



Schweizerische Eidgenossenschaft
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Confederazione Svizzera
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Eidgenössische Elektrizitätskommission ElCom
Commission fédérale de l'électricité ElCom
Commissione federale dell'energia elettrica ElCom
Federal Electricity Commission ElCom

ElCom Workshop Marktüberwachung 2022

Hohe Preise: Chancen oder Gefahr für Energieunternehmen?





ElCom Workshop Marktüberwachung 2022: Programm (I)

08.30	Begrüssung und Eröffnung des Workshops <i>Sita Mazumder, ElCom</i>
08.45	2021 aus Sicht der Marktüberwachung Schweiz: ElCom Markttransparenzbericht 2021 <i>Cornelia Kawann, ElCom</i>
08.55	Trend zu kurzfristigeren Märkten <i>Chantal Cavazzana, ElCom</i>
09.15	Entwicklung der Grenzkapazitäten 2018-2021 <i>Michael Salzmann, ElCom</i>
09.35	Fragerunde <i>Cornelia Kawann, ElCom</i>
09.45	Pause



ElCom Workshop Marktüberwachung 2022: Programm (II)

10.15	Hohe Preise und Liquiditätsanforderungen aus Sicht einer Börse – Auswirkungen? <i>Tom Frohnhoff, European Energy Exchange AG</i>
10.45	Liquiditätsrisiken in Stromunternehmen <i>Klaus Prommersberger, Axpo Solutions AG</i>
11.15	Improving the margin practices for clearing in the context of high volatility <i>Dirk Daveluy, RWE Supply & Trading GmbH</i>
11.45	Liquiditätsmonitoring im Finanzsektor (in Englisch) <i>Francesca Dell’Era, Eurex</i>
12.15	Liquiditätsmonitoring bei der ElCom <i>Chantal Cavazzana, ElCom</i>
12.25	Diskussions- und Fragerunde <i>Urs Meister, ElCom</i>
12.45	Abschliessende Worte und Verabschiedung <i>Urs Meister und Cornelia Kawann, ElCom</i>
13.00	Ende der Veranstaltung



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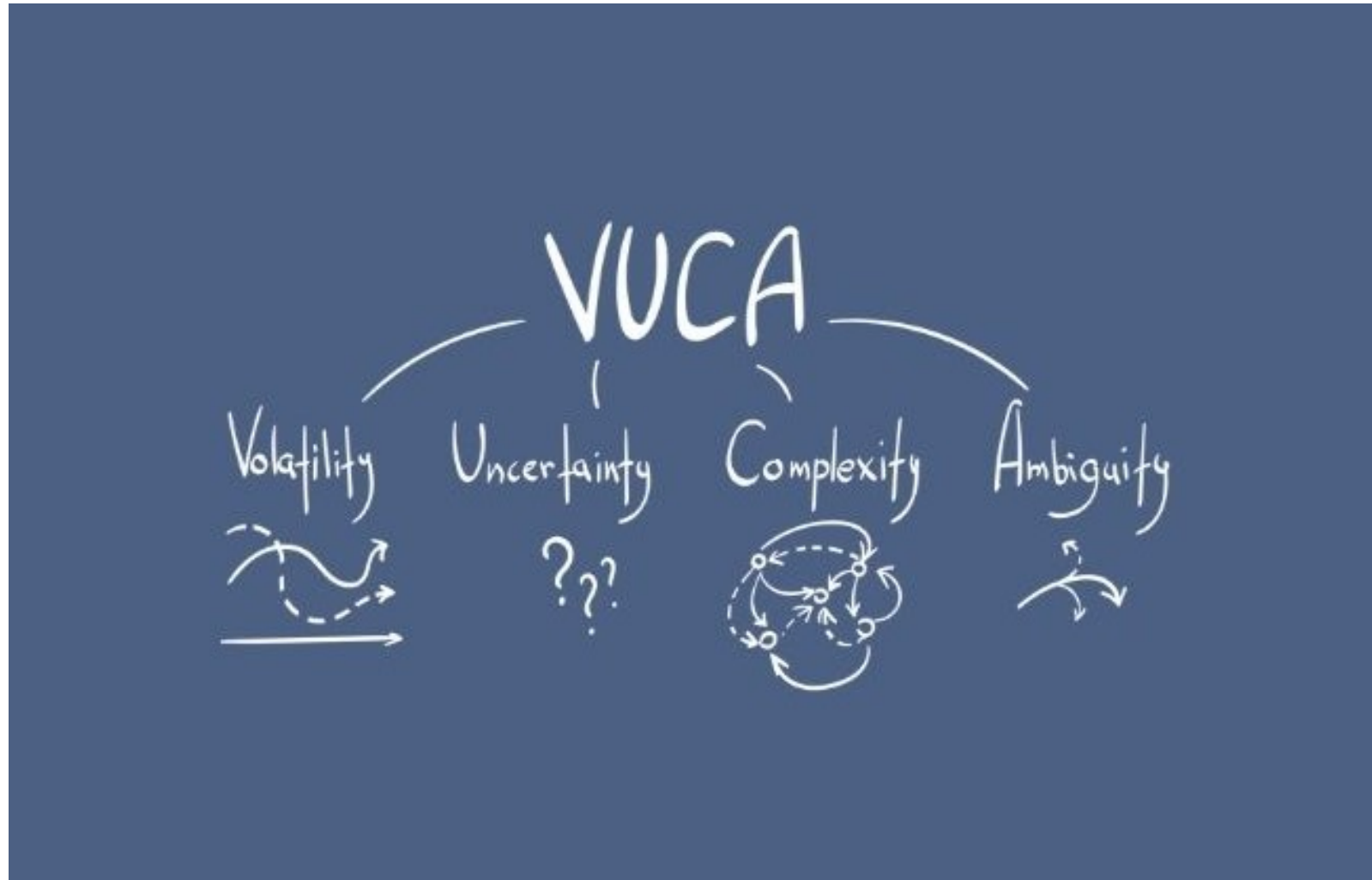
Begrüssung und Eröffnung des Workshops

Sita Mazumder, ElCom



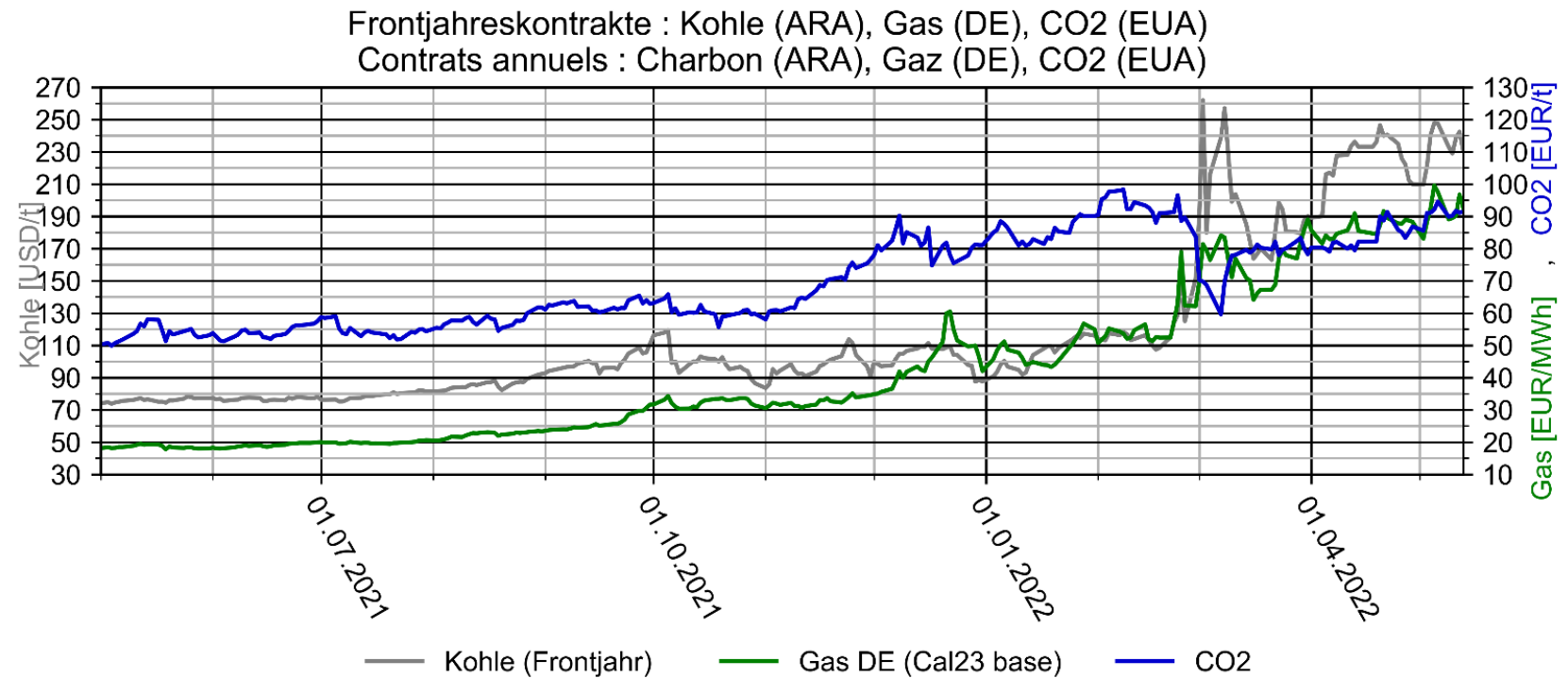


It's a VUCA World





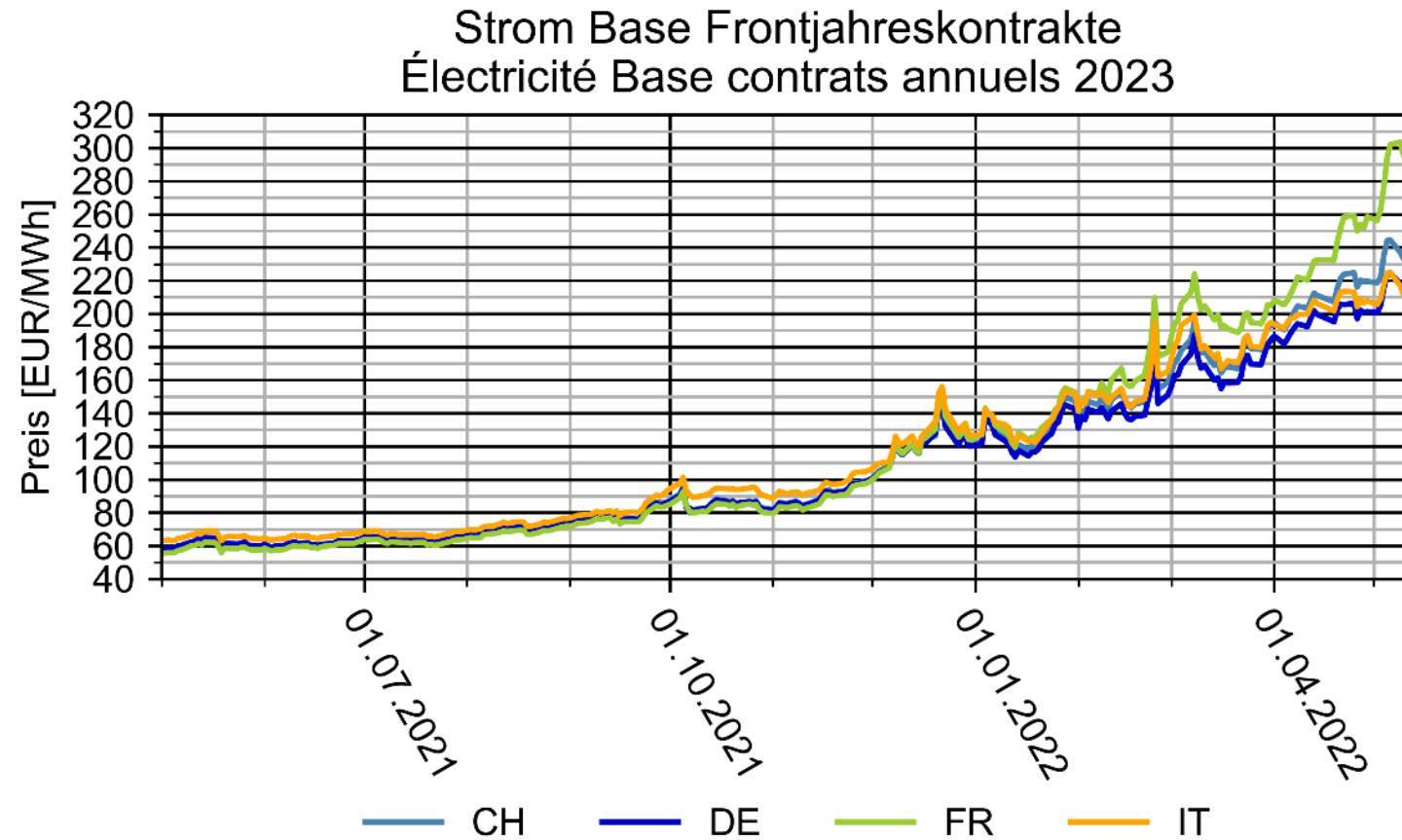
Preisentwicklung ausgewählter Rohstoffe



Quelle: ECom



Preisentwicklung Strom 2021/2



Quelle: EICom



Hohe Preise: Chancen oder Gefahr für Energieunternehmen?



Neue Zürcher Zeitung

Wegen hoher Strompreise: Anlagenbetreiber müssen Geld an den Bund zurückzahlen

Betreiber von grossen Photovoltaik- sowie Wind- und Wasserkraftanlagen erhalten vom Bund Subventionen. Weil jetzt die Strompreise höher sind als die festgelegten Vergütungen, fliessen monatlich rund 15 Millionen Franken zurück an den Bund. Dies dürfte noch für eine Weile so bleiben.

Christof Forster, Bern
06.05.2022, 19.43 Uhr



Hören



Merken



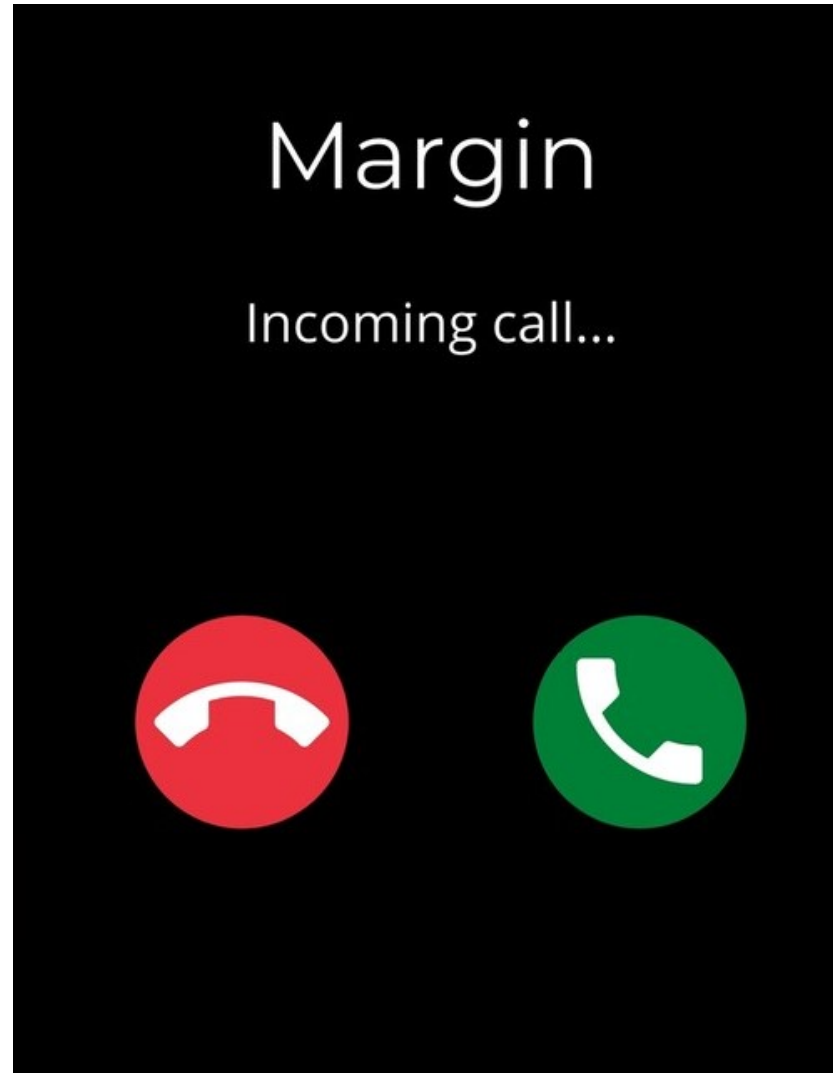
Drucken



Teilen



Variation Margin Calls (Initial vs Variation Margins)





xxx

🔑 Login / Registrieren

FINANZ und WIRTSCHAFT



Suche gesponsert von **JUPITER**
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11.05.2022 – 07:00 UNTERNEHMEN / ENERGIE

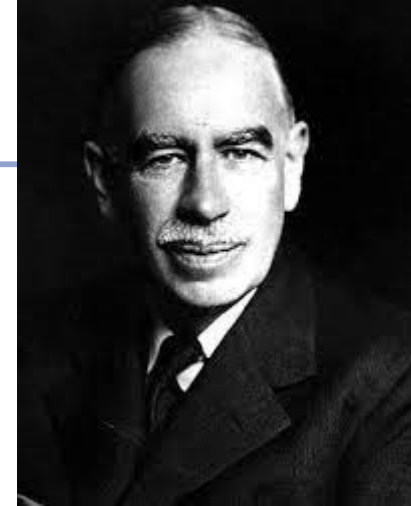
Brauchen Stromkonzerne für Absicherung oder Spekulation mehr Geld?

Der Rettungsschirm für BKW und Co. sorgt für Kritik. Wieso es ihn braucht, ist umstritten.

SYLVIANE CHASSOT ✉



John Maynard Keynes, Ökonom, 1883-1946



«Der Markt bleibt länger irrational,
als man liquide bleibt.»



Programm – **VIELEN DANK!!**

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2021 aus Sicht der Marktüberwachung Schweiz

ElCom Markttransparenzbericht 2021

Cornelia Kawann, ElCom





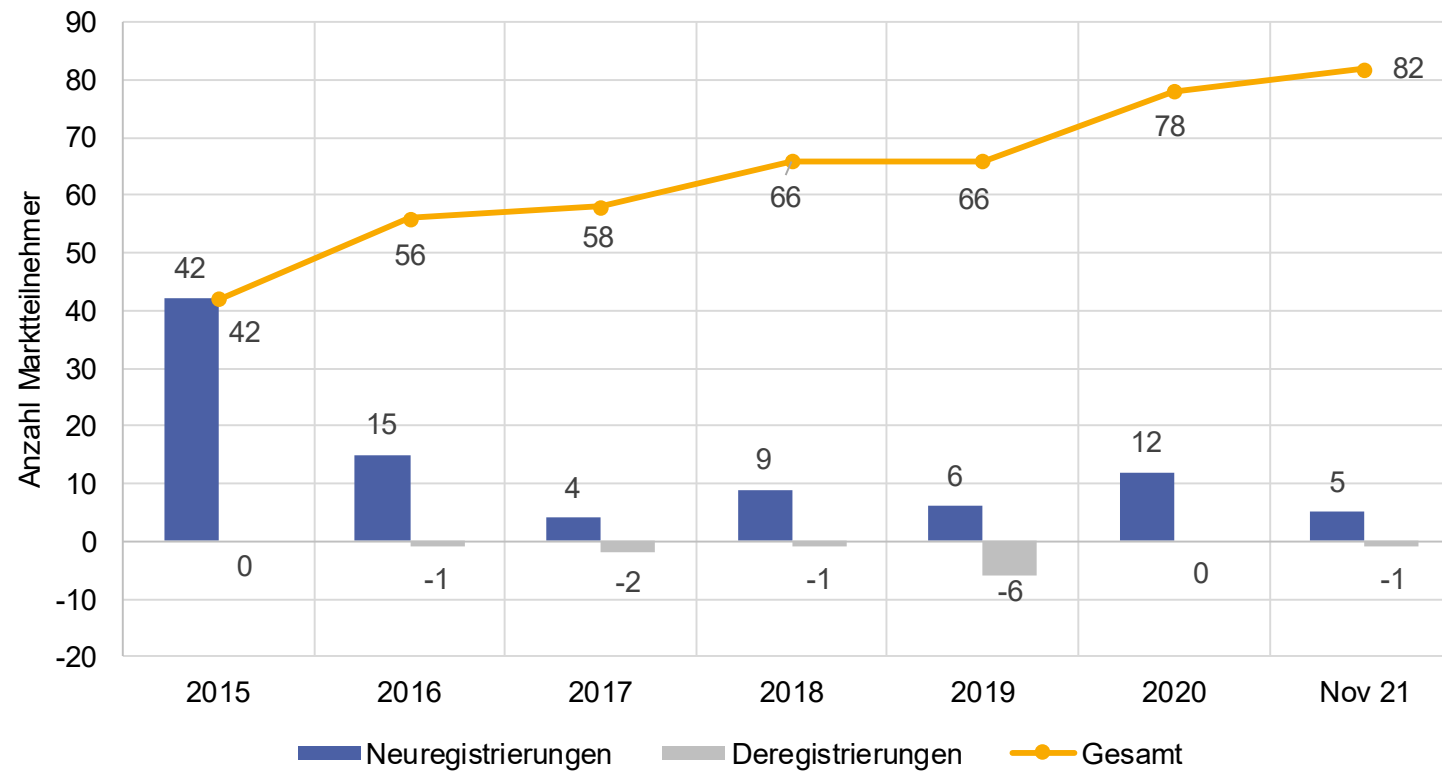
- Jahresrückblicke 2021 Spot- und Terminmarkt
- Analyse von Preisentwicklungen 2021
- Analyse der Auswirkungen von windbedingten Grenzkapazitätskürzungen auf den Day-Ahead-Spread Deutschland-Schweiz



Markttransparenzbericht 2021 wird im Anschluss an den Workshop auf unserer Homepage veröffentlicht (www.elcom.admin.ch > Dokumentation > Berichte und Studien).

