

## Messaging Efficiency Program Q1 2019

### Daily Raw Messaging Tier Product Group Benchmarks

Product Group	Exchange	Product Group Description	Daily Raw Messaging Tier #3 Product Group Benchmarks	Daily Raw Messaging Tier #2 Product Group Benchmarks	Daily Raw Messaging Tier #1 Product Group Benchmarks
		<b>Commodity Futures Products</b>	<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
ZC	CBOT	Corn Futures & Spreads	150:1	100:1	50:1
ZS	CBOT	Soybean Futures & Spreads	165:1	110:1	55:1
ZW	CBOT	Chicago SRW Wheat Futures & Spreads	150:1	100:1	50:1
KE	CBOT	KC HRW Wheat Futures & Spreads	150:1	100:1	50:1
		<b>Commodity Options Products</b>	<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
OC	CBOT	Corn Options	300:1	200:1	100:1
SQ	CBOT	Soybean Options	300:1	200:1	100:1
OW	CBOT	Chicago SRW Wheat Options	300:1	200:1	100:1
		<b>Livestock Futures Products</b>	<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
GF	CME	Feeder Cattle Futures	180:1	120:1	60:1
LE	CME	Live Cattle Futures	60:1	40:1	20:1
HE	CME	Lean Hog Futures	75:1	50:1	25:1
		<b>Livestock Options Products</b>	<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
F0	CME	Feeder Cattle Options	300:1	200:1	100:1
L0	CME	Live Cattle Options	300:1	200:1	100:1
OH	CME	Lean Hog Options	300:1	200:1	100:1

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<b>Equity Futures Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
ES	CME	E-mini S&P 500 Futures & Spreads	30:1	20:1	10:1
ME	CME	E-mini S&P MidCap 400 Futures & Spreads	225:1	150:1	75:1
N1	CME	Nikkei 225 (Yen) Futures & Spreads	180:1	120:1	60:1
NK	CME	Nikkei 225 (Dollar) Futures & Spreads	180:1	120:1	60:1
NQ	CME	E-mini NASDAQ-100 Futures & Spreads	60:1	40:1	20:1
YM	CBOT	E-mini Dow (\$5) Futures & Spreads	90:1	60:1	30:1
<b>Equity Options Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
EW	CME	E-Mini S&P 500 Outright, Weekly & Monthly Options	300:1	200:1	100:1
QZ	CME	E-Mini NASDAQ 100 Outright Options	300:1	200:1	100:1
NW	CME	E-Mini NASDAQ 100 Weekly & Monthly Options	300:1	200:1	100:1
C9	CBOT	E-Mini Dow (\$5) Outright Options	300:1	200:1	100:1
OL	CBOT	E-Mini Dow (\$5) Weekly & Monthly Options	300:1	200:1	100:1

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<b>FX Futures Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
6A	CME	Australian Dollar Futures & Spreads	75:1	50:1	25:1
6B	CME	British Pound Futures & Spreads	75:1	50:1	25:1
6C	CME	Canadian Dollar Futures & Spreads	60:1	40:1	20:1
6E	CME	Euro FX Futures & Spreads	90:1	60:1	30:1
6J	CME	Japanese Yen Futures & Spreads	75:1	50:1	25:1
6S	CME	Swiss Franc Futures & Spreads	105:1	70:1	35:1
<b>FX Options Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
ZA,XA	CME	Australian Dollar Options (American & European Style)	300:1	200:1	100:1
XB,YB	CME	British Pound Options (American & European Style)	300:1	200:1	100:1
XD,CD	CME	Canadian Dollar Options (American & European Style)	300:1	200:1	100:1
XT,XE	CME	Euro FX Options (American & European Style)	300:1	200:1	100:1
XJ,QJ	CME	Japanese Yen Options (American & European Style)	300:1	200:1	100:1
XS,YS	CME	Swiss Franc Options (American & European Style)	300:1	200:1	100:1

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<b>Interest Rate Futures Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
GE	CME	Eurodollar Futures & Spreads	15:1	10:1	5:1
ZT	CBOT	2-Year U.S. Treasury Note Futures & Spreads	45:1	30:1	15:1
ZF	CBOT	5-Year U.S. Treasury Note Futures & Spreads	45:1	30:1	15:1
ZN	CBOT	10-Year U.S. Treasury Note Futures & Spreads	45:1	30:1	15:1
ZB	CBOT	30-Year U.S. Treasury Bond Futures & Spreads	45:1	30:1	15:1
ZU	CBOT	30-Year U.S. Ultra Treasury Bond Futures & Spreads	75:1	50:1	25:1
<b>Interest Rate Options Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
ZE	CME	Eurodollar Options	300:1	200:1	100:1
E0, E2, E3, E4, E5	CME	Eurodollar Midcurve Options	300:1	200:1	100:1
N2	CBOT	2-Year U.S. Treasury Note Options	300:1	200:1	100:1
0N	CBOT	5-Year U.S. Treasury Note Options	300:1	200:1	100:1
TE	CBOT	10-Year U.S. Treasury Note Options	300:1	200:1	100:1
UZ	CBOT	30-Year U.S. Treasury Bond Options	300:1	200:1	100:1
UB	CBOT	30-Year U.S. Ultra Treasury Bond Options	300:1	200:1	100:1

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<b>Energy &amp; Metals Futures Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
CL	NYMEX	Light Sweet Crude Oil (WTI) Futures & Spreads Heating Oil Futures & Spreads RBOB Futures & Spreads RBOB Heating Oil Spreads Heating Oil Crack Spreads RBOB Crack Spreads	120:1	80:1	40:1
NG	NYMEX	Natural Gas Futures & Spreads	90:1	60:1	30:1
OP	NYMEX	Brent Crude Oil Last Day Financial Futures & Spreads	180:1	120:1	60:1
GC	COMEX	Gold Futures	90:1	60:1	30:1
SI	COMEX	Silver Futures	120:1	80:1	40:1
HG	COMEX	Copper Futures	195:1	130:1	65:1
<b>Energy &amp; Metals Options Products</b>			<b>&gt;20k</b>	<b>&gt;40k</b>	<b>&gt;60k</b>
LO	NYMEX	Crude Oil Options	300:1	200:1	100:1
OH	NYMEX	NY Harbor ULSD Options	300:1	200:1	100:1
OB	NYMEX	RBOB Gasoline Options	300:1	200:1	100:1
OT	NYMEX	Brent Crude Oil Options	300:1	200:1	100:1
ON	NYMEX	Natural Gas Options	300:1	200:1	100:1
LG	NYMEX	Natural Gas Euro Options	300:1	200:1	100:1
OG	COMEX	Gold Options	300:1	200:1	100:1
SO	COMEX	Silver Options	300:1	200:1	100:1
1U	COMEX	Copper Options	300:1	200:1	100:1

*CME Group expects responsible, quality messaging from all market participants at all times. Product Group Benchmarks are established and announced each quarter, unless business circumstances for a particular product or product group require changes to be implemented more frequently.*