63,352	296	224,655	339,382
February 2018	9		19	12,801	17,261	340	29,717	33	2	68,571	358	253,626	382,737
March 2018	9	1	31	9,548	13,166	459	23,355	91	2	67,292	1,162	242,083	357,199
April 2018	18		8	9,181	14,810	411	28,732	190		73,037	919	202,897	330,203
May 2018	15	2	68	10,362	22,261	417	19,527	103	1	57,239	676	251,231	361,902
June 2018	13		18	10,466	18,043	390	20,123	89		83,715	1,035	233,061	366,953
July 2018	12		23	8,610	13,518	471	19,090	87	1	90,763	129	213,089	345,793
August 2018	14		30	11,621	31,791	445	24,925	101	169	94,829	1,436	225,581	390,942
September 2018	10		13	10,853	12,430	336	26,595	101	41	64,510	2,723	188,453	306,065
October 2018	17		13	15,261	24,140	456	31,718	36	3	85,342	2,740	380,531	540,257
November 2018	17		41	6,773	22,261	431	29,890	90		86,170	2,854	300,760	449,287
December 2018	11		33	10,249	27,712	344	34,433	165		67,731	1,434	230,799	372,911
1/18 - 12/18	151	3	318	125,970	233,710	4,869	311,776	1,216	223	902,345	15,762	2,893,707	4,490,050
1/18 - 12/18	154		678,082							918,107		2,893,707	4,490,050
1/18 - 12/18			678,236							3,811,814		4,490,050	

Total number of products December 2018

Month	Investment products									Leverage products			Total
	With capital protection		Without capital protection							Without knock-out	With knock-out		
	Uncapped Capital Protection Certificates	Capital Protection Products with Coupon	Credit Linked Notes	Reverse Convertibles	Discount Certificates	Express Certificates	Bonus Certificates	Tracker Certificates	Outperformance and Capped Outperformance Certificates	Warrants	Factor Certificates	Knock-Out Warrants	
December 2017	1,105	86	1,491	114,254	157,301	5,559	208,924	10,083	1,393	613,239	12,562	454,492	1,580,489
January 2018	1,080	82	1,491	119,423	164,173	5,591	215,058	10,139	1,396	620,671	12,817	491,634	1,643,555
February 2018	1,107	42	1,509	124,874	172,299	5,656	227,170	10,118	1,331	628,698	13,044	506,743	1,692,591
March 2018	1,095	37	1,530	115,676	162,686	5,916	214,579	10,137	1,216	603,034	13,879	482,254	1,612,039
April 2018	1,098	37	1,466	119,874	169,138	6,167	228,730	10,265	1,108	621,157	14,744	495,520	1,669,304
May 2018	1,094	38	1,532	118,424	179,351	6,418	223,621	10,305	1,109	622,836	15,374	517,262	1,697,364
June 2018	1,088	38	1,548	105,732	173,421	6,519	197,763	10,319	883	602,348	16,355	493,419	1,609,433
July 2018	1,079	38	1,549	109,883	179,149	6,754	204,104	10,335	801	644,308	16,456	500,248	1,674,704
August 2018	1,075	37	1,579	112,534	203,466	7,036	213,767	10,378	969	682,584	17,704	516,883	1,768,012
September 2018	1,072	37	1,587	105,265	188,587	7,178	200,534	10,423	866	633,788	19,113	498,177	1,666,627
October 2018	1,065	36	1,565	111,597	204,209	7,523	208,927	10,370	782	659,057	21,561	517,095	1,743,787
November 2018	1,055	36	1,606	112,867	216,750	7,864	221,010	10,413	699	694,875	24,102	536,246	1,827,523
December 2018	1,047	35	1,624	102,783	205,025	8,147	200,353	10,456	603	634,932	25,473	496,737	1,687,215
December 2018	1,082		528,991							634,932	25,473	496,737	1,687,215
			530,073							1,157,142			1,687,215

The statistics include the turnover in derivatives at the stock exchanges in Stuttgart (EUWAX) and Frankfurt (Börse Frankfurt Zertifikate). The turnover figures are taken from Xetra and XONTRO (Xontro Order). The number of customer orders executed was integrated into the EUWAX statistics. The statistics cover all orders entered into the system by customers (not issuers or market makers) and executed by price determination. Issuers' market making activities (provision of liquidity for own securities) are not taken into account. Orders routed via an order flow provider offering an intermediary service are only counted once. Each partial execution of an order counts as an order. Later corrections made in stock exchange systems (e.g. a cancellation following a mistrade) are not taken into account. The securities are allocated using securities master data from WM Gruppe (Wertpapier-Mittelungen), the German numbering agent and provider of securities information, as well as the securities master data from boerse-stuttgart AG. This allows the best possible classification of the turnover data by stock exchange, product group and issuer. From January 2010, the derivatives are classified according to the product classification developed by Deutscher Derivate Verband (DDV).

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