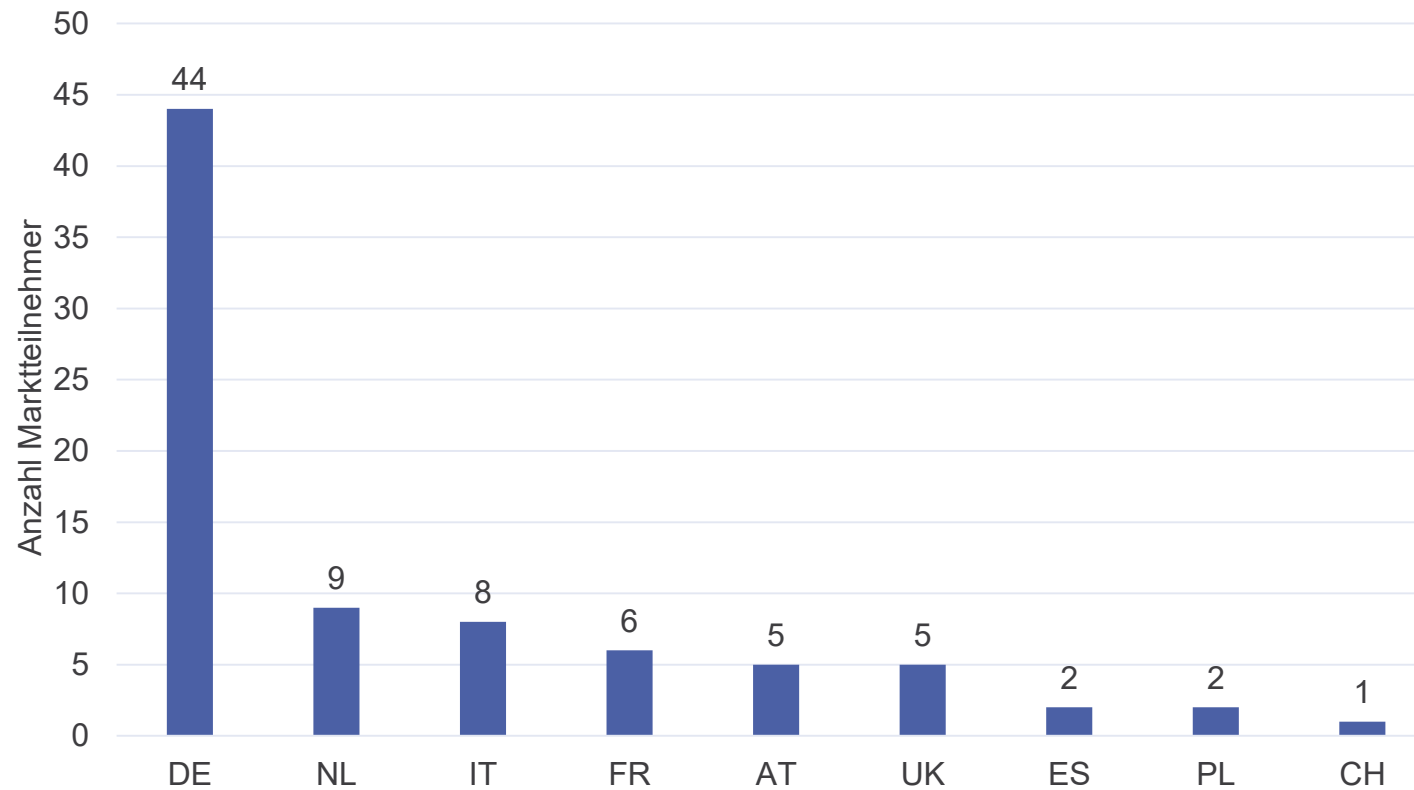


Registrierte Marktteilnehmer





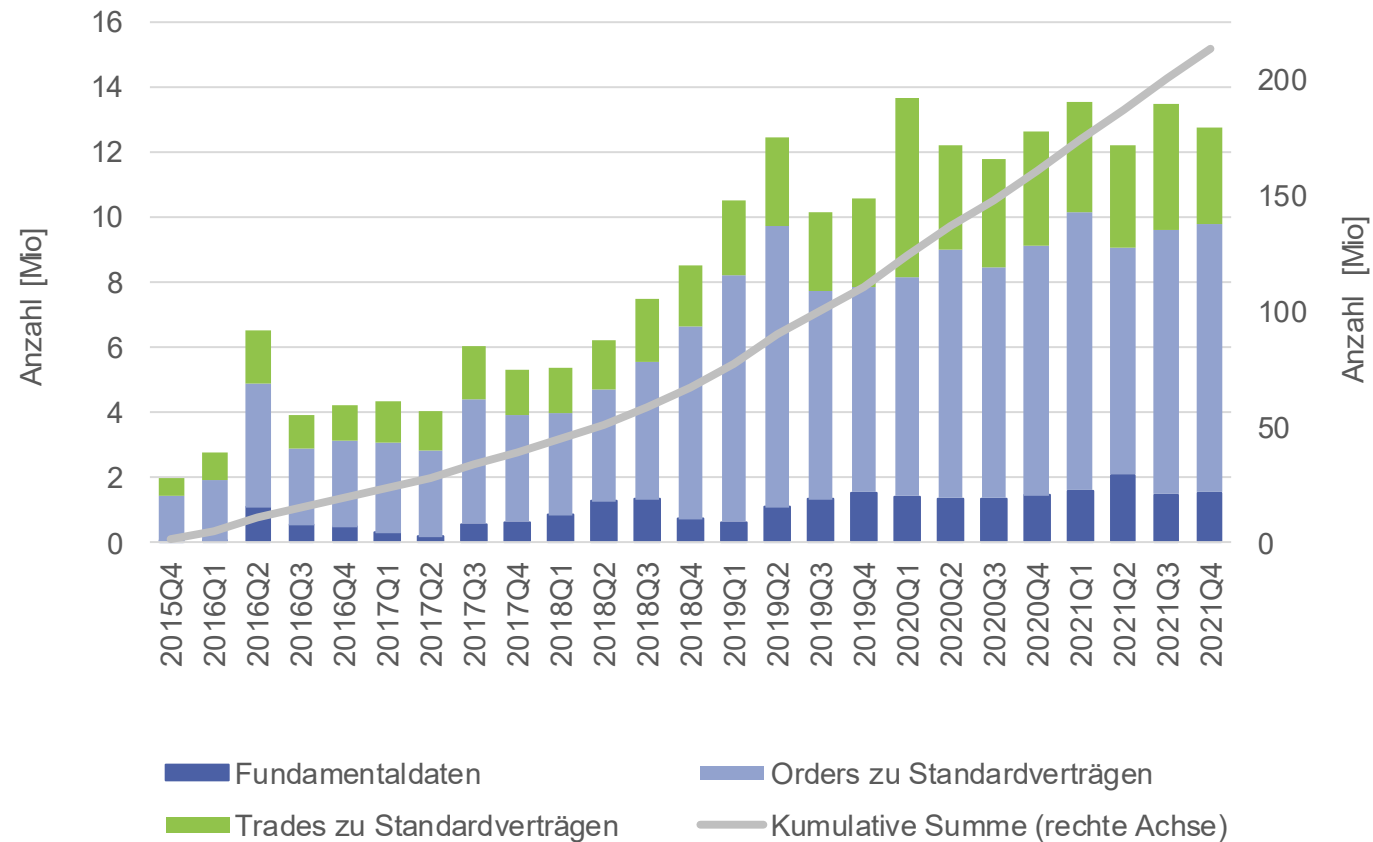
Anzahl der bei EU-Regulierungsbehörden registrierten Schweizer Marktteilnehmer





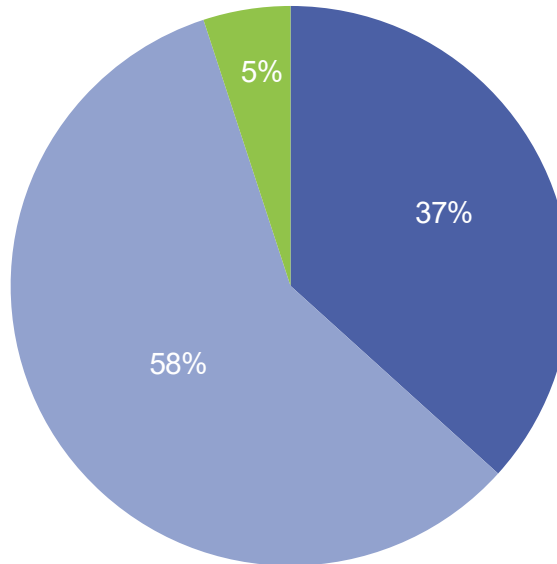
Marktüberwachung Schweiz: Zahlen und Fakten (II)

Anzahl der an die ElCom rapportierten Daten 2016 – 2021





Aufteilung der Standardverträge nach Kurzfrist- und Terminhandel



■ Kurzfristhandel Auktionen ■ Kurzfristhandel kontinuierlich ■ Terminhandel



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Trend zu kurzfristigeren Märkten

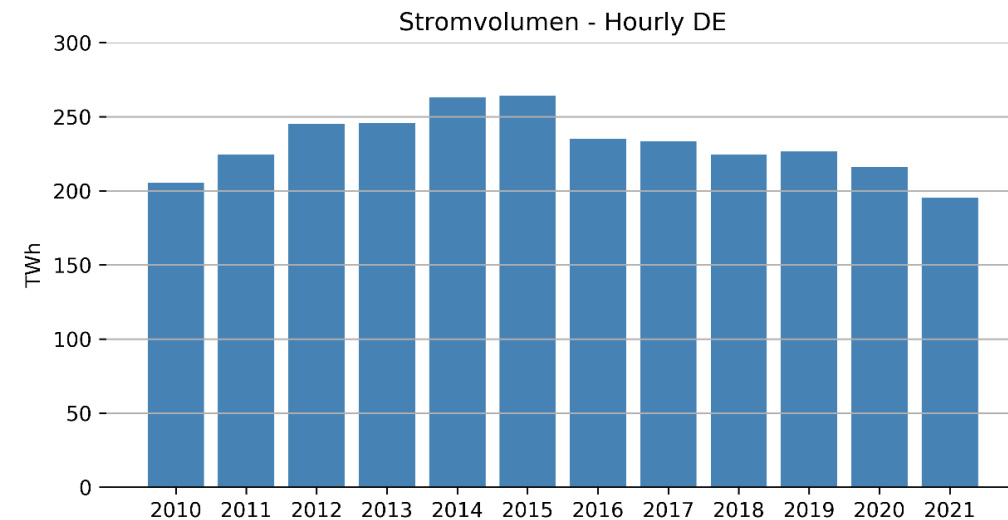
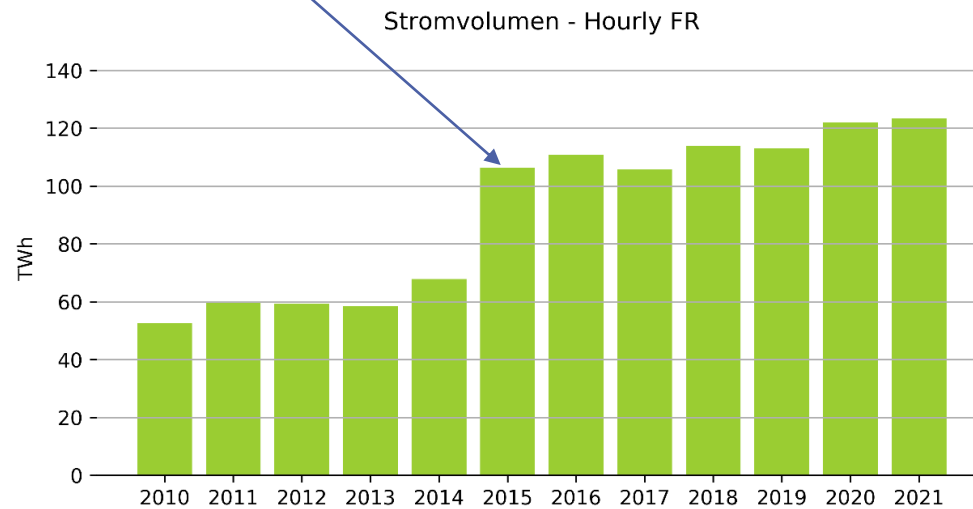
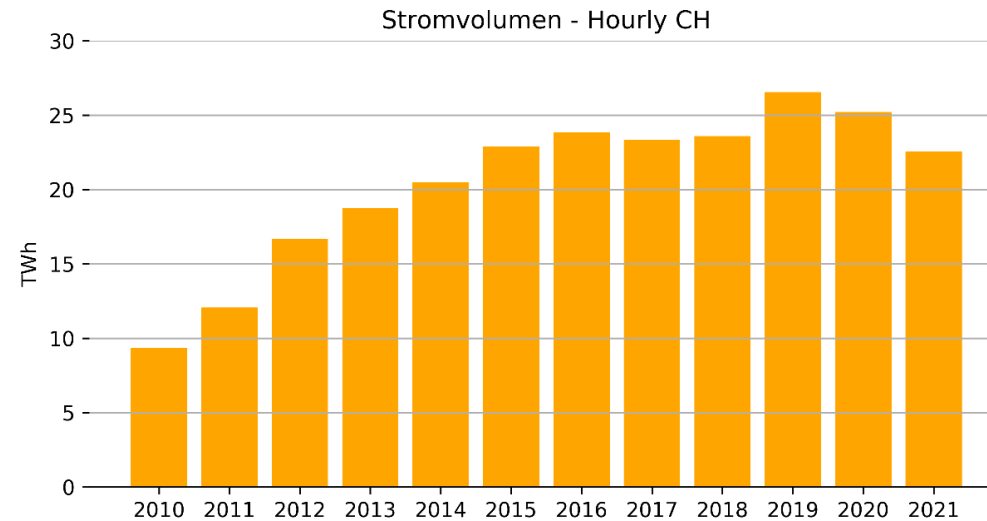
Chantal Cavazzana, ElCom





Jährlich gehandeltes Volumen an der Day Ahead-Auktion

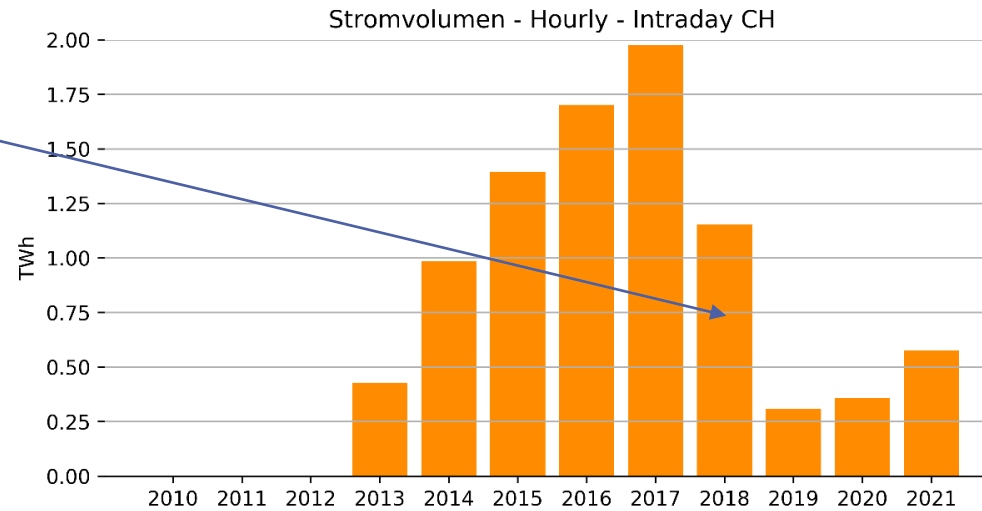
Mai 2015:
Einführung Flow
Based Market
Coupling in CWE





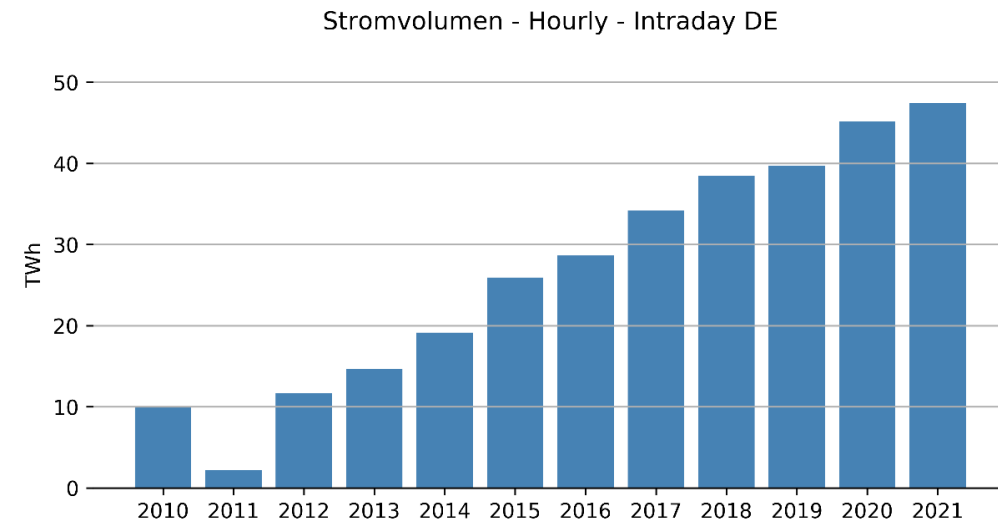
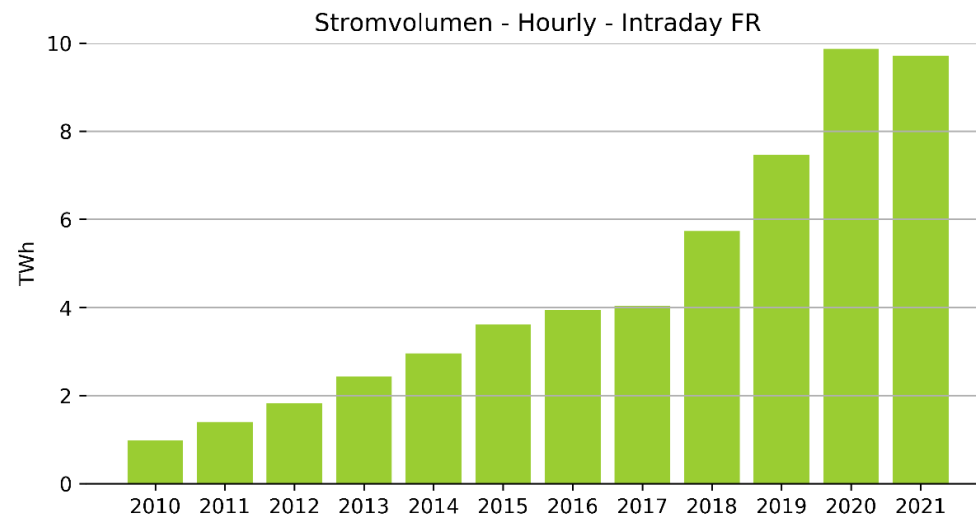
Jährlich gehandeltes Volumen am Intraday/kontinuierlichen Markt (Stundenprodukt)

12. Juni 2018:
XBID Go Live



Veränderung jährlich
gehandeltes Volumen
von 2018 bis 2021:

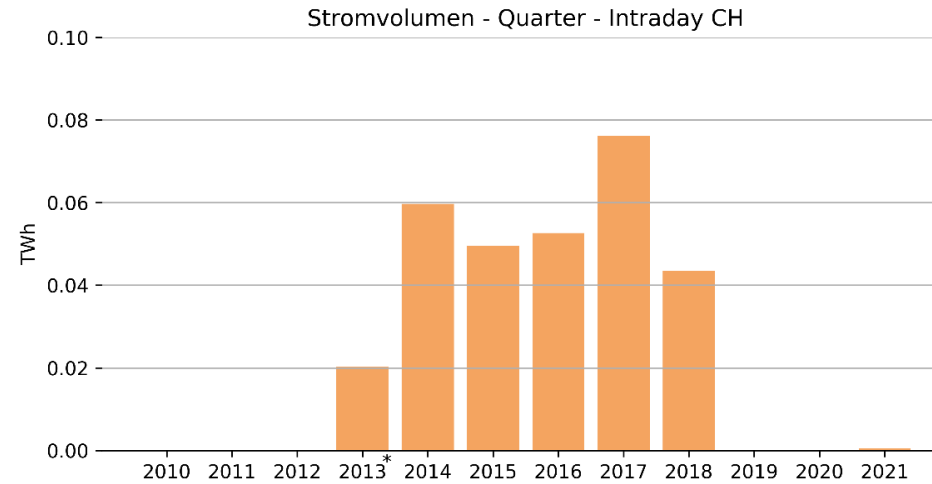
- FR + 70%
- DE + 23%
- CH – 50%





Jährlich gehandeltes Volumen am Intraday kontinuierlichen Markt (15-Minuten Produkt für CH und DE und 30-Minuten Produkt für FR)

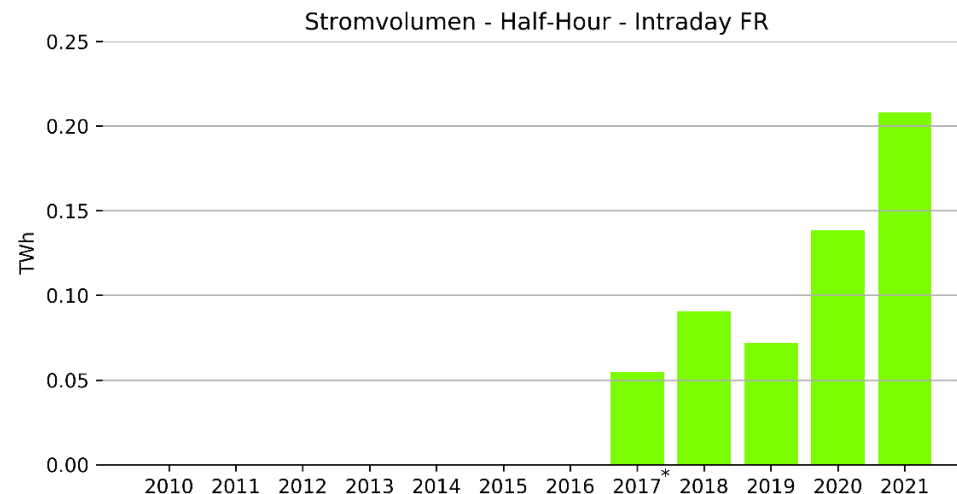
In der Schweiz wurden seit 2019 sehr wenige MWs an EPEX SPOT Intraday kontinuierlichen Markt 15-Minuten Produkt gehandelt



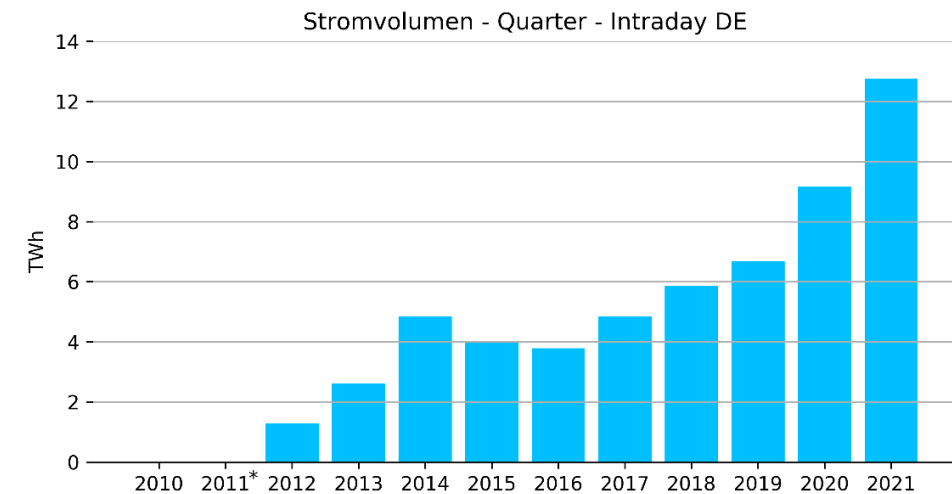
* Erste Transaktion 15 min - Produkte 26.06.2013

Veränderung jährlich gehandeltes Volumen von 2018 bis 2021:

- FR + 130%
- DE + 118%



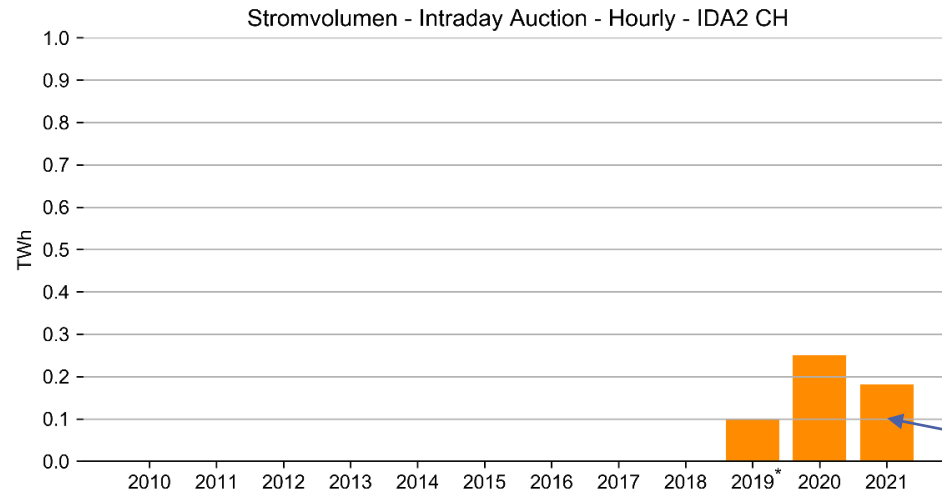
* Erste Transaktion 30 min - Produkte 28.03.2017



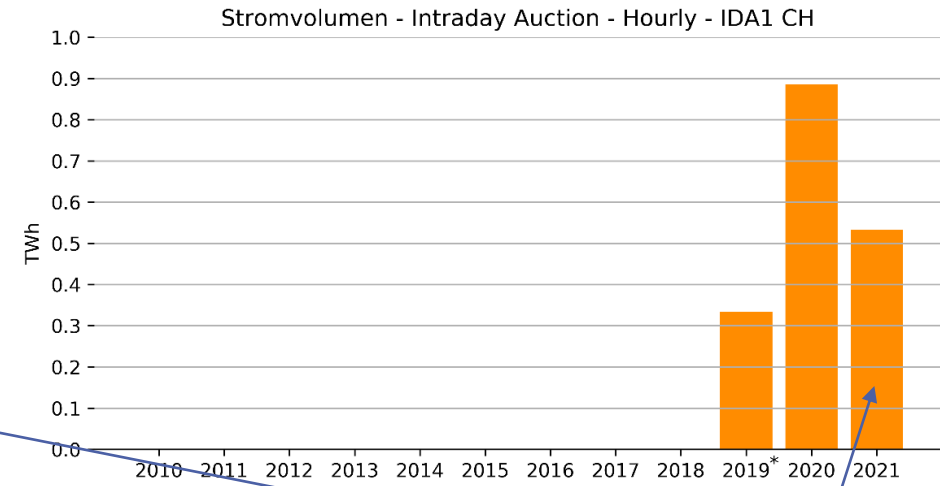
* Erste Transaktion 15 min - Produkte 14.12.2011



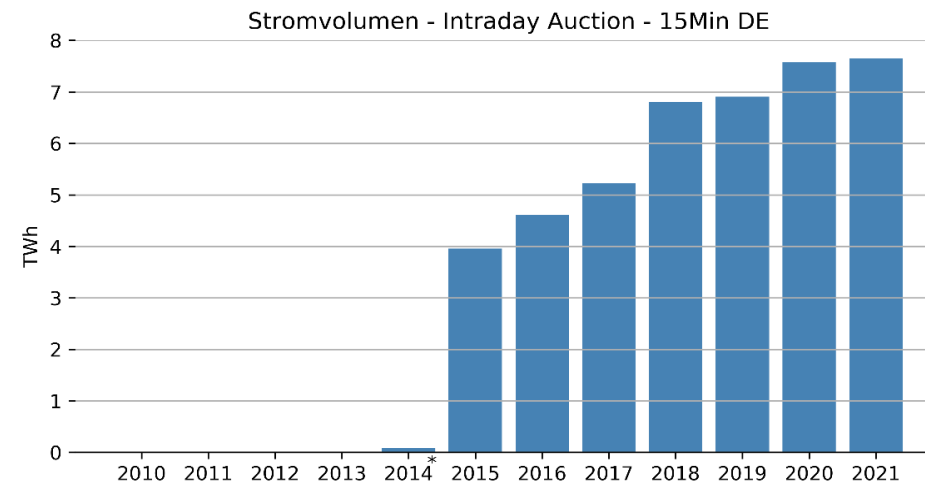
Jährlich gehandeltes Volumen Intraday-Auktionen



* Erste Transaktion Hourly - Produkte 18-04-2019



* Erste Transaktion Hourly - Produkte 18-04-2019

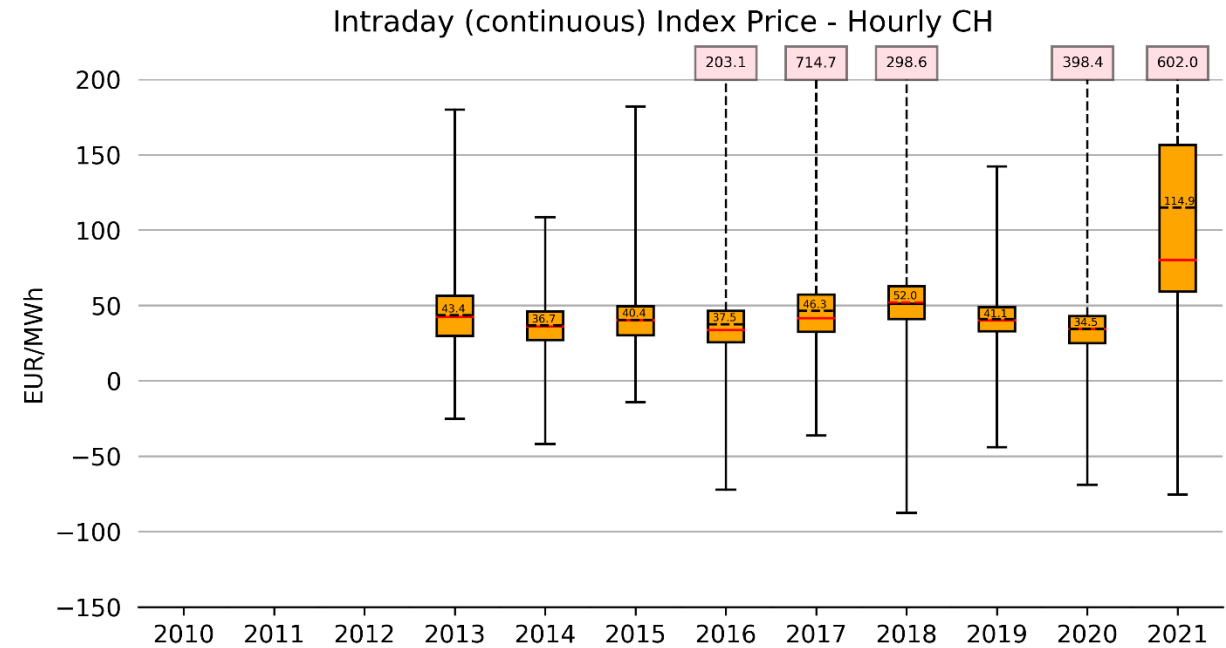
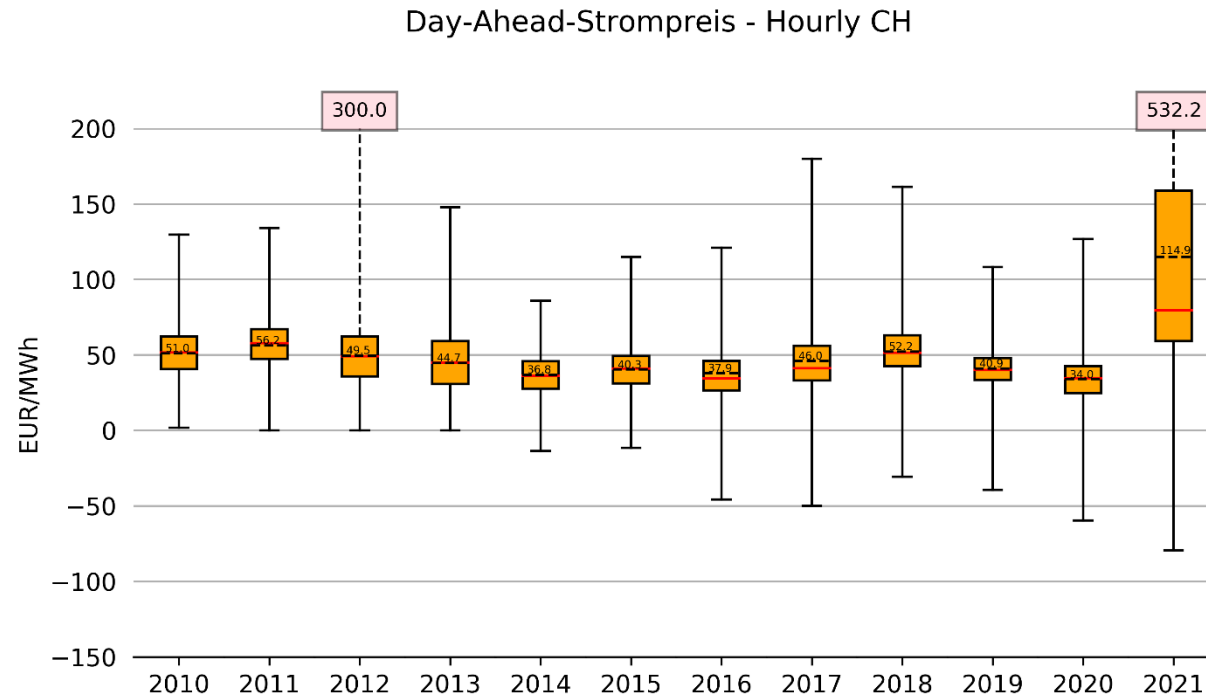


* Erste Transaktion 15 min - Produkte 10-12-2014

- 21.09.21: CH IDA 1 & CH IDA 2 Wechsel von Implizit auf Explizit → Handelsvolumen nimmt stark ab
- In Deutschland nimmt Handelsvolumen weiter zu



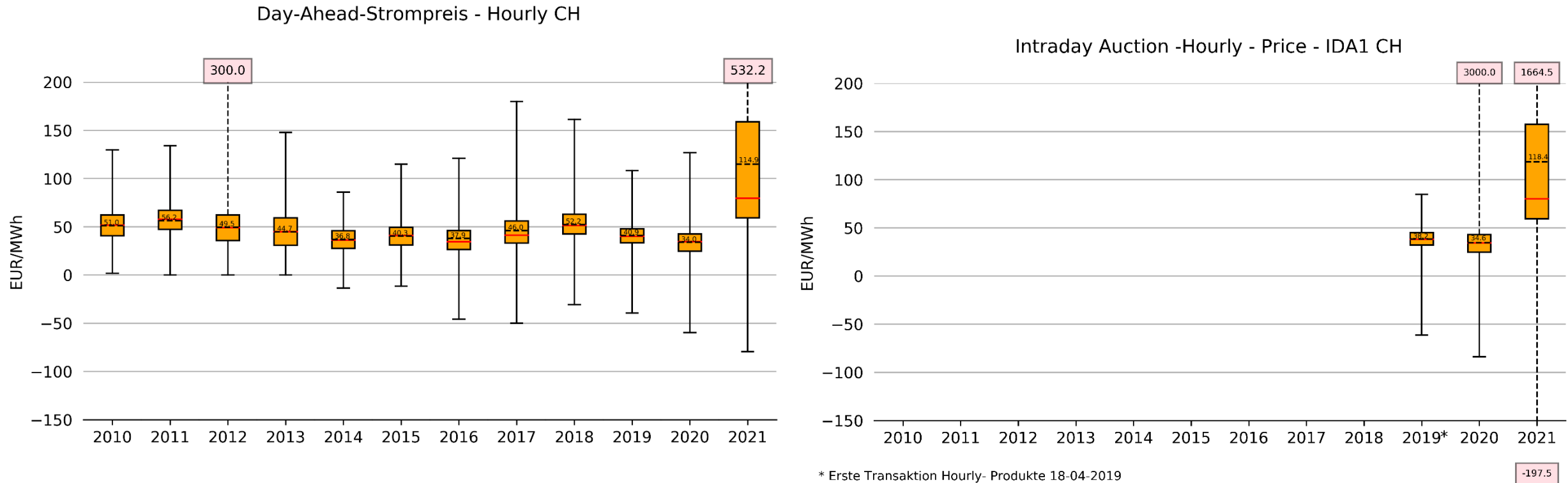
Preise Lieferort Schweiz: Day Ahead (hourly) vs. Intraday Continuous (hourly)



- Preisverlauf von 75% der Stunden im Day Ahead-Markt und Intraday kontinuierlichen Markt ähnlich
- Höhere Maxima und tiefere Minima im Intraday-Markt



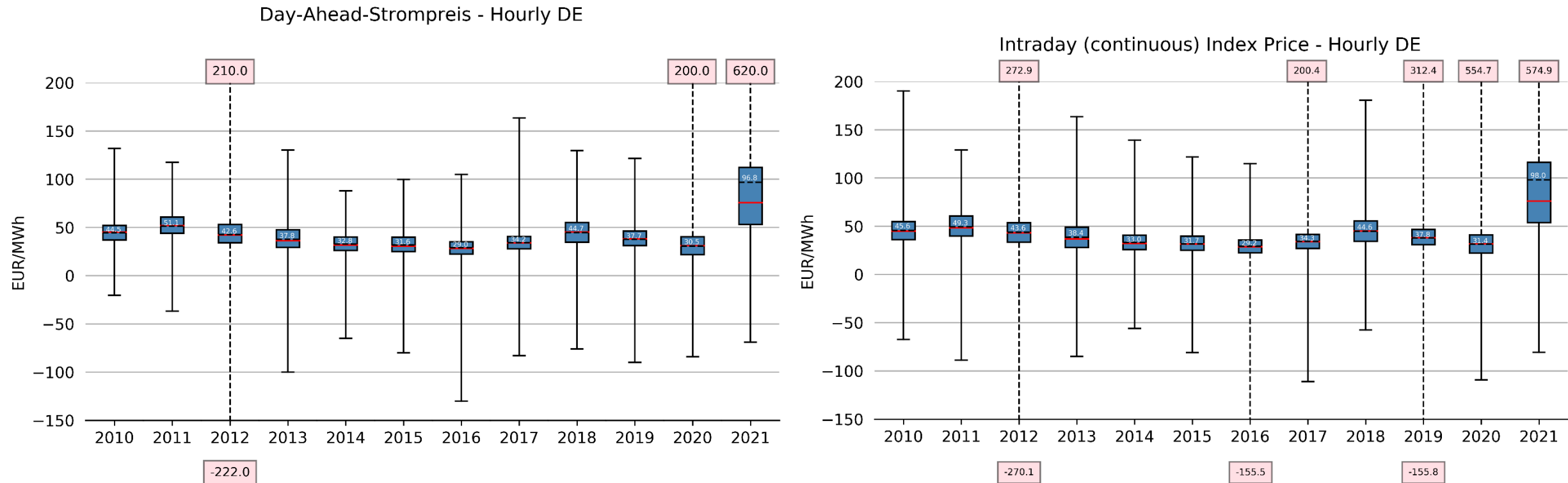
Preise Lieferort Schweiz: Day Ahead (hourly) vs. Intraday Auction (hourly)



- Preisverlauf von 75% der Stunden im Day Ahead-Markt und der CH IDA 1 Auktion ähnlich
- Höhere Maxima und tiefere Minima an der CH IDA1 Auktion (2019 nicht vergleichbar wegen Zeitpunkt Einführung der Auktion)



Preise Lieferort Deutschland: Day Ahead (hourly) vs. Intraday Continuous (hourly)

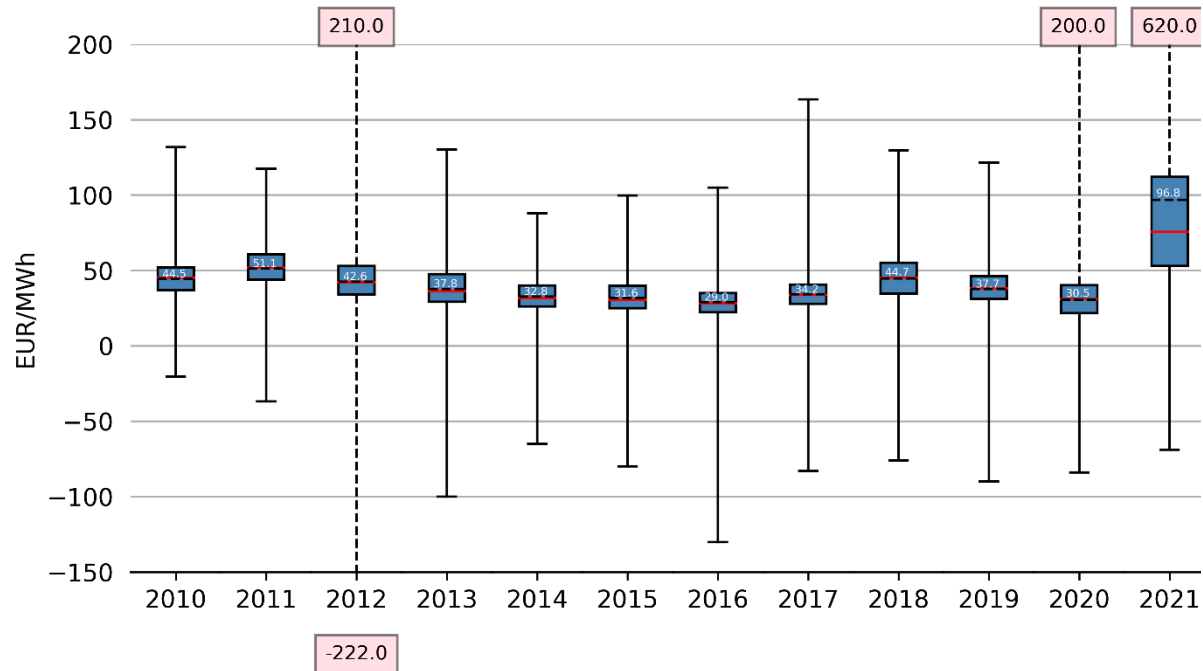


- Preisverlauf von 75% der Stunden im Day Ahead-Markt und Intraday kontinuierlichen Markt ähnlich
- Höhere Maxima und tiefere Minima im Intraday Markt

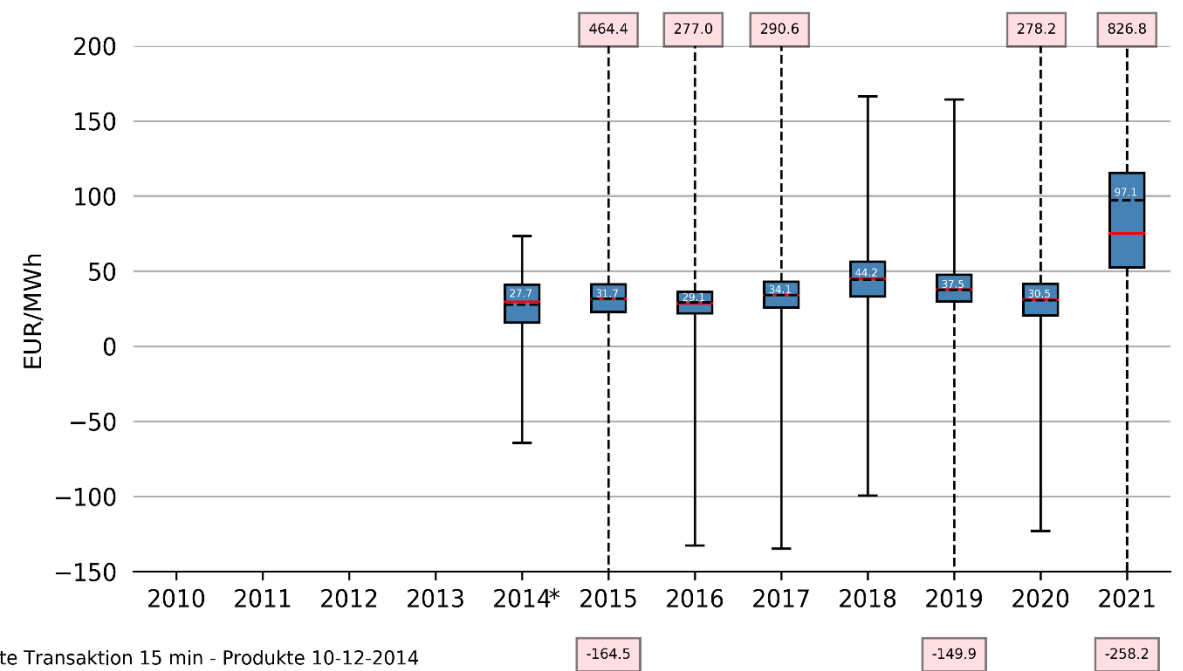


Preise Lieferort Deutschland: Day Ahead (hourly) vs. Intraday Auction (15 Min.)

Day-Ahead-Strompreis - Hourly DE



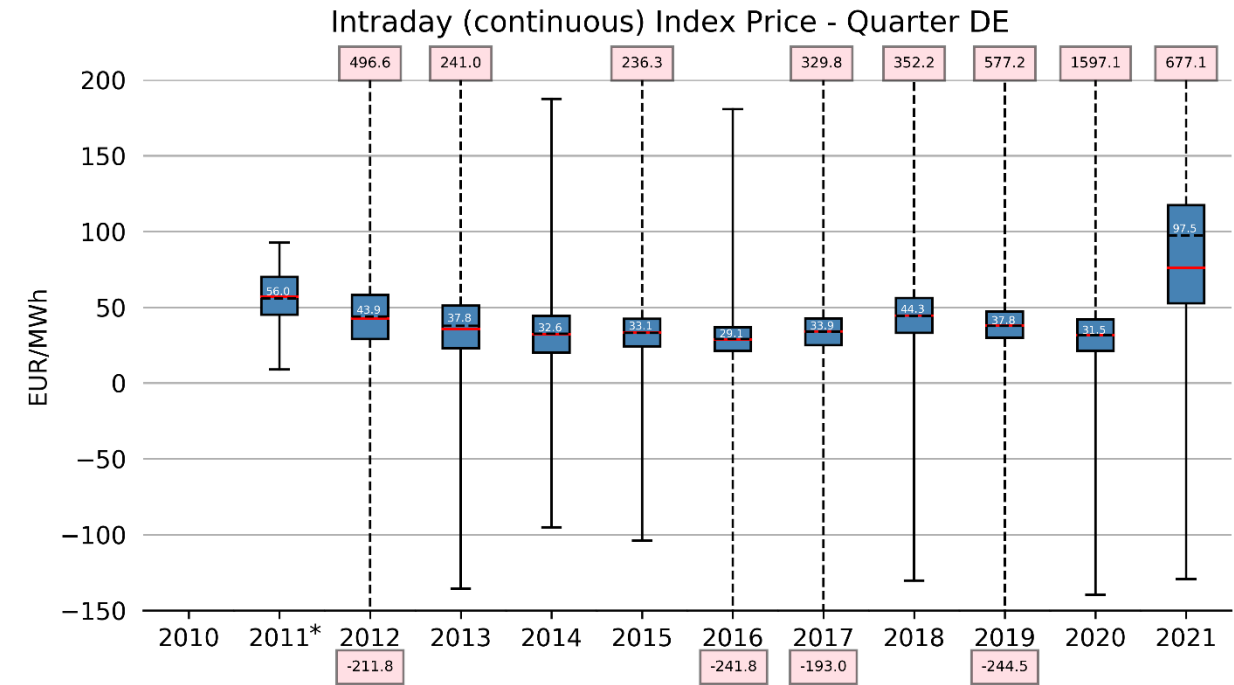
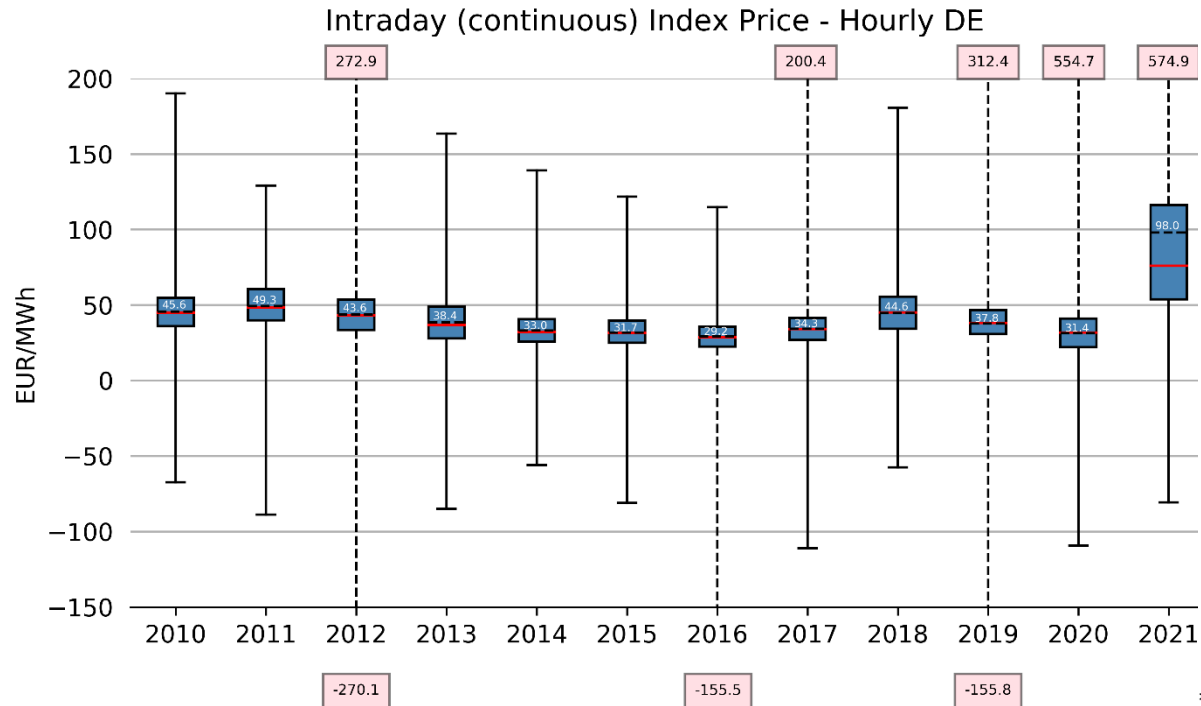
Intraday Auction 15Min Price DE



* Erste Transaktion 15 min - Produkte 10-12-2014



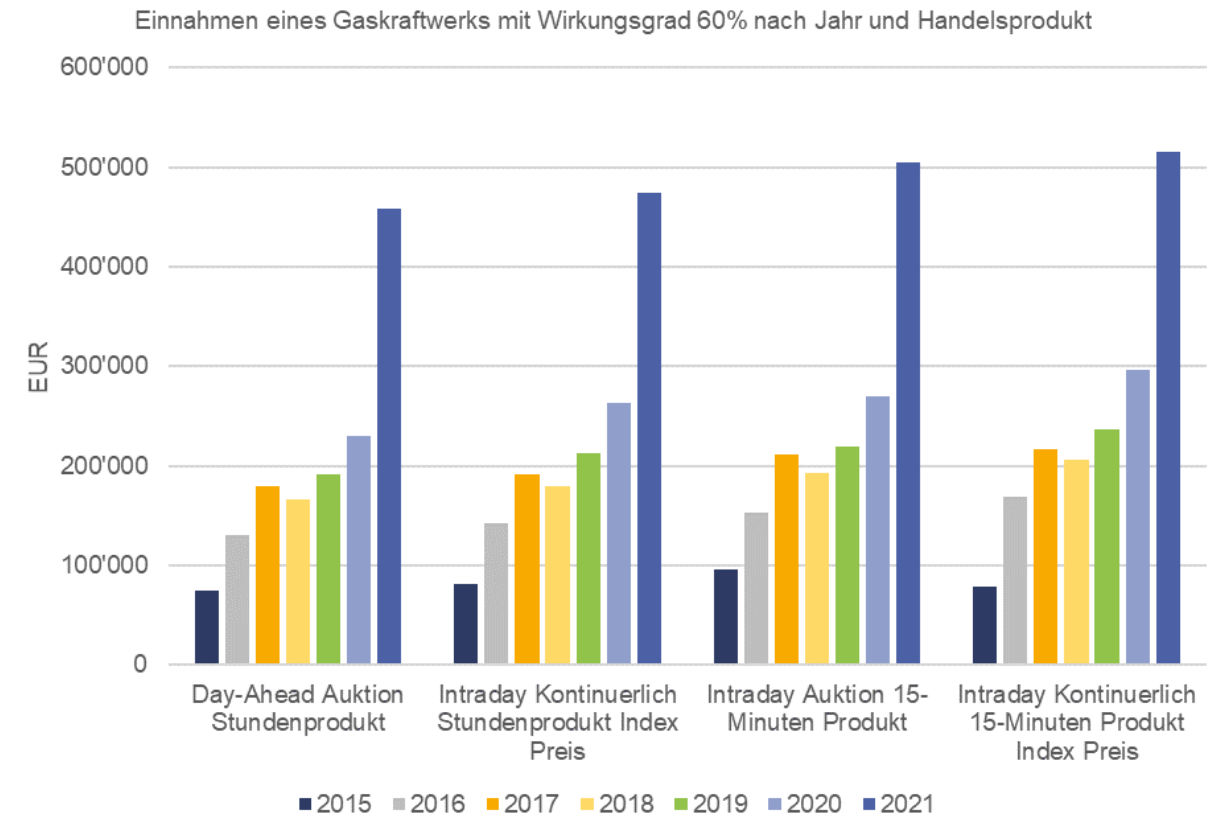
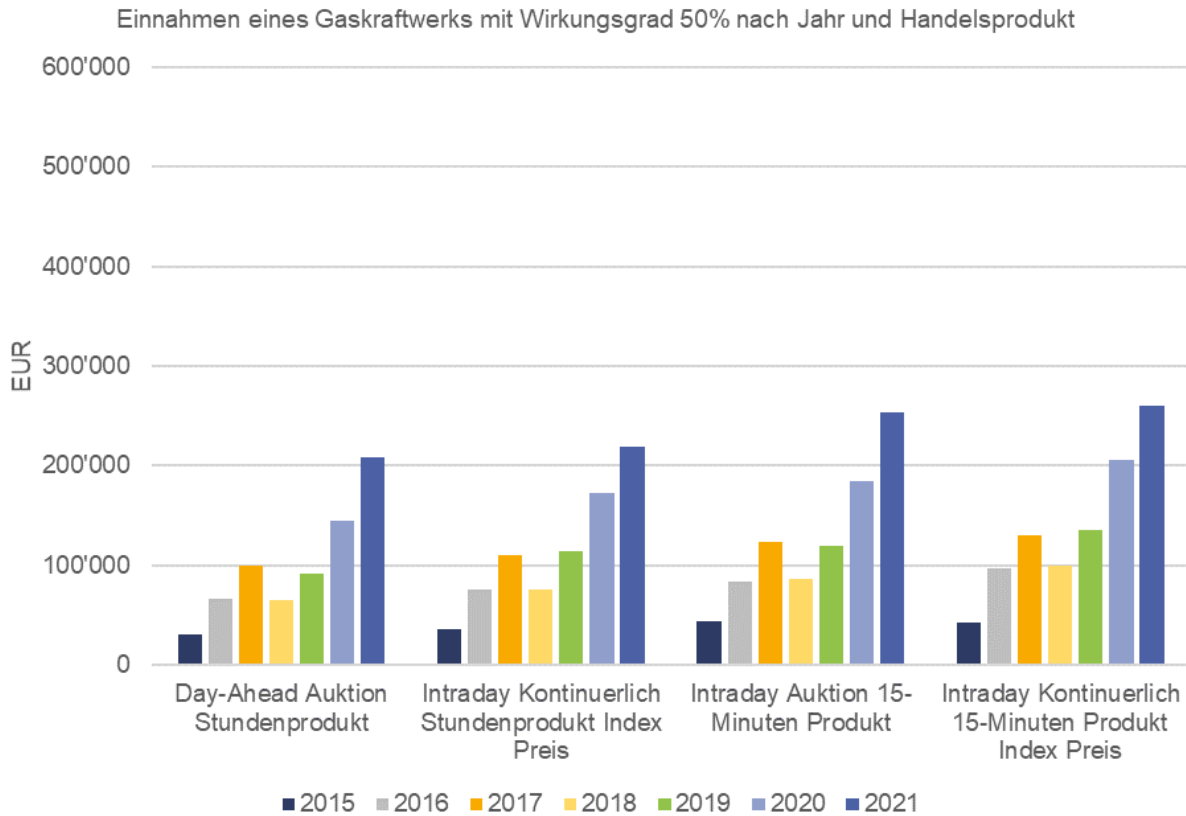
Preise Lieferort Deutschland: Intraday Continuous (Hourly) vs. Intraday Continuous (15 Min.)



* Erste Transaktion 15 min - Produkte 14.12.2011



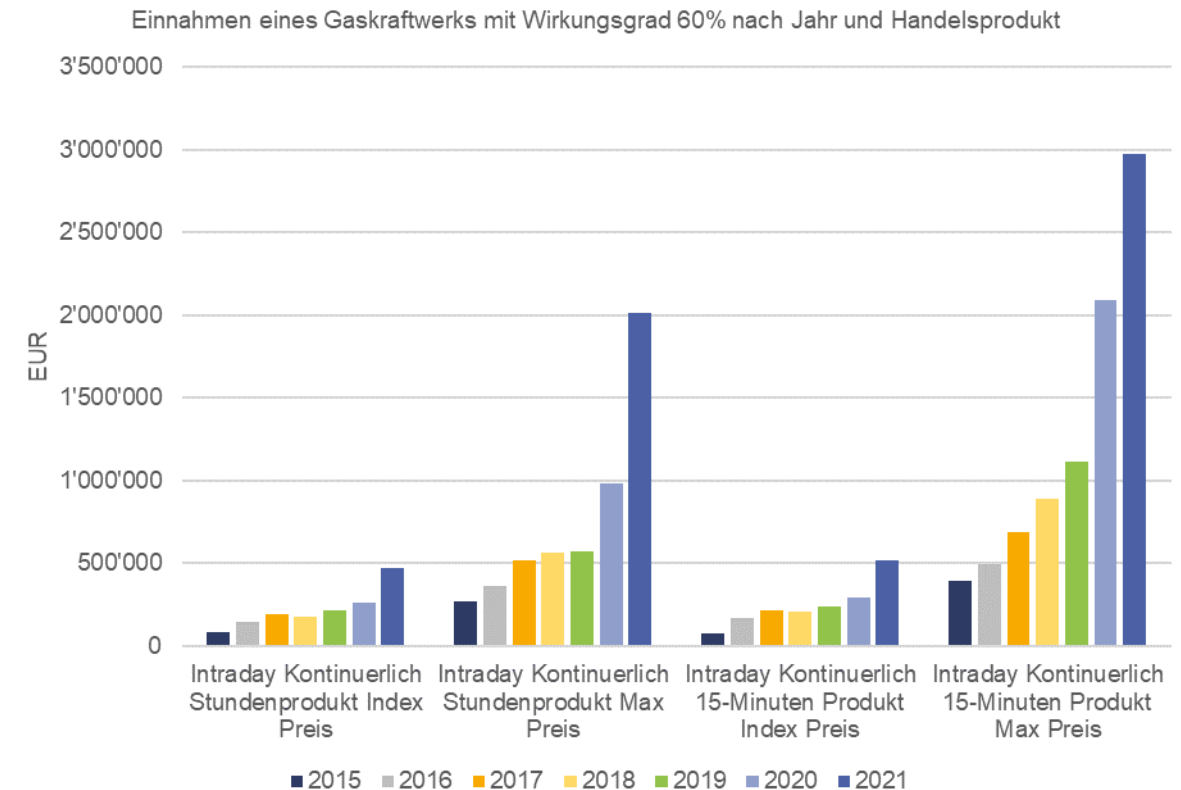
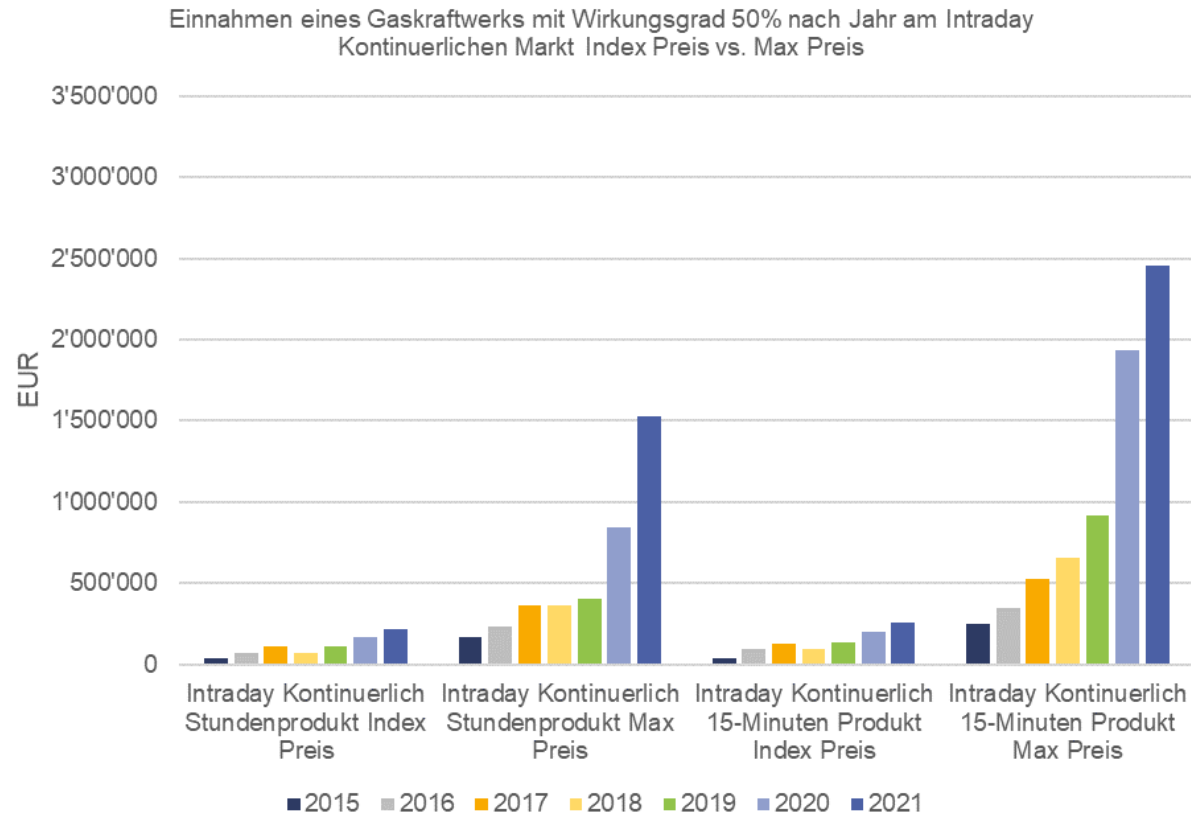
Erlöse durch Optimierung eines Gaskraftwerks nach Markt





Erlöse durch Optimierung eines Gaskraftwerks am Intraday-Markt

Stundenprodukt vs. 15-Minuten Produkt mit Full Index Preis vs. Max Preis





- Intraday-Märkte
 - gewinnen im Ausland an Attraktivität,
 - verlieren in der Schweiz an Attraktivität
- Wert der Flexibilität:
 - Wert der Unmittelbarkeit: entspricht dem Mehrerlös der von einer flexiblen Ressource auf dem kontinuierlichen Stundenmarkt im Vergleich zur stündlichen Day Ahead-Auktion erzielt werden kann
 - Wert der Rampenfähigkeit: kann Schwankungen von kürzerer Granularität (15 Minuten) erfassen
- Die Energiewende führt zu zunehmend fluktuierenden Erneuerbaren Energien
 - Flexibilitätsbedarf steigt: Wert der Unmittelbarkeit wird wegen Verbesserung der Prognosefähigkeiten sinken, während der Bedarf an ausreichender Flexibilität zunehmen wird, um die grossen Erzeugungsrampen zu berücksichtigen
 - Es braucht funktionierende Kurzfristmärkte, sonst droht Wettbewerbsnachteil für die Schweiz



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Entwicklung der Grenzkapazitäten 2018-2021

Michael Salzmann, ElCom





<https://www.elcom.admin.ch/elcom/de/home/dokumentation/berichte-und-studien.html>

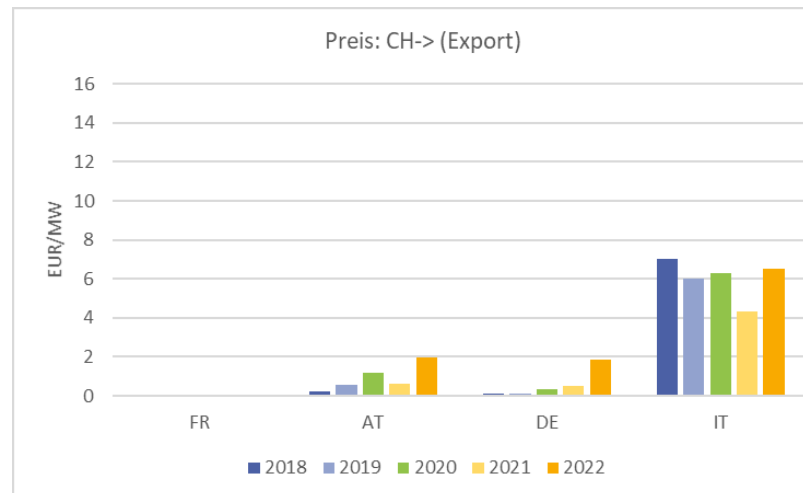
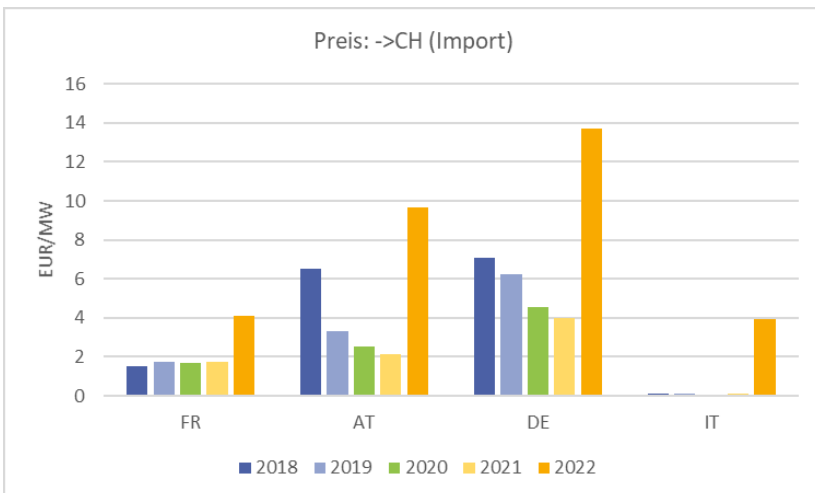
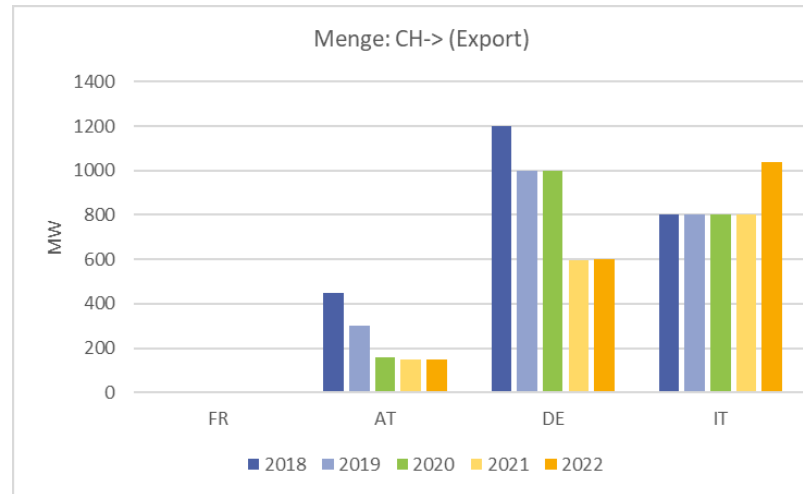
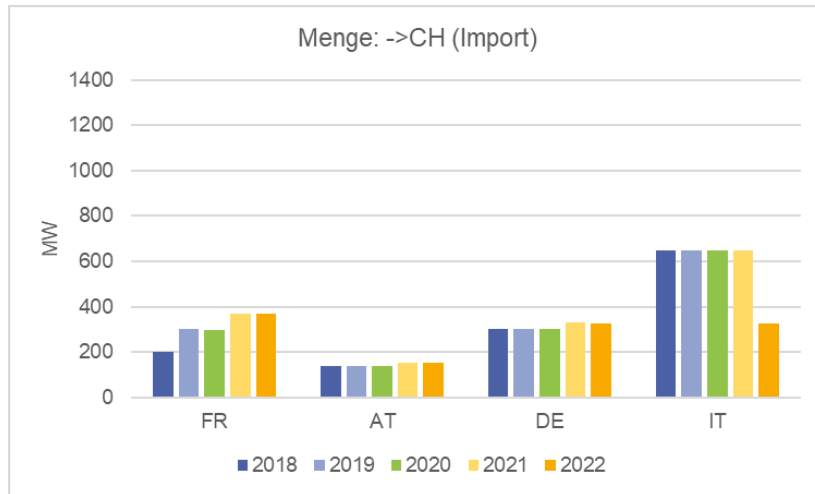
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7	Fazit	15

Nicht: Intraday. Siehe dazu auch Workshop Marktüberwachung 2021



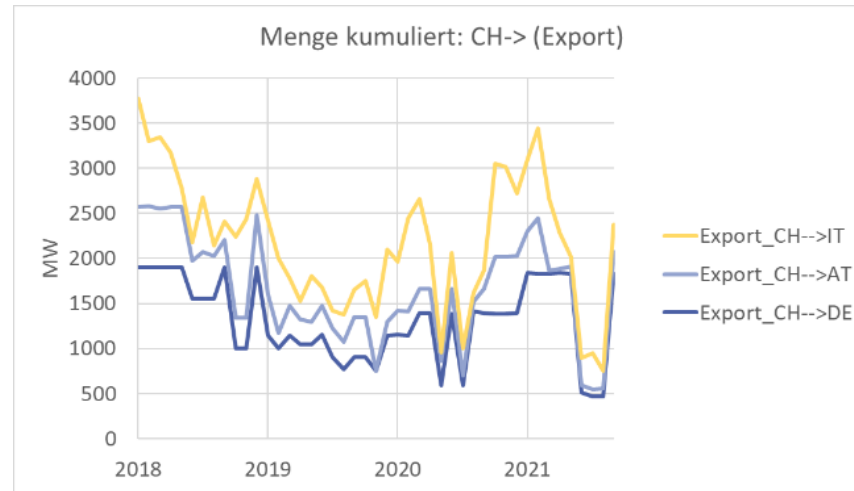
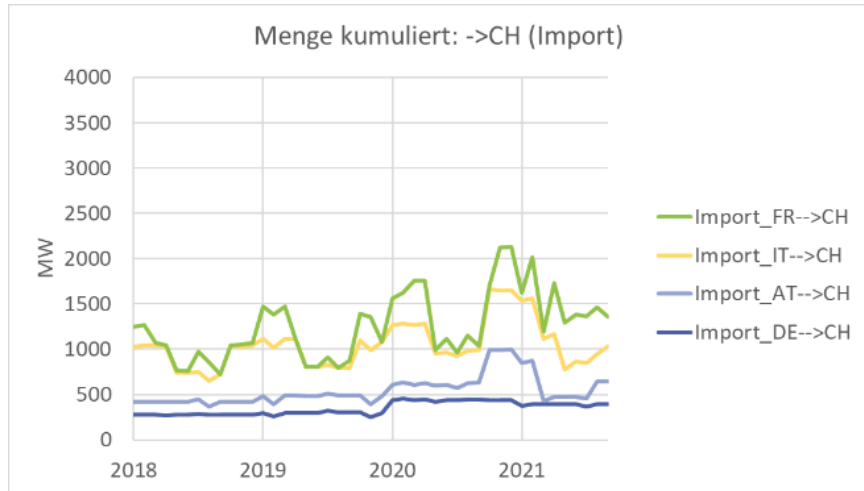
Jahreskapazitäten



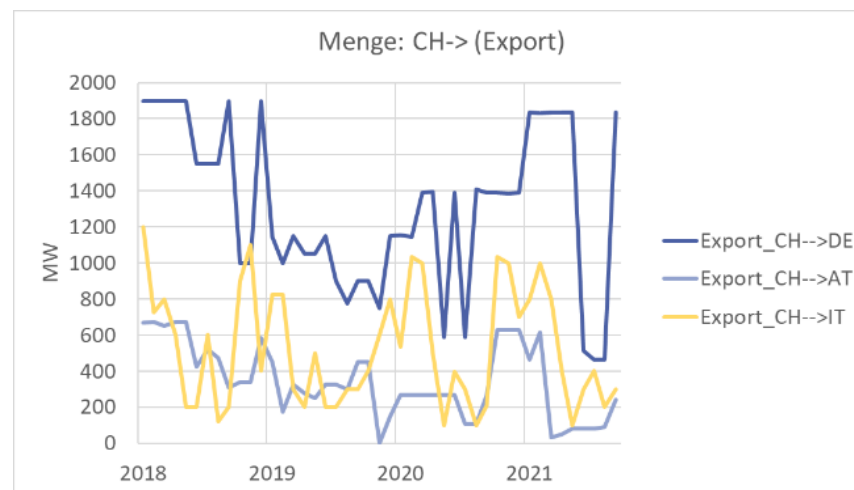
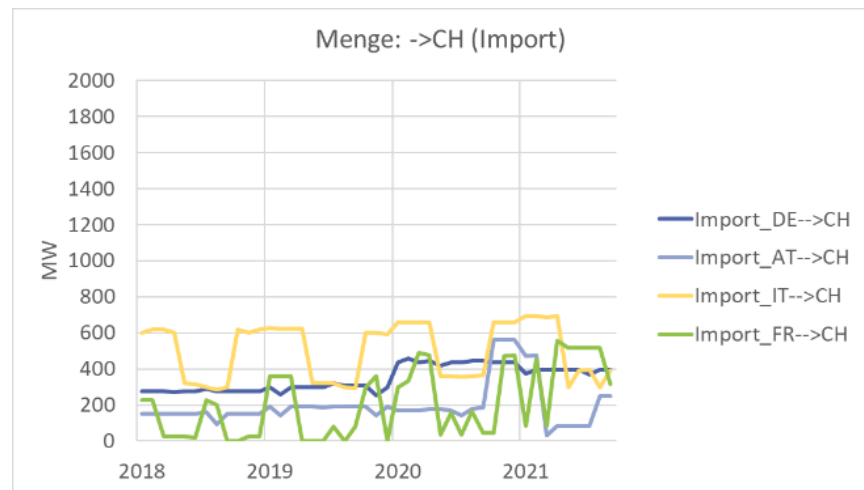
- Zunahme Import FR
- Abnahme Import IT
- Abnahme Export DE / AT
- Zunahme Export IT
- Abnahme Import DE / AT
- Zunahme Export DE / AT
- Aussergewöhnliches 2021



Monatskapazitäten: Menge



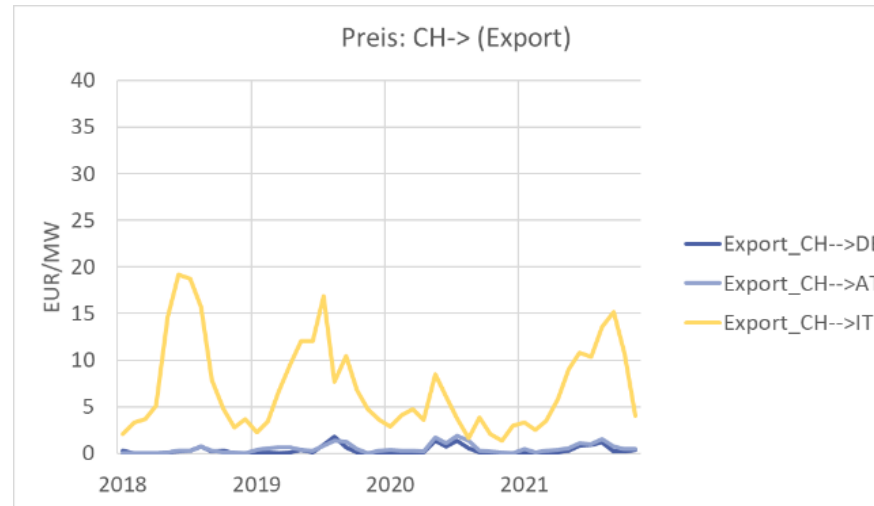
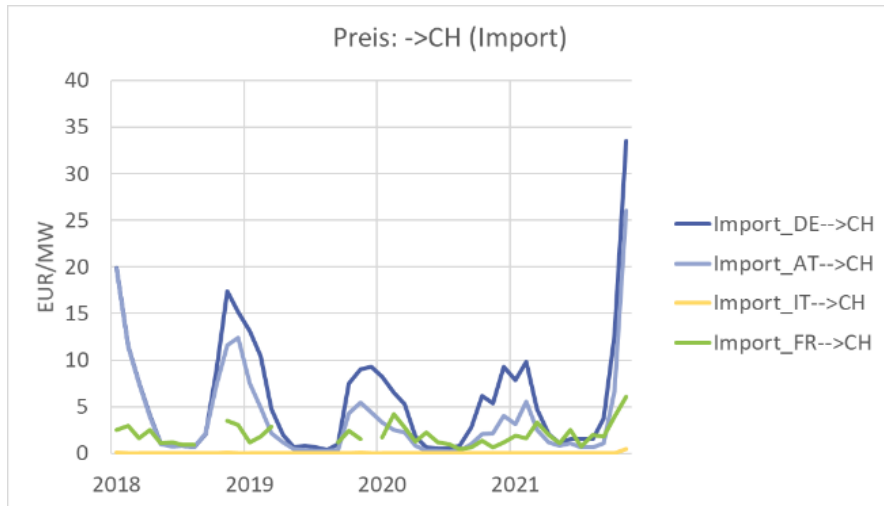
- Mehr Export als Import
- Import DE/AT stabil
- Export-Loch Sommer '21



- Saisonalität IT
- Import FR schwankend



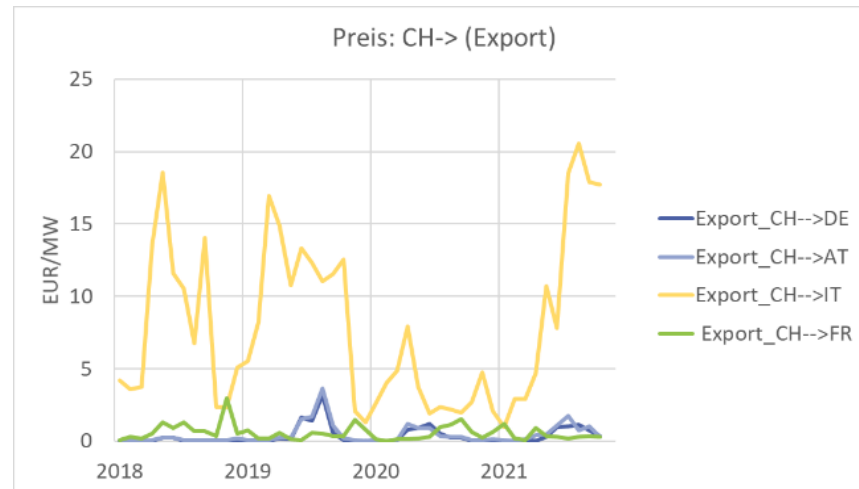
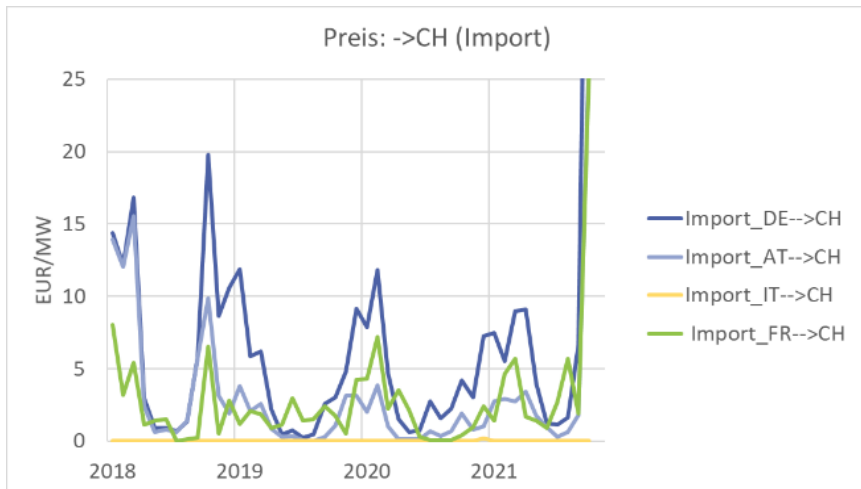
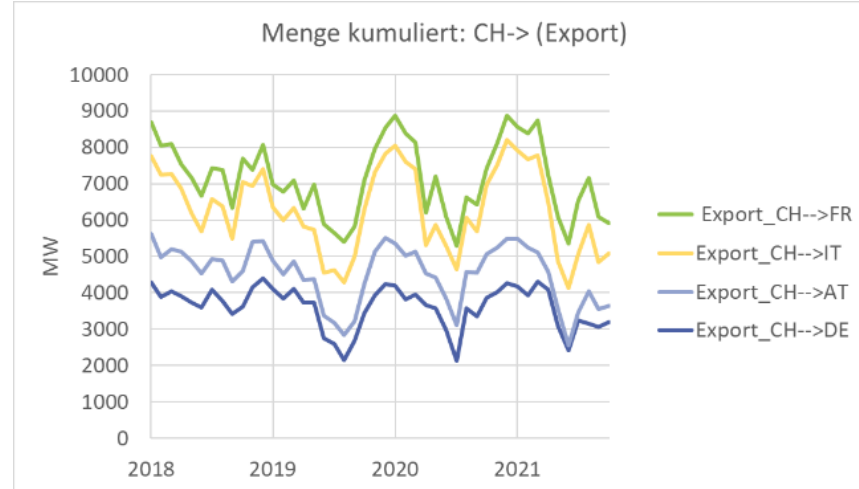
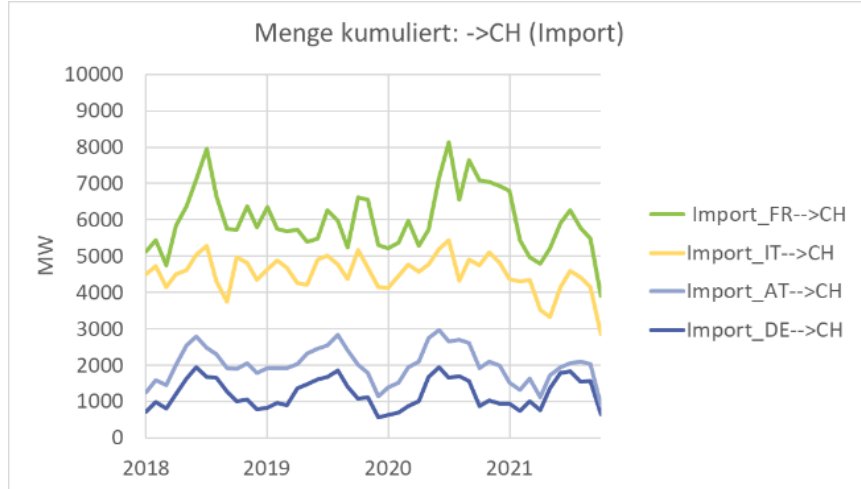
Monatskapazitäten: Preise



- Export: hohe Preise nach IT
- Import: hohe Preise von DE und AT
- Saisonalität: bedingt durch Preisspreads



Tageskapazitäten: Menge und Preise (Monatsmittel der stündlichen Werte)



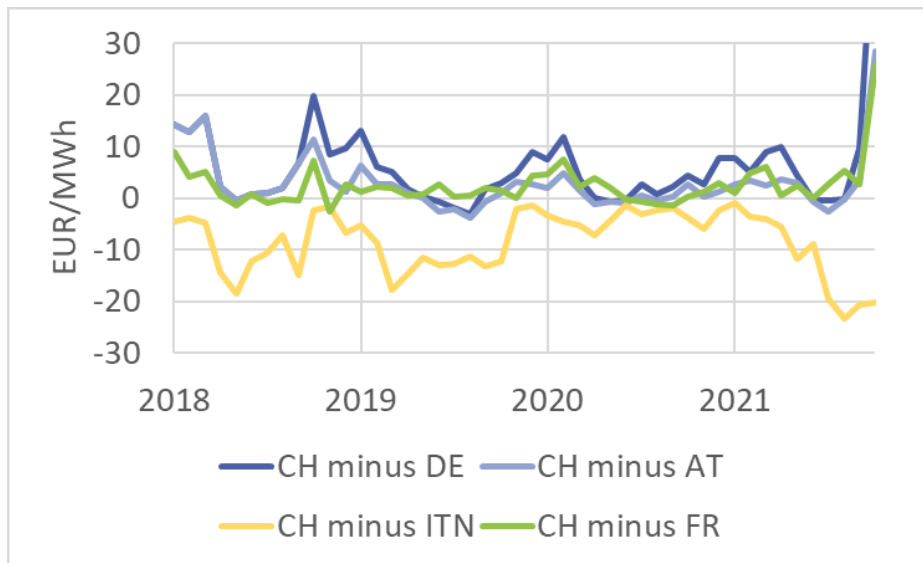
- Export im Winter höher
- Grösste Importmenge aus IT
- Saisonalität Import DE: Winter weniger

- Saisonalität wie bei Monatskapazitäten
- 2020 Export nach IT ungewöhnlich geringe Preise (Corona? Klima?)

2021: Daten bis und mit Oktober



Preisdifferenzen (Spreads, Monatsmittel der stündlichen Werte)



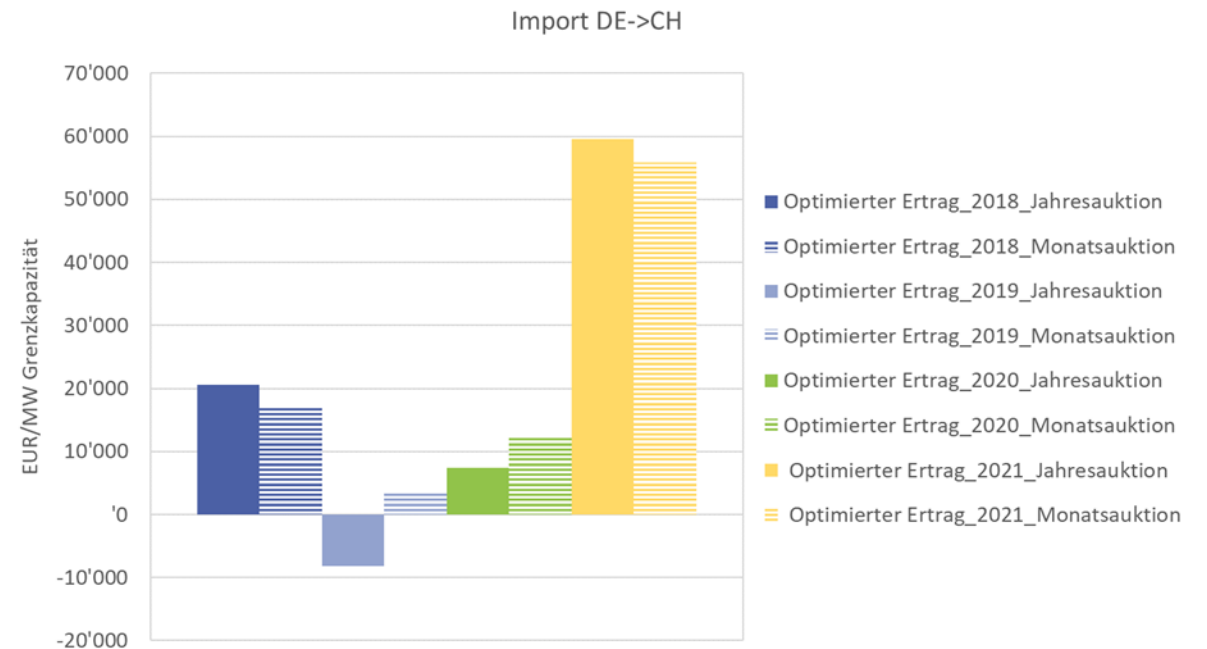
- DE/AT/FR: hoch im Winter; tief im Sommer
- IT: hoch im Sommer, tief im Winter
- Ausnahme: IT Sommer 2020
- Ab Herbst 2021: Spezielle Situation durch aussergewöhnliche hohe Preise



Optimierung Langfrist- vs. Kurzfristkapazität I

Händlerentscheidung D-2: Nominierung der Langfristkapazität und somit Nutzung zum Energietransport, oder Rückgabe der Kapazität und somit Rückerstattung in Höhe der Tagesgrenzkapazitätsauktion?

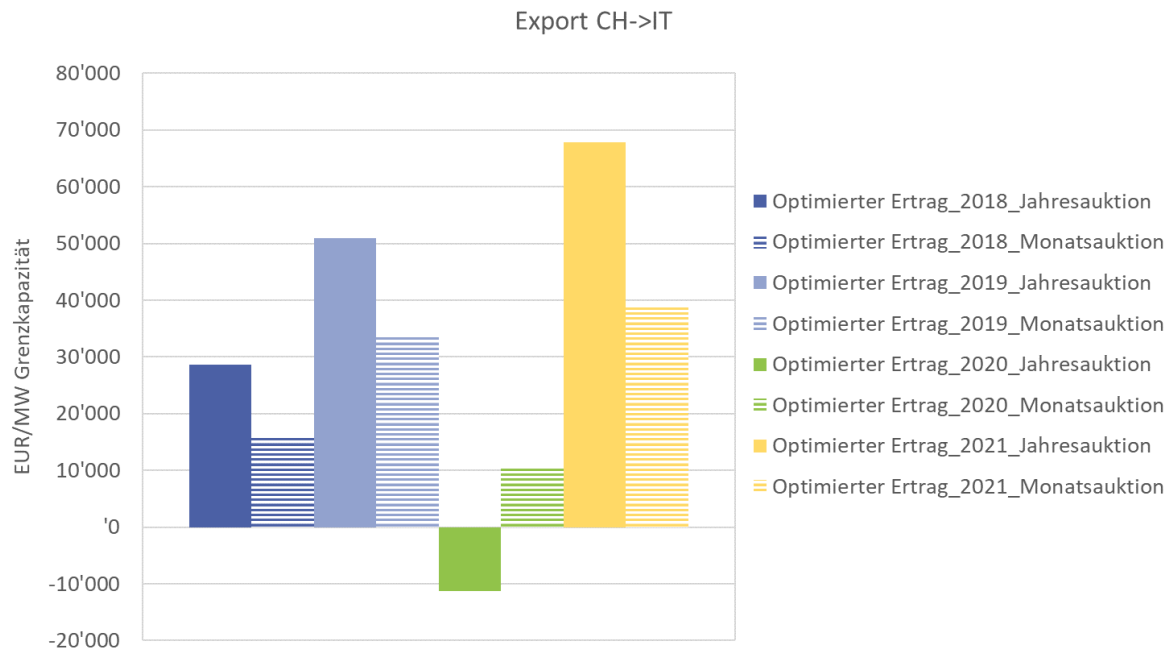
		Fall 1			Fall 2	
Bezahlt für Langfristkapazität	EUR/MW	4	4		4	4
Erwarteter Preis in Grenzkapazitätsauktion, für Stunde X	EUR/MW	7			7	
Erwarteter Spread in DayAhead Auktion zwischen Land A und Land B, für Stunde X	EUR/MW		9			6
erwarteter Gewinn	EUR/MW	3	5		3	2
		--> Nominierung			--> Rückgabe	



Ertrag = Summe aus allen Stunden des Jahres



Optimierung Langfrist- vs. Kurzfristkapazität II



- Grösste Erträge bei Grenze IT Export (→ grösste Spreads)
- Vor allem Jahreskapazitäten werden manchmal überzahlt (auch optimierter Ertrag negativ)
- Keine Tendenz bei Monats- vs. Jahreskapazität: Monatskapazität = geringeres Verlustrisiko, geringere Ertragschance (da Marktpreise besser abschätzbar)



Fragerunde

Cornelia Kawann, ElCom





Herzlichen Dank für Ihre Aufmerksamkeit!

PAUSE

market.surveillance@elcom.admin.ch
www.elcom.admin.ch





ElCom Workshop Marktüberwachung 2022: Programm 2. Teil

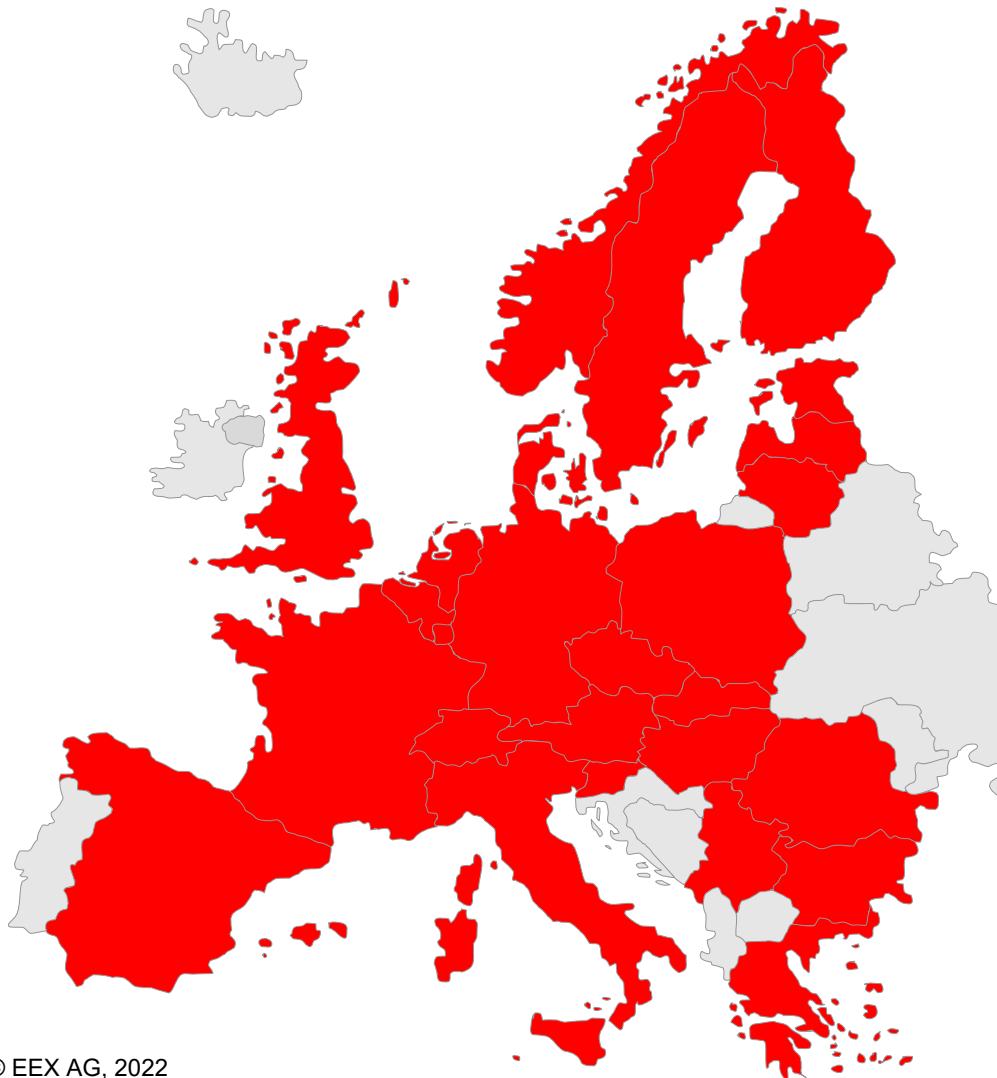
10.15	Hohe Preise und Liquiditätsanforderungen aus Sicht einer Börse – Auswirkungen? <i>Tom Frohnhoff, European Energy Exchange AG</i>
10.45	Liquiditätsrisiken in Stromunternehmen <i>Klaus Prommersberger, Axpo Solutions AG</i>
11.15	Improving the margin practices for clearing in the context of high volatility <i>Dirk Daveluy, RWE Supply & Trading GmbH</i>
11.45	Liquiditätsmonitoring im Finanzsektor (in Englisch) <i>Francesca Dell’Era, Eurex</i>
12.15	Liquiditätsmonitoring bei der ElCom <i>Chantal Cavazzana, ElCom</i>
12.25	Diskussions- und Fragerunde <i>Urs Meister, ElCom</i>
12.45	Abschliessende Worte und Verabschiedung <i>Urs Meister und Cornelia Kawann, ElCom</i>
13.00	Ende der Veranstaltung



Power Prices and Liquidity Management

Tom Frohnhoff, EEX

Power Markets – A connected Europe



Power Futures

Germany	Hungary
France	Slovenia
Italy	Bulgaria
Spain	Serbia
Netherlands	Romania
Belgium	Greece
Switzerland	Poland
Austria	Nordic area
Czech Republic	Great Britain
Slovakia	

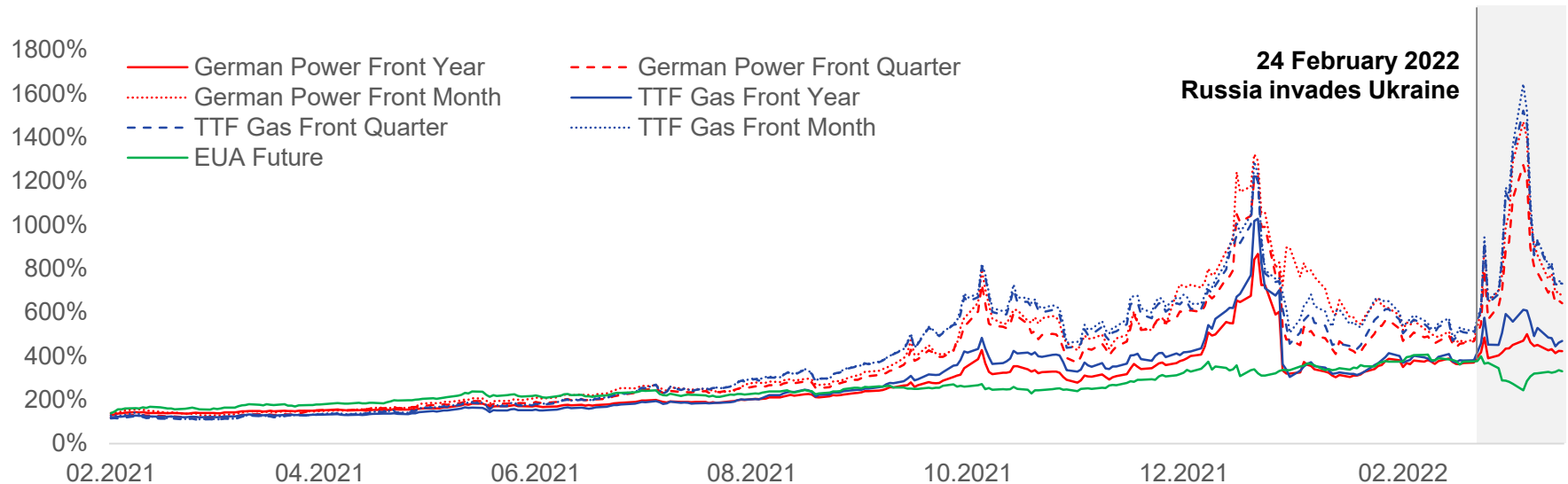
Power Options

- Options on German Power Futures
- Options on French Power Futures
- Options on Italian Power Futures
- Options on Spanish Power Futures

Power prices surged to unprecedented heights



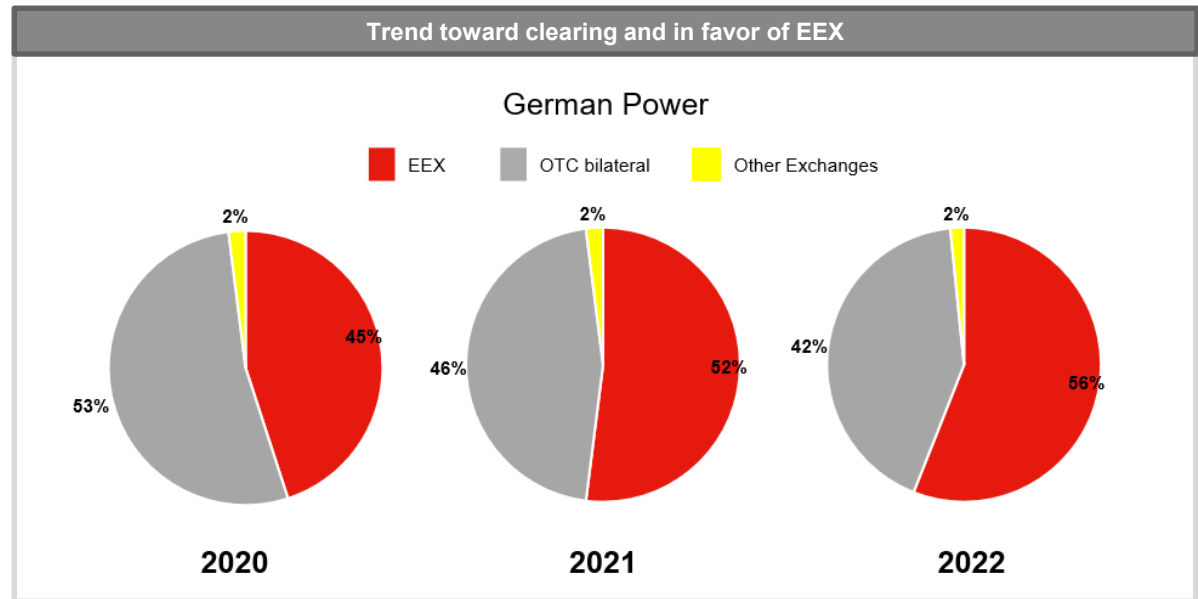
Volatility jumped across energy asset classes



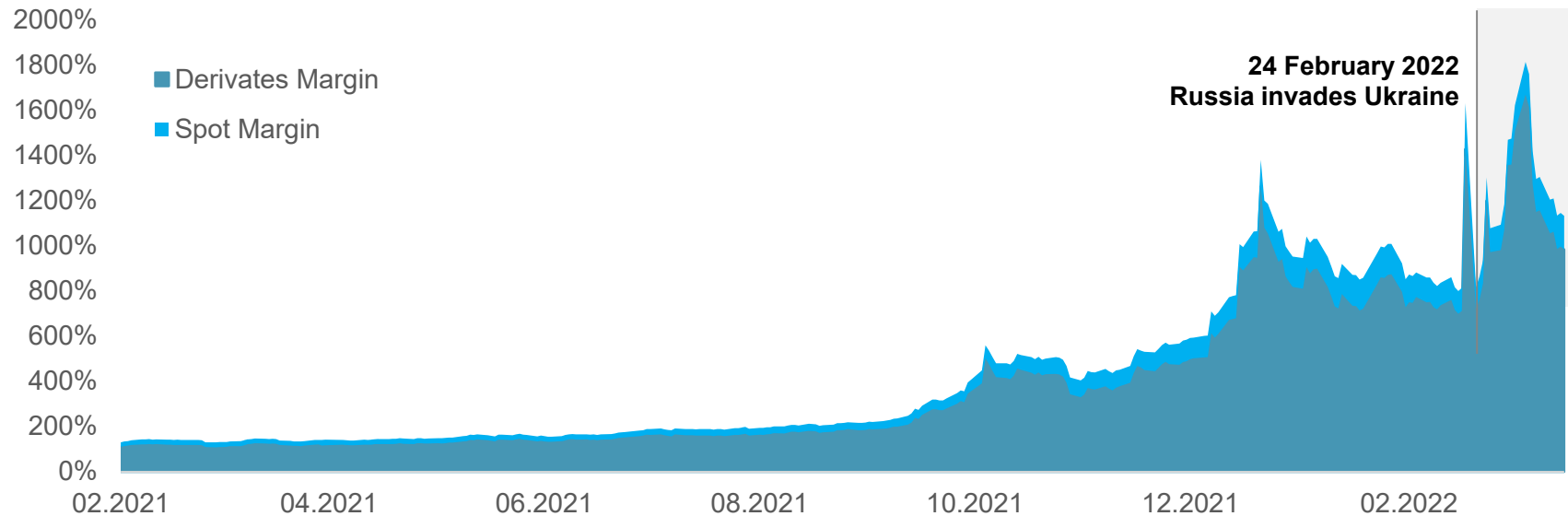
- Natural Gas benchmark of TTF sees a dramatic price surge. Front Year contracts **risers five-fold** from 13 EUR to 63 EUR per MWh **in just a month**, with a peak of 139.8 EUR. The **Month and Quarter** contract jump together in an unseen **seven-fold price surge from 14 to 104 EUR per MWh** (peak of 216 EUR in Quarter, 231 EUR in Month contracts).
- German Power **surged more than 5-times from 37 EUR/MWh to 230 EUR for Front Year**. Quarter contracts jump from 36 to 233 EUR/MWh (peak of 461 EUR) and Month contracts have almost 7-folded from 32 to 219 EUR (peak of 482 EUR).
- **EUA Carbon Futures** have seen a rise from **23 EUR per ton to 78.5, peaking at 96 EUR** – driven mainly by policy and regulation to reduce emissions, only minimally affected by the Russian invasion.

Strong trend of volumes being moved from uncleared to cleared business on derivatives

On energy derivatives markets, trading participants move towards cleared business. This trend accelerated recently because of high prices and volatility.



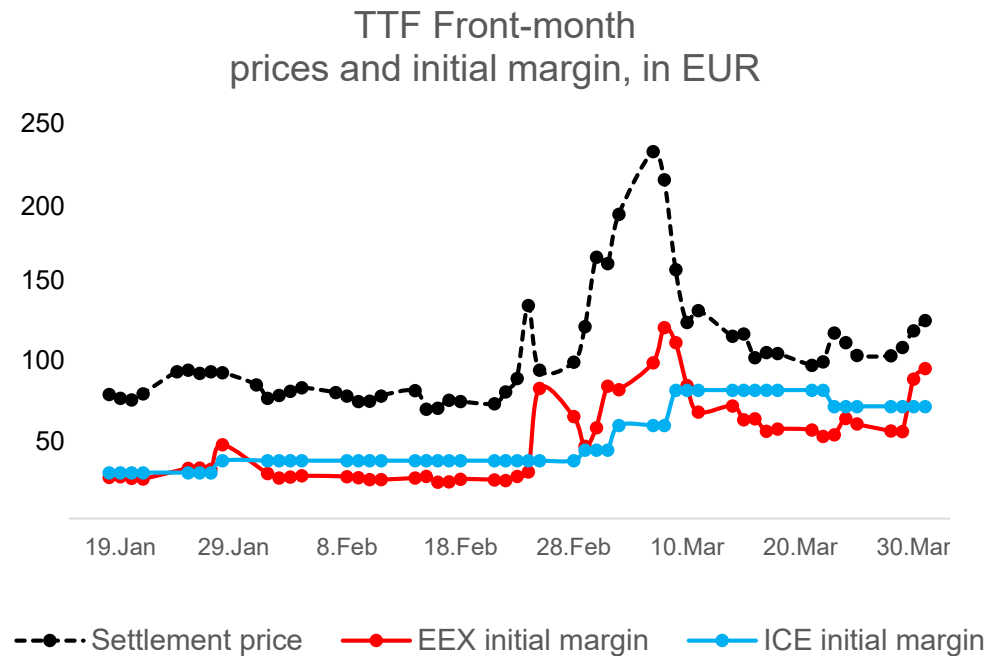
Pressure in energy markets translate into increased margin payments to mitigate market risks



- The key risk mitigation measures of clearing houses to **reduce counterparty credit risk** are a daily exchange of profits and losses (**variation margin**) and collateralizing potential future exposures (**initial margin**).
- Employed **margining models** are subject to **high standards** and **strict model governance**. It aims to ensure that **financial resources are sufficient at all time**.
 - **Daily recalibration** of derivatives margin requirements to avoid large changes, **no ad-hoc adjustments**, regular monitoring of procyclicality measures with no unusual behavior
 - Recalibration of margin parameters for the spot market in line with changes of the trading participants trading behavior and market price movements

Exchange measures to support markets

- Market participants have become very **sensitive to margin levels** and the calculation methodology.
- Market participants are looking for **cross margining-effects** to benefit from diversified positions held in multi-asset portfolios.
- This could lead to a further concentration in market places and venues with the **highest liquidity** and broadest client network.



Improvements of the margining model, transparency in calculation methods and liquid core markets are key to support the market in volatile and uncertain times.

External measures and their effects



Liquidity Guarantee to support Clearing

- State-backed support for banks and companies
- Improves liquidity situation to fulfil margins



Price Caps & Clawback Mechanisms

- Distorts short term price, increases uncertainty
- Pushes move to unreg. shadow OTC markets



Partial or complete Market Suspension

- Last resort to safeguard market functioning
- May have strong reputational impact, see LME



Change of price formation of Electricity Market

- EU energy markets are strongly intertwined, interfering in one markets has effects on all adjacent asset classes, like power / gas / emissions
- This includes national solutions like the Iberian

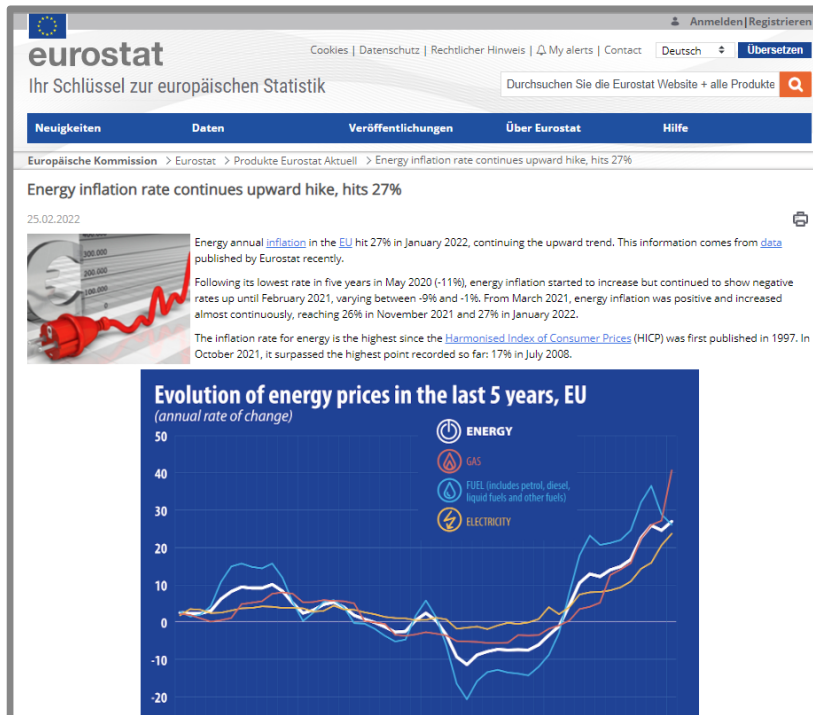
Energy prices as part of the public discussions

part of eex group

eex

Customer Information
08/04/2022

EEX outlines procedure to deal with potential state interventions in the Spanish power market



Czech Radio
WAYS TO LISTEN
NEWSLETTER
QSL
WHO IS WHO
CONTACT

Radio Prague International
Broadcast in English 8/4/2022
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Bohemia Energy is bankrupt. Czechs needn't worry about gas & electricity supplies (just skyrocketing prices)

10/14/2021

Bohemia Energy is bankrupt. Czechs needn't worry about gas & electricity supplies (just skyrocketing prices)

Length of audio 4:43
Photo: Kateřina Šulová, ČTK

RELATED ARTICLES

Czech Republic bracing for potential disruption of gas supplies from Russia

Economist: Czechs need to extend mining for independence from Russian gas

Coal mining in Czech Republic to be phased out by 2033

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IN THIS LIST

METALS

LME suspends nickel trading after unprecedented surge to above \$100,000/mt

METALS — 08 Mar 2022 | 09:46 UTC

LME suspends nickel trading after unprecedented surge to above \$100,000/mt

HIGHLIGHTS

Trading suspended for March 8

Prices hit record \$101,365/mt March 8

Other metals trading normally, being closely monitored

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Market Movers Asia, April 25-29: India stares at a power shortage; Indonesia's palm oil export ban roils markets

METALS | STEEL

Platts Steel Raw Materials Monthly

ENERGY | OIL | ENERGY TRANSITION

APPEC 2022

Thank you!

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Liquiditätsmanagement in Stromunternehmen

20.05.2022, Dr. Klaus Prommersberger, Axpo Solutions AG



Axpo Gruppe auf einen Blick

Wir sind über die gesamte energiewirtschaftliche Wertschöpfungskette (Stromproduktion und -verteilung, Energiehandel, Vertrieb und Services) aktiv



Eigenerkantone

9 Kantone der
Nordostschweiz



Reichweite

30+ Länder,
40+ Märkte



Erfahrung

108 Jahre



Bereinigter EBIT

500 Mio CHF



Mitarbeitende

5350

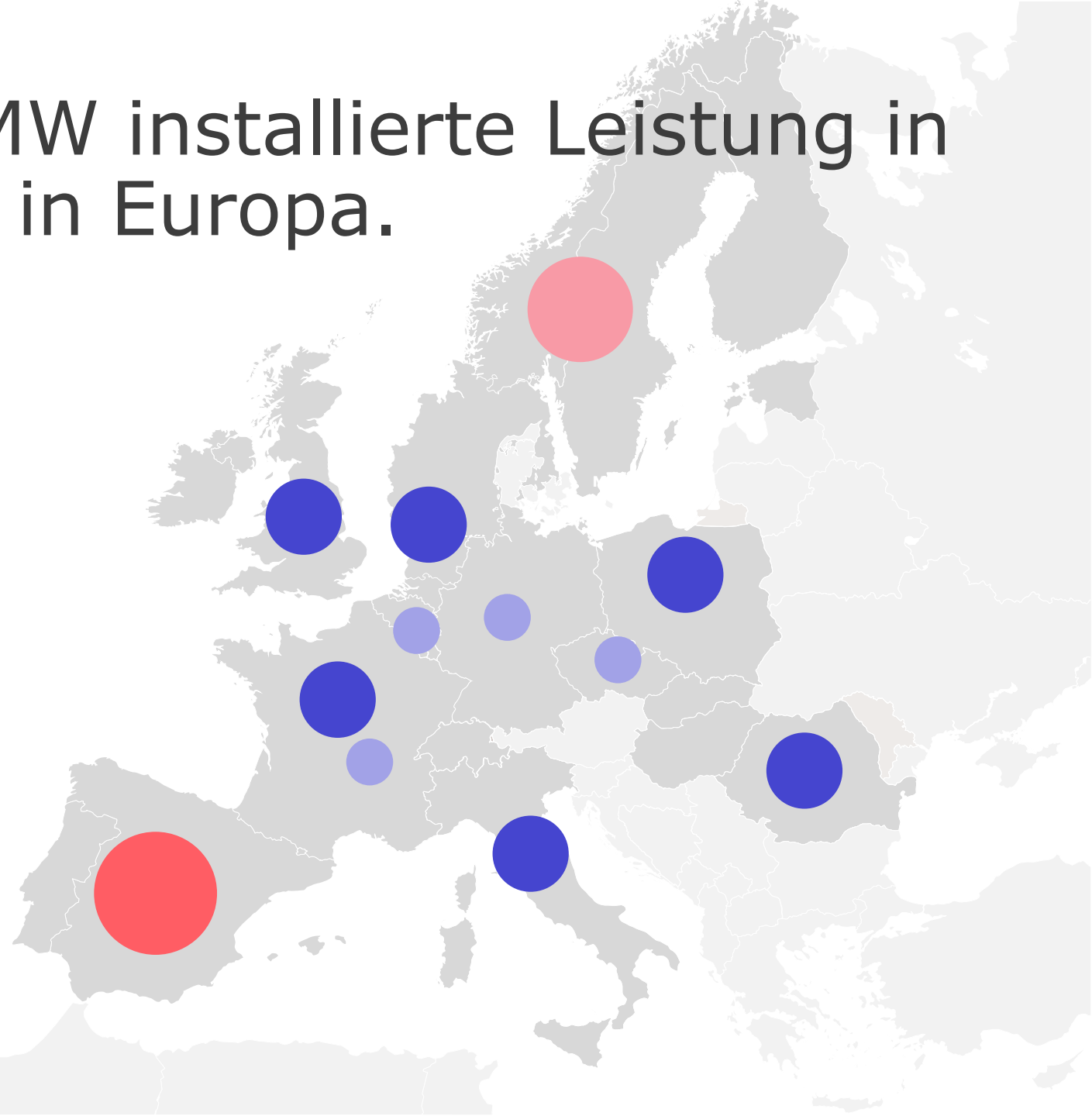
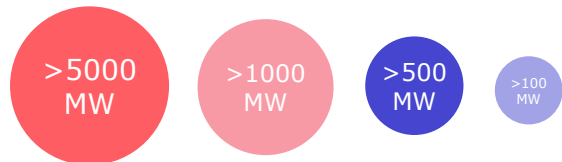


Energieproduktion

36 573 Mio kWh

*Alle Werte stammen aus dem Geschäftsjahr 2020/21

Axpo hat über 5000 MW installierte Leistung in erneuerbarer Energie in Europa.



Wertschöpfungskette Stromunternehmen



Produktion

- Eigener Kraftwerkspark
- Langfristige Versorgungsverträge
- PPAs (Abnahmeverträge erneuerbarer Energie)

Handel

- Grosshandelsmärkte (Börsen)
- Bilateraler Handel (OTC)

Übertragung und Verteilung

- Stromnetze

Gross-verbraucher

- Marktzugang
- Versorgungsverträge mit Risikoabsicherung
- Vollversorgung
- Eindeckung in Tranchen
- Dienstleitungen

Klein-verbraucher

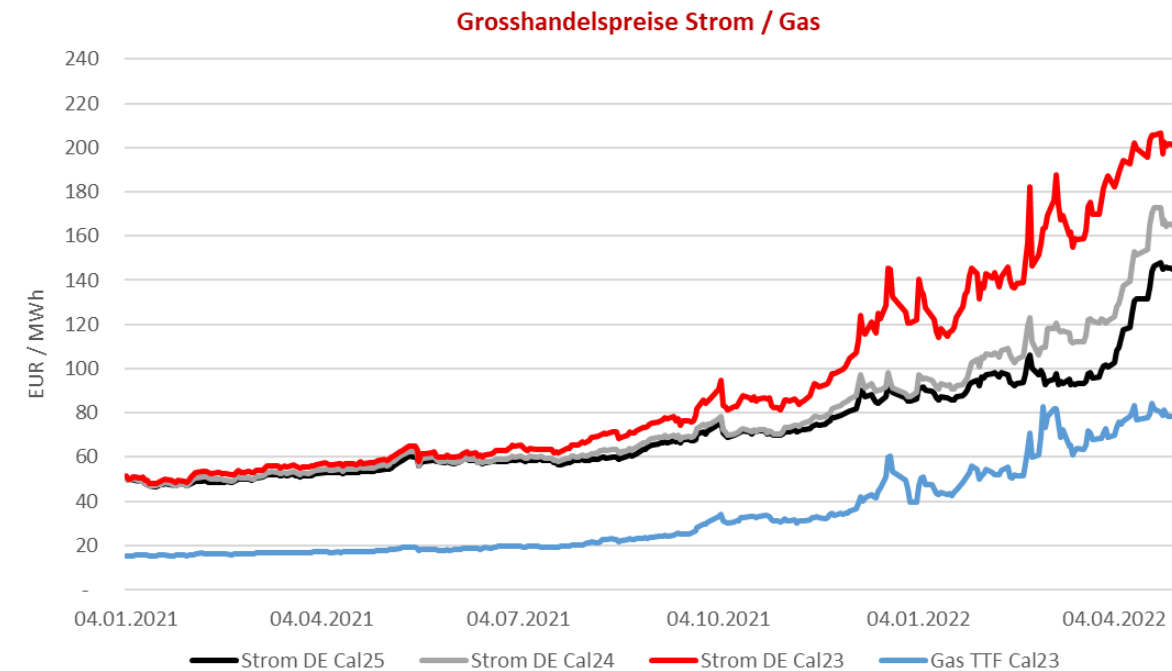
- Vollversorgung
- Dienstleitungen

Verteilnetzbetreiber und Versorger

Schweizer EVUs, die keine eigene Produktionseinheiten besitzen und daher Versorgungsverträge mit grossen Produzenten haben

Vertikal integriertes Unternehmen (Axpo, Alpiq, BKW, IWB,...)

Rekordpreise für europäischen Strom und Gas



Quelle: Tägliche Settlementpreise EEX, ICE

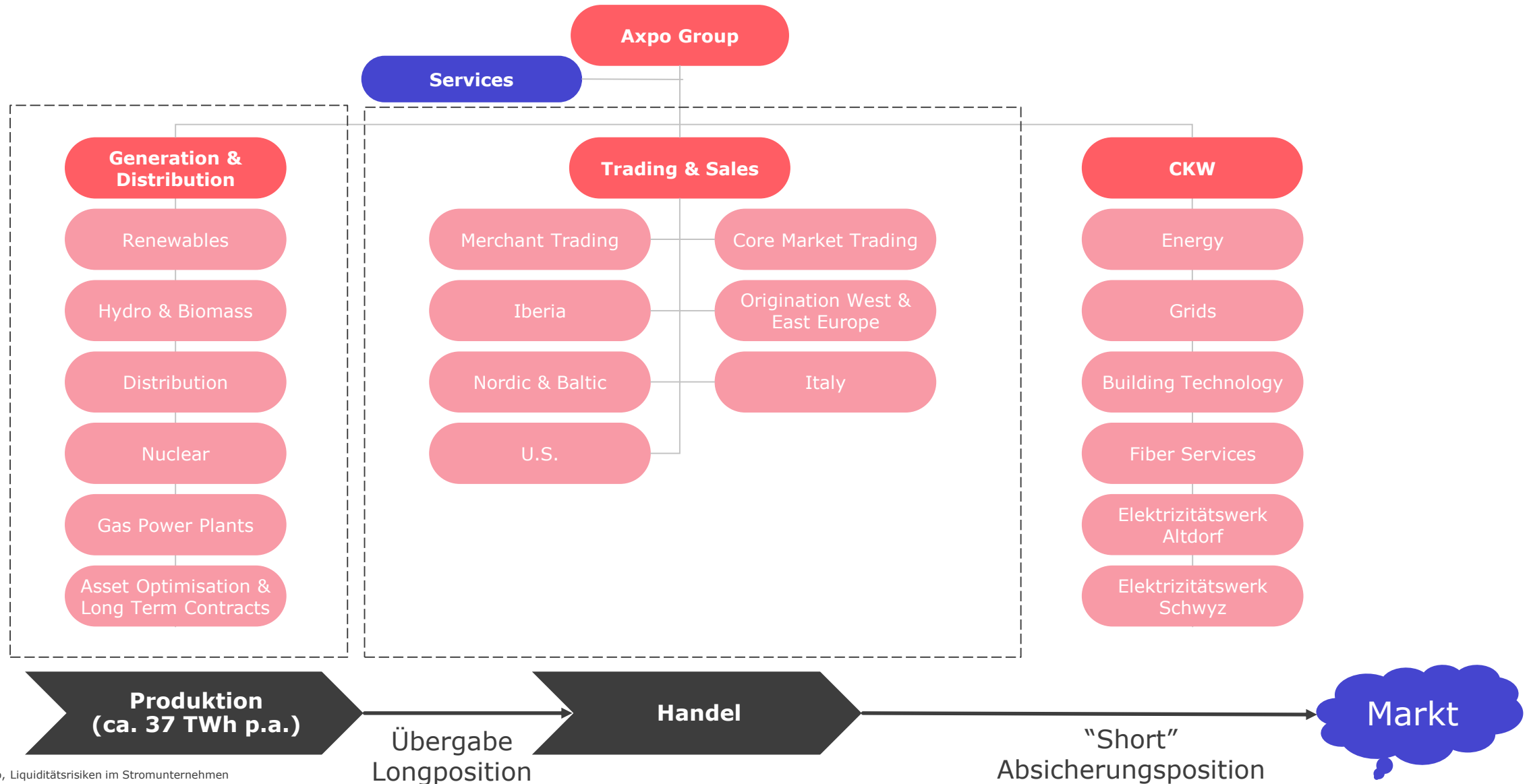
Kumulation von Preistreibern, chronologisch:

- Energiestrategien Europa und CH (Exit Kohle, Nuklear)
- Kalter Winter 2020/21
- Wenig Wind 2021
- Rückstand bei Auffüllung von Gasspeichern
- Rebound Asien 2021
- Probleme KKW Frankreich
- Nordstream 2 nicht in Betrieb
- Geopolitische Spannungen Russland-Ukraine

Nochmals massiv verstärkt durch:

- Invasion Ukraine
- Embargo Kohle
- Rubel-Bezahlung für Gas
- Embargo Öl

Absicherungsgeschäfte



Bilaterales Absicherungsgeschäft



Axpo

OTC per EFET
Rahmenvertrag



Gegenpartei

Beispiel: Forwardgeschäft Verkauf CH-Strom Q3/22,
vor einem Jahr abgeschlossen @58 EUR/MWh



Merkmale OTC Geschäft:

- **Abrechnung** nur in Lieferperiode

Nachteile:

- **Kreditrisiko** besteht, Besicherung erfolgt bilateral ("CSA")
- **Kein** zentrales **Netting** der Positionen über viele Gegenparteien

Vorteile:

- Im Voraus **bekannter Cashflow**
- **Keine** zwingende **Bindung von Bar-Liquidität, Besicherung** kann z.B. durch Bankgarantien erfolgen
- Austausch von Sicherheiten erst nach Überschreiten einer Schwelle (abhängig von der Bonität)

Absicherungsgeschäft an Börse

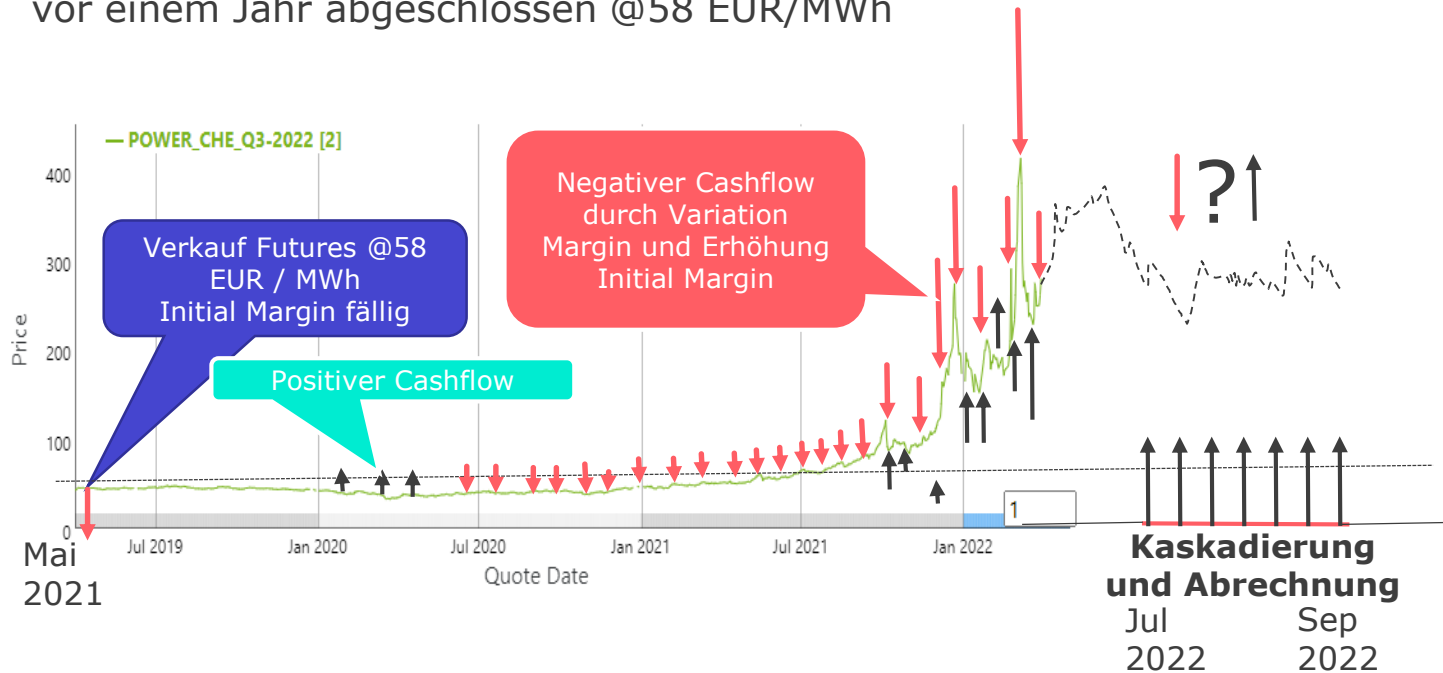


Axpo



Börse

Beispiel: Verkauf Futures CH-Strom Q3/22 an EEX,
vor einem Jahr abgeschlossen @58 EUR/MWh



Nach vollständiger Abrechnung sind alle
Marginzahlungen verzinst wieder rückerstattet

Merkmale Future:

- **Standardisiertes** Produkt
- Täglicher Wertausgleich (Variation Margin und Initial Margin)
- Höhere **Marktliquidität**

Vorteile:

- Höhere **Marktliquidität**
- **Geringes Kreditrisiko**

Nachteile:

- **Kein Netting** der Positionen über verschiedene Börsen
- **Nur Barsicherheiten** akzeptiert
- **Nicht planbare Cashflows:** Hohe Zahlungen am Folgetag und teilweise mehrmals am gleichen Tag fällig an Clearingbank
- Hohe Bonität kein Vorteil

Hedging von Kraftwerkspositionen – ein fiktives Fallbeispiel

Annahme

- Kraftwerkspark: 20 TWh / Jahr
- Produktionskosten:
durchschnittlich 50 EUR / MWh
- Absicherungsstrategie: 80% der Volumen (16 TWh / Jahr), 3 Jahre im Voraus
- Absicherung an Strombörse oder über bilateral Cash-besicherte OTC-Verträge
- Absicherungspreise für Fallbeispiel:
 - Produktion Cal23: 60 EUR / MWh
 - Produktion Cal24: 80 EUR / MWh

2021-2022: Preise steigen

- Preislevel:
 - Cal23: 200 EUR / MWh
 - Cal24: 180 EUR / MWh

- **EBIT:** null
(Kraftwerksposition werden in IFRS unter «own-use» ausgewiesen, Resultat materialisiert sich erst in Lieferung)
- **Cash:**
Margin Calls:
 $-16 \text{ TWh} \times (200 - 60) +$
 $-16 \text{ TWh} \times (180 - 80) =$
- 3'840 Mio. CHF

2023-2024: Lieferung

- Annahme Preislevel stabil:
 - Cal23: 200 EUR / MWh
 - Cal24: 180 EUR / MWh

- **EBIT:**
Hedge-Preis minus Produktionskosten:
 $16 \text{ TWh} \times (60 - 50) +$
 $16 \text{ TWh} \times (80 - 50) =$
+640 Mio. CHF
- **Cash** (vereinfachte Sicht*):
- EBIT (siehe oben) plus Retournierung Marge:
 $640 + 3'840 =$ **4'480 Mio CHF**

* In Realität ist der Mechanismus ein wenig komplizierter: Die produzierte Menge wird im Spot zu teuren Marktpreisen (180-200 EUR) verkauft, während der Cash für die Besicherung des Verlustes auf den Hedges schon im Vorjahr bezahlt wurde.

Initial Margin

- Die Initial Margin wird von der Börse einverlangt, um das **Risiko für andere Marktteilnehmer beim Ausfall eines Handelspartners** zu reduzieren.
- Sie soll die Kosten für Verluste decken, welche bei der Schliessung der Positionen des in Default geratenen Teilnehmers entstehen: Bid-Ask Kosten, Slippage, Transaktionskosten
- Die Initial Margin für EEX und ICE wird auf Basis des SPAN-Modelles* berechnet. Sie wird massgeblich **beeinflusst durch das absolute Level der Preise, sowie durch die Marktvolatilität.**
- Die an der EEX zu hinterlegende Initial Margin (standalone) für **1 TWh Strom Deutschland Cal23** beläuft sich momentan auf ca. **60 Mio. EUR**. Dieser Wert hat sich in den letzten zwei Jahren, je nach Produkt, um einen **Faktor von 3 – 5 erhöht.**
- Im vorgängigen Beispiel (2 Jahre x 16 TWh abgesichert), unter der Annahme, dass die Hälfte der Absicherung an der Börse stattgefunden, führt dies zu einer gebundenen Initial Margin von $16 \text{ TWh} \times 60 = \mathbf{1 \text{ Mia. EUR}}$. Faktoren für kurzfristigere Lieferungen (im laufenden Jahr) sind noch ein vielfaches höher.
- Auch diese Initial Margin fliesst, analog zur Variation Margin im vorgängigen Beispiel, **erst bei Lieferung zurück**

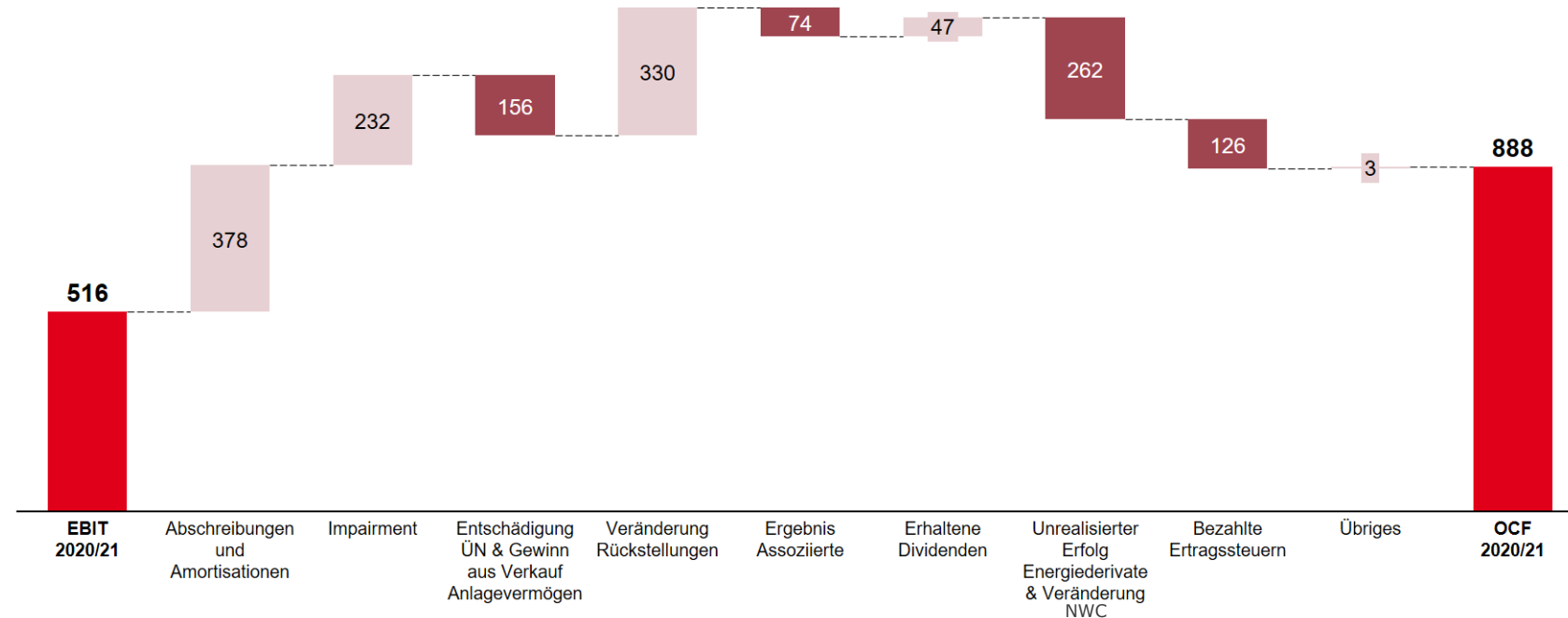
* <https://www.cmegroup.com/clearing/risk-management/span-overview.html>

Cashflow – Auswirkung von Hedges und Gegenmassnahmen

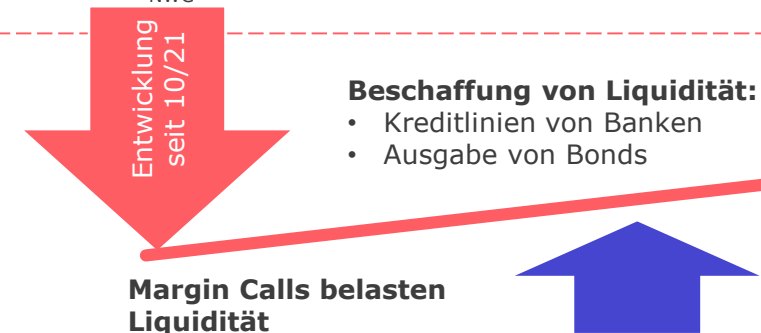
Jahresabschluss per 30.09.2021

Liquidität von Axpo: 4.3 Mia. CHF

in Mio. CHF



Akt. Entwicklung



Welche Faktoren reduzieren das Risiko?

Endkunden

- Mit einigen Ausnahmen werden Endkundenverträge **ohne bilaterales Margining** abgeschlossen
- Jede TWh der Kraftwerksposition, welche mit Endkundenverträgen zum Fixpreis abgesichert wird, muss nicht an der Börse abgesichert sein
- Je grösser der **Absatz an Endkunden in der Schweiz** (z.B. Kantonswerke) umso kleiner das Risiko
- Auch ein **Endkundenportfolio in anderen Ländern** – solange die Preise stark korreliert sind – hat diesen Effekt, da dieses mit einem Einkauf an den entsprechenden Börsen abgesichert wird

Absicherung ohne bilaterales Margining

- Im OTC-Markt können **Hedges auch ohne bilaterales Margining** abgeschlossen werden.
- Solche Hedges produzieren keine Cashflows vor Lieferung
- Jedoch gehen diese Verträge einher mit **erhöhtem Kreditrisiko**, da bei einem Ausfall der Gegenpartei allfällige Gewinne auf den Hedges verloren gehen würden

Diversifizierung

- Ein diversifiziertes Portfolio (**Produkte, Märkte, Laufzeiten**) reduziert das Liquiditätsrisiko

Tiefere Hedge-Ratio

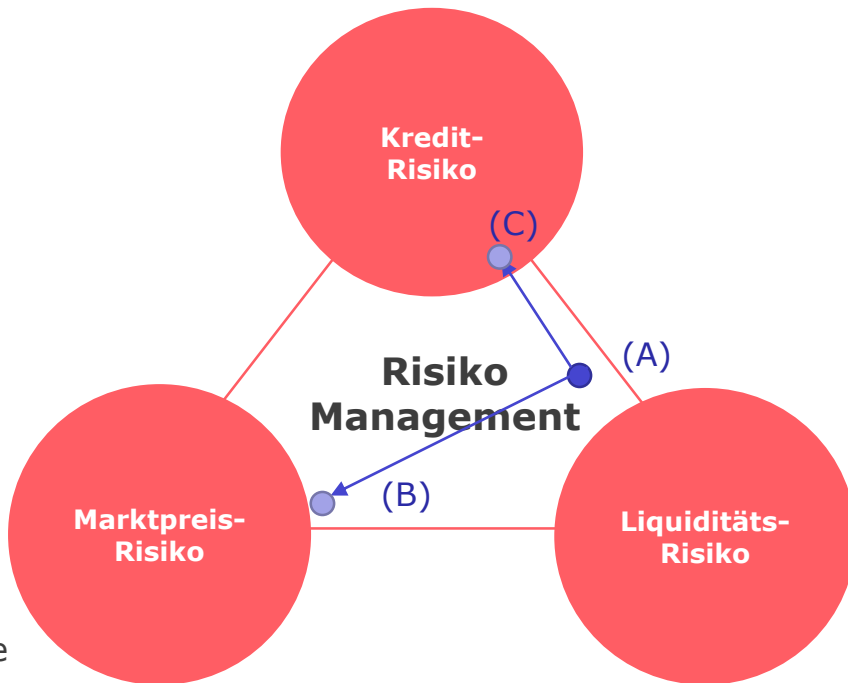
- Je kleiner der Teil der Kraftwerksposition, der abgesichert wird, umso kleiner das Risiko.
- Im Gegenzug steigt damit die **Unsicherheit über zukünftige Resultate** und das Risiko von Verlusten, wenn die Preise stark fallen.

Finanzierung

- Selbstverständlich ist das Risiko für eine Unternehmung kleiner, je besser sie finanziert ist

Reduktion von Hedges in Futures

Voll gehedged nur mit
OTC Kontrakten ohne
Besicherung:
Hohes Kreditrisiko



Überhaupt keine
Hedges:
Produktion ist voll
dem Marktrisiko
ausgesetzt.

Voll gehedged
**nur mit
Futures:**
Liquiditätsrisiko
durch **Margin
Calls**

“Risikomanagement-Dreieck”

- A. Ausgangslage: Vorwiegend Hedges in Futures
- Risikoaversion mit Inkaufnahme hoher Liquiditätsrisiken – war in Vergangenheit kein Problem
 - Verstetigung des EBIT auf Kosten Working Capital
- B. Hedges in Futures teilweise auflösen:
- Realisierung von Verlusten in Hedges
 - Inkaufnahme von weiteren Verlusten bei Preisrückgang
 - Verlustpotential begrenzt und akzeptabel
- C. Möglichst viel in OTC Kontrakte umschichten:
- Erhöhung des Kreditrisikos gefährlich bei “Dominoeffekt”
 - Transaktionskosten und Kreditlimite
 - Eingeschränkte Liquidität für Y+2 und langfristiger.

Vielen Dank für die Aufmerksamkeit!







European Federation
of Energy Traders
SO YOU CAN RELY ON THE MARKET

Improving the margin practices for clearing in the context of high volatility

June 2022

Dirk Daveluy

Agenda

1. Executive Summary

2. Central Clearing & Liquidity Risk

3. OTC bilateral trading & Credit Risk

4. Impact of volatility on Clearing & mitigation measures

5. Areas for improvement & recommendations

1. Executive Summary

Extreme market volatility puts pressure on liquidity for utilities

Need for improved margin practices

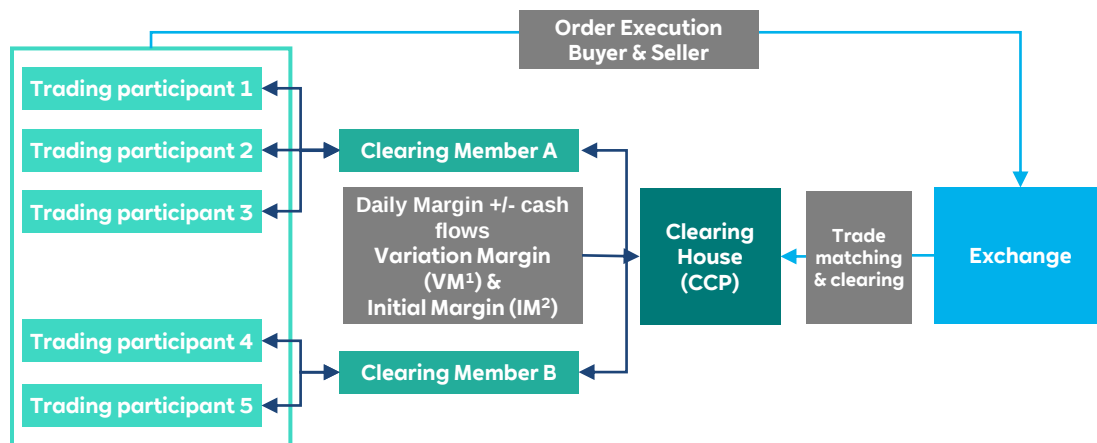
- Energy producers **secure the market risk of their commercial business by hedging the change in value of the commodities** relevant for their assets. For example, owners of Gas Power plants hedge risks depending on Gas (procurement) and Power (production sale) prices
 - Hedging means trading at wholesale markets via OTC bilateral trading, but also **trading on Exchanges (centrally cleared markets)**
- **Centrally cleared markets are risk managed by collecting collateral (margining) on a daily basis** to cover default risk of clearing participant. As this collateral is pledged mostly by means of cash, this poses a significant pressure on liquidity management for energy firms:
 - The higher the price volatility, the higher is the size of the **collateral collected** to cover the risk. **A significant volatility was experienced on European Gas & Power in Q4/2021 and is now (spring 2022) further escalating due to the current situation in Ukraine.**
- **Current situation highlights the need to enhance margining practices.** There is urgent need to improve predictability of margin requirement through greater transparency and measures to control the procyclicality. EFET members call on their CM and the related CCP for support.

Special market conditions require specific & adapted margining practices

2. Clearing & Liquidity Risk

Trading at centrally cleared markets help to net credit risk but requires substantial cash liquidity

Trading & hedging @cleared markets



⁽¹⁾ **Variation Margin:** Daily change of value of all open positions in Exchange products using the latest market reference price. Will be called on each CCP business day from market participant via Clearing Members and be positive for market participant making a profit and negative for one making a loss.

$$VM = \text{position} * (\text{Ref. Price}_{\text{Day}} - \text{Ref. Price}_{\text{Day-1}})$$

⁽²⁾ **Initial Margin:** Margin to cover the default risk in any open positions in Exchange products and amount depends on the size of the open position and parameters set by the CCP to reflect highest price volatility over a defined amount of times (e.g. 2-days close-out period). Clearing Members may, especially in times of higher volatility decide to ask for additional margin buffer based on credit assessment (discretionary)

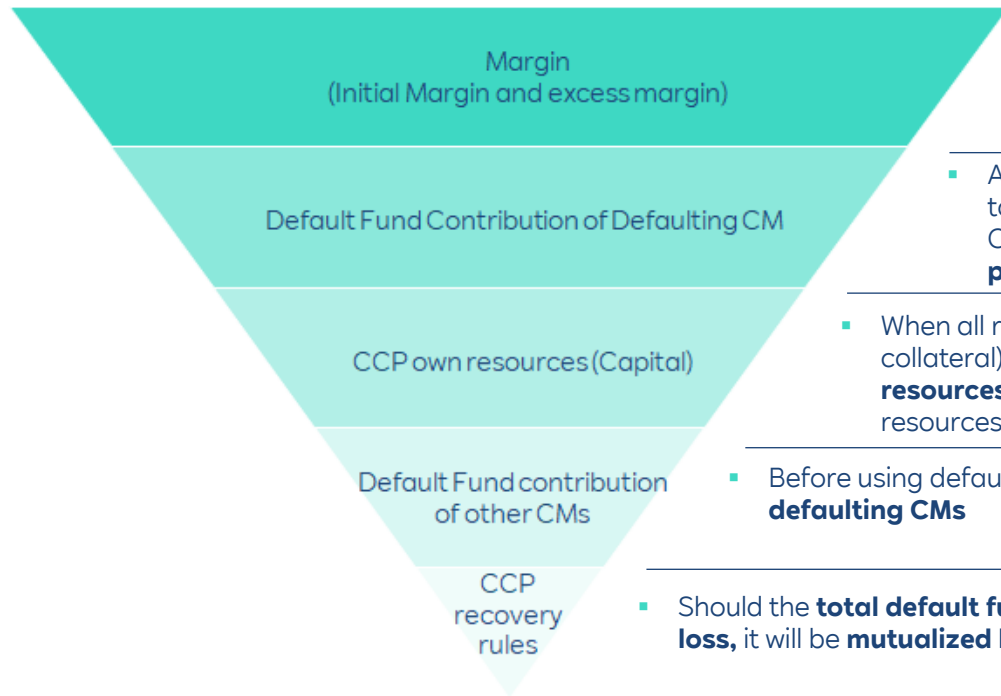
$$IM = \text{position} * IM \text{ parameter}$$

Benefits of clearing

- **Standardised** products & processes
- Reduced & **netted** counterparty risk (CCP or CM)
- **Same risk model** calculation used for all participants (per CCP)
- **Daily settlement** of value change and **coverage of default risk** via margin calls
 - **Margins are calculated as of EoD** and called for and due on next CCP business day
- **Main Collateral used by market participants:** Cash (Securities or bonds used by Clearing Members)
 - Current strict regulatory framework limits usage of bank guarantee in practice

CCP risk model is based on a waterfall process

To cover not only Client, but also CM default risk scenario



- **Initial Margin provided by the CM** is the first resource to be used to cover open payment obligations in case of default

- A **default fund contribution** is based on **CM own resources** to cover losses that exceed total IM held by the defaulting CM. Therefore, defaulting **CM contribution** is **used after IM provided** has been totally consumed

- When all resources of the defaulting CM (including excess collateral) have been used, **CCP will use dedicated own resources** to cover remaining losses (CCP own capital) Dedicated resources differ materially across the utilities markets

- Before using default fund **contributions of (other) non-defaulting CMs**

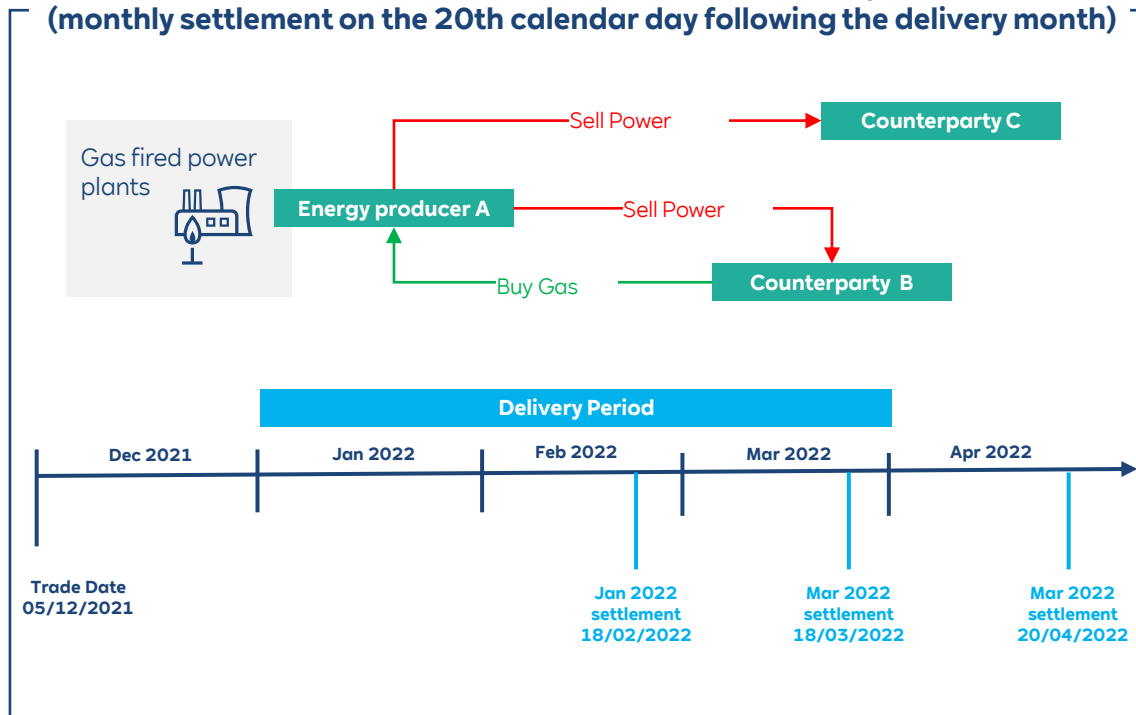
- Should the **total default fund be exhausted with left uncovered loss**, it will be **mutualized between the non-defaulting CMs**

CCP: Central Counterparty – **CM:** Clearing Member – **IM:** Initial Margin

3. OTC bilateral trading & Credit Risk

Payment structure in OTC bilateral trading is more in line with activity profile of utility hedging, but with higher CP risk

Example of a Q1/2022 Gas Forward transactions with physical settlement
(monthly settlement on the 20th calendar day following the delivery month)



Main characteristics of OTC

Higher Credit Risk vs. clearing as:

- Spread across a **larger number of counterparties**
- Default risk (credit risk) is **mitigated only if collateral agreements** are in place
- Settlement** takes place after the delivery period (vs. daily settlement for centrally cleared markets)
- No central netting for settlement or collateral processes

Less liquidity pressure as:

- Exchange of collateral** is based on bilateral agreements and **only when exceeding defined credit limits**
- only VM is exchanged (IM only applied for companies classified under EMIR as FC or NFC+)
- Higher usage of non-cash collateral** e.g. standby L/C, additionally to cash

4. Impact of volatility on Clearing & mitigation measures

Energy Producers need to face three types of risks

Without action they face full Market Risk caused by price changes

	General description	Exchanges / Cleared markets	Bilateral OTC
1 Market Risk	- Risk of losses in positions arise from movement in market variables like prices & volatility - To hedge this risk the reversal positions are traded on a given trading platform (e.g. Exchanges / centrally cleared markets or OTC bilateral)		
2 Liquidity Risk	- Risk of availability to dispose cash in a very short time period to meet collateral requirements - For centrally cleared markets cash is due daily - For OTC based on bilateral agreements due at once		
3 Credit Risk	Risk of counterparty default of a transaction - For centrally cleared markets the risk is netted with a reduced number of counterparties (e.g. clearing banks or the central counterparty with small risk profile) - For OTC bilateral trading risks are spread across more counterparties with various credit risk profiles		

 Risk decrease
  Risk increase

Collateral requirements made by CCP follow a specific timeline

Higher volatility = Higher pressure on liquidity / daily cash flows

Hypothesis

Company X holds large **hedged position** for the **commercial business**
Significant price moves (high volatility) experienced

Timeline	Normal market conditions	Extreme volatile conditions
Trade Date	-	▪ Intraday Call based on significant price movements up to multiple times a day: - May be forwarded by CM to client due to size & frequency
End of Day	▪ Margin calculations done by CCP: - Variation Margin based on market closing settlement price - Initial Margin based on position held & currently used parameters	▪ Margin calculations done by CCP: - Variation Margin based on market closing settlement price - Initial Margin based on position held & adjusted parameters - Potential requirement for Additional IM based on CCP discretion (i.e. risk framework)
Start of Day	▪ Margin calls: Due & issued by the CCP and passed through to the client	▪ Margin calls: Due & issued by the CCP and passed through to the client
Trade Date +1		▪ Variation Margin adjusted to amount already paid as part of the intraday call the day before

Mitigations measures and their implications

Reduction of liquidity risk means higher market or credit risk

Potential mitigation measures	Impact on CCP, CM & Client		
	Market Risk	Liquidity Risk	Credit Risk
Position reduced/closed-out at Exchanges - Enforced by Clearing Members towards their clients due to credit limit breaches - Voluntary by Clients for specific product portfolios at Exchanges - Voluntary reduction made by Clients themselves	(+) - Close out putting further stress on price volatility - Client left with no hedging on commodity price changes	(+) - Increased for remaining market participants due to impact on liquidity - Initial Margins might be consumed while close out	(=)
Foster higher netting effects CCP & Clearers running portfolio simulations to reduce IM charge via higher netting effects between different product classes or account changes e.g. net buyer and net seller	(-) Commodity price changes still hedged	(-) Margin requirements reduced subsequently	(-) Reduced risk exposure for CCP (and Clearing Members)
Move to OTC trading (after reduction with CCP) - Finding OTC Counterparties in particular in high volatile time periods is difficult - Related credit risk needs to be considered as OTC landscape - Regulatory: Potential increase in EMIR CCT usage for the Counterparty of the trade	(=) or (+) - Clearing: lower volumes, prices might not reflect market status accurately - Clients: Commodity price changes hedged on OTC markets	(-) Clients: less frequency of demand of collateral due to bilateral agreements with counterparties	(+) Clients only due to multiple individual counterparties and higher if no collateral agreements in place

An example of a hedging model used by electricity producers and its subsequent impact on liquidity risk

Energy production		Hedging energy (strategy: 100% 2022; 70% 2023; 40% 2023)	
Gas fired power plants (output of 3,000 MW)	For gas fired power plants gas and CO2 certificates need to be bought	- Efficiency factor: - Gas 0.5¹ - Certificates (EUAs): 0.375²	⚡ ‘-’ indicates a sale 2022: -3,000 MW of power; 6,000 MW of gas and 14,784kt CO2 certificates 2023: -2,100 MW of power; 4,200 MW of gas and 10,347 kt CO2 certificates 2024: - 1,200 MW of power; 2,400 MW of gas and 5,913 kt CO2 certificates

Calculation of IM & VM in different scenarios (date set to 31st Dec 2021)

IM req.	One exchange IM: 1,814mEUR (positions entered into at Exchange 1 (Products German Power Base, TTF Natural Gas and EUA)	Two exchanges³ IM: 4,837mEUR (2,309mEUR at Exchange 1, 2,528mEUR at Exchange 2)
	Scenario 1: Prices move up 10% VM: 51mEUR Short in power (post VM, receive VM for EUA & TTF)	Scenario 2: Power moves up 10 %, Gas & EUAs move down 10% VM: 1,620mEUR Short in power (post VM, post VM for EUA & TTF)

¹with one unit of gas 0.5 units of power can be produced

²for each MWH power, 0.375 tons of CO2 certificates are needed

³Liquidity is not always given at a certain exchange. E.g. German power is mostly traded at EEX, liquidity for EUAs and TTF mostly at the ICE

5. Areas for improvement & recommendations

Areas for improvement & recommendations

Special market conditions require specific margin practices





To the attention of public institutions and governments: **Necessity to introduce time-limited emergency liquidity support to ensure that wholesale energy markets continue to function**

Introducing emergency mechanisms to support liquidity management to guarantee, at the same time, the stability of the central clearing process and functioning of energy markets

Necessity to establish emergency funding mechanisms to be used in extreme market situations

- a. Funding mechanism to be triggered when an increased level of margining requirement which is likely to translate to a risk of default of one or several market participants is reached (exchange participant no longer able to fulfil collateral payments to its clearing member)
- b. Measure should be applied only during times of extraordinary market stress until market volatility gets to a lower level
- b. The potential entities providing the emergency liquidity funding could be any highly credit-rated public entity, such as governments, national central banks or any of the public law financial. Collaboration of these institutions with national development banks is also possible.

For example, in Germany, the public law financial institution, the KfW (Kreditanstalt für den Wiederaufbau) is enabled to grant loans directly to market participants.

To the attention of policy and regulation makers: Extension of eligible collateral to non-cash collateral such as non-fully backed bank guarantees and EU Emission Allowances to help to meet margin calls

A permanent recognition of non-fully backed bank guarantees and Carbon Emission Allowances (or other accredited carbon allowances) as eligible collateral is urgently recommended

An adjustment of European regulations to extend the list of eligible non-cash collateral to non-cash backed guarantees and Carbon Allowances would

- a. Enable market participants and clearing members to post, to some extent, these assets as collateral to cover at least an appropriate portion of the initial margin requirements
- b. Remove part of the pressure on liquidity management, therefore mitigating the risk to not be able to meet additional margin calls issued by their clearing bank.
- c. Offer a partial solution, in parallel to the before-mentioned emergency funding
- d. Allows to free-up at least part of the initial margin posted as cash, to face increased demand in short term liquidity

Furthermore, to reduce efforts and cost of transformation of collateral for the clearing members, **a pass-through framework of non-cash collateral**, e.g. bank guarantees, could also be introduced. This is already existing in the United States, and it is accepted by CCP and their respective regulatory authorities.

Regulations: Art 46 of EMIR defines what is allowed as collateral by CCPs. CDR 153/2013, on its Annex 1 also defines the conditions applicable to financial instruments, bank guarantees and gold considered as highly liquid collateral. No mention is made about Letter of Credit, and Bank Guarantees have to be fully backed, which does help to mitigate liquidity risk

To the attention of CCP and Clearing Members: **Transparency of margin models and accessibility to tools to enable market participants to better replicate resulting margin requirements**

Market participants would like to receive same level of information and services than Clearing Members with regards to transparency and accessibility of initial margin models and calculation tools.

- a. Via better accessibility to information and calculation tools (IT platform, API connection) to well explained risk models and margin calculation tools of CCPs
- b. More educational efforts by CCP on margin models and their applications for normal and stressed market conditions: basic, ad-hoc and supplementary margins
- c. Higher consultation of market participants on risk model design & review using their expertise on commodity markets and related risks
- d. Increase visibility of margin positions held by CCP and, for example, aggregated by CM, Product Classes.
- e. Better readability of CCPs rules and conditions would help to understand how CCPs models differ from each other. As CCP cover different markets and products and due to product specifics, a complete standardization is not feasible
- f. Nomination of an independent person to review and challenge CCPs models on a regular basis, e.g. a dedicated member of CCP risk committees

To the attention of CCP and Clearing Members: **Predictability of market scenarios help to better prepare for upcoming margin requirements in normal and stressed market conditions**

Markets participants need support to develop real-time “as-is” margin calculation tools to better forecast short term liquidity demand. They need to run “what-if” scenarios to be prepared for extreme markets conditions and their impact on liquidity planning.

- a. Margin simulators are important tools for the preparedness of market participants to deliver:
 - Planning, including liquidity planning
 - Historical Analysis
 - What-If-Analysis to allow better mid-term liquidity planning for current & stressed market scenarios (i.e. intraday margin call projections)
- b. User friendly and easy margin calculators with automated interfaces (APIs) to reduce cost for accessing margin calculators (prohibitive for medium sized and smaller clients)

In general, the recommendations on transparency and predictability call for a concrete implementation of EMIR REFIT:

- *Art 38.6: A CCP shall provide its clearing members with a simulation tool allowing them to determine the amount of additional initial margin, on a gross basis, that the CCP may require upon the clearing of a new transaction*
- *Art 38.1: As mentioned by Art 38,1 of EMIR, “A CCP shall allow its clearing members and, where relevant, their clients separate access to the specific services provided*



To the attention of CCP & regulations makers: **Responsiveness to stressed markets via more flexible Anti-Procyclicality Tools (APC) to mitigate impact of volatility on liquidity demand**

CCPs processes on margin models and APC tools are strictly ruled by Regulations. CCP should have more flexibility regarding the adjustment of initial margin parameters especially during stressed market conditions, to reflect the true risk and mitigate impact on liquidity demand

- a. Review of Anti procyclicality Tools (APC tools) to effectively support to reduce impact of market stress on liquidity
 - Extension of basic risk models between normal and stressed market conditions to help to mitigate impact on liquidity.
 - Giving CCP higher flexibility regarding the adjustment of the volatility component of the IM parameters (forward looking scenario).
 - Necessity to ease comparison of margin models, also for simulations in case of planned changes in parameters. In the past all CCPs were using SPAN but now each CCP is developing own methodology.
- b. Improved communication and pre-warning processes between CCP, CM and Clients to help Clients to better prepare on margin requirements
 - Longer lead time (prior notices) for IM parameter updates to help Clients forecasts on liquidity across CCPs and markets.
 - Proactive communication and consultation on potential positions offsetting and accounts under a single Clearing Member to bring significant gains in netting and therefore reduction of margin requirements

To the attention of Clearing Members and CCP: **Higher responsiveness to market conditions should allow to mitigate the impact of volatility on liquidity demand (2/2)**

The CCP have specific rules to update margin parameters depending on market conditions. The frame is given by Regulations. There is no doubt that margin requirements need to follow daily price changes, but CCP should have more flexibility to adjust models regarding e.g., projection on volatility especially during stressed market conditions to mitigate impact on margin requirements and liquidity demand.

- a. Forwarding extraordinary intraday margin calls issued by CCP, from CMs to Clients causes unnecessary pressure on liquidity planning
 - Extraordinary volatility within a business day may force CCP to issue multiple variation margin calls to CMs within a day. These Variation Margin calls would be due first on the following business day under normal market conditions.
 - Depending on the size and market volatility, CMs forward them on own discretion to Clients with a very short payment deadline (60 min), however:
 - high volatility means that market may move into the other direction until end of day calculations (intraday call not justified)
 - corporate are very limited with regards to intraday cash payment anyway (dependency on commercial banks)
- b. More consistent Default fund contribution models across CCP
 - Right Balance between level of Initial Margin collected from market participants and CM contribution into the Default Fund
 - Market participants consider that the contribution to Default Funds is to remain a solely obligation of Clearing Members

Backup slides

Variation Margin (VM) to cover daily price movements between execution and expiry of an Exchange Future

Definition of Variation Margin

Daily cash settlement flow of profits and losses

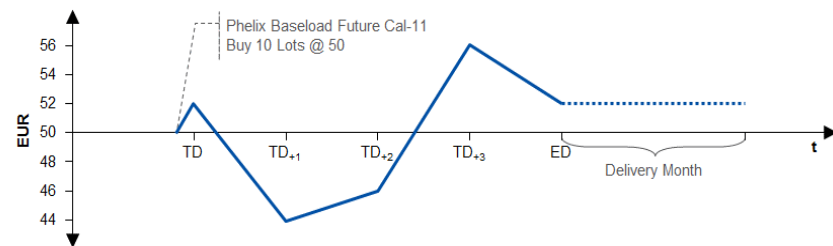
- Resulting from changes in the value of positions in futures
- Depends on price movement and whether position held is long or short (net buyer or seller in a specific contract)
- Also referred as a mark-to-market procedure
- Is paid to or received at the Clearing House (from the Clearing Members who forward the requirements to the NCM/Customers)

$$VM_{TD} = (CP_{TD} - TP) \times \text{Position} \text{ or } VM_{TD+1} = (CP_{TD+1} - CP_{TD}) \times \text{Position}$$

$$\text{Total P\&L} = \Sigma(VM) = (CP_{ED} - TP) \times \text{Position}$$

TD = Trade Date, ED = Expiry Date, CP = Closing Price, TP = Original trade Price

How does it work in practice?



TD	$VM = (52.00 - 50.00) \times 10 =$	+ 20.00	Receive 20.00
TD ₊₁	$VM = (44.00 - 52.00) \times 10 =$	- 80.00	Pay 80.00
TD ₊₂	$VM = (46.00 - 44.00) \times 10 =$	+ 20.00	Receive 20.00
TD ₊₃	$VM = (56.00 - 46.00) \times 10 =$	+ 100.00	Receive 100.00
ED	$VM = (52.00 - 56.00) \times 10 =$	- 40.00	Pay 40.00
Total	P&L = $\Sigma(VM)$ =	+ 20.00	Receive 20.00

TD = Trade Date, ED = Expiry Date, CP = Closing Price, TP = Original trade Price

Initial Margin (IM) covers a 2 days close-out (liquidation) risk

Day 1: Default & Day 2: Result of a Close-Out

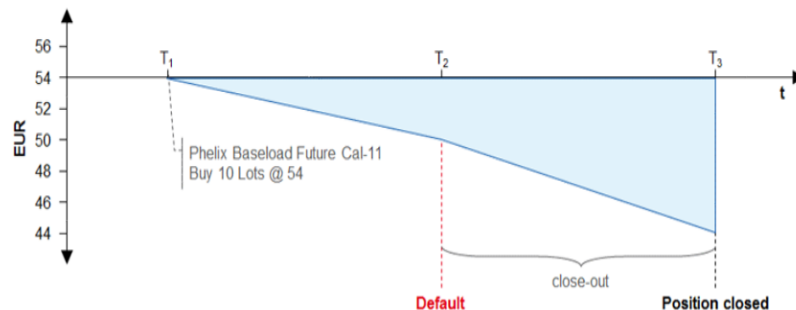
Definition(s) of Initial Margin

IM is required on any open position (long or short) to cover close-out risks in a default scenario:

- Potential changes in the value of positions held by clients over a time period that is needed to close-out a position within 2 business days.
- Parameters are calibrated to cover default risk with a confidence level of 99% and use a pre-defined lookback period
- Possible nettings to reduce IM across products (margin class) or markets (margin groups)
- IM posted mostly in the form of cash (non-cash alternatives are very restricted by CCP and/or Clearers and/or jurisdictional Regulations)

IM = Initial Margin Parameter x Net Position
Initial Margin Parameter = Vol2d

How does it work in practice?



Initial Margin Parameter	= 2 Day Volatility (rolling 365 days) = 12
Initial Margin	= 12.00 x 10 Lots = 120.00
Loss incurred	= 10.00 x 10 Lots = 100.00

Eurex Clearing Risk Management during volatile times

Bern, 20th May 2022

ElCom - Marktüberwachungsworkshop

Francesca Dell'Era – Fixed Income Derivatives Sales



Summary

2020 and 2022 events generated an important dataset on the behavior of financial market architecture with central clearing playing a greater role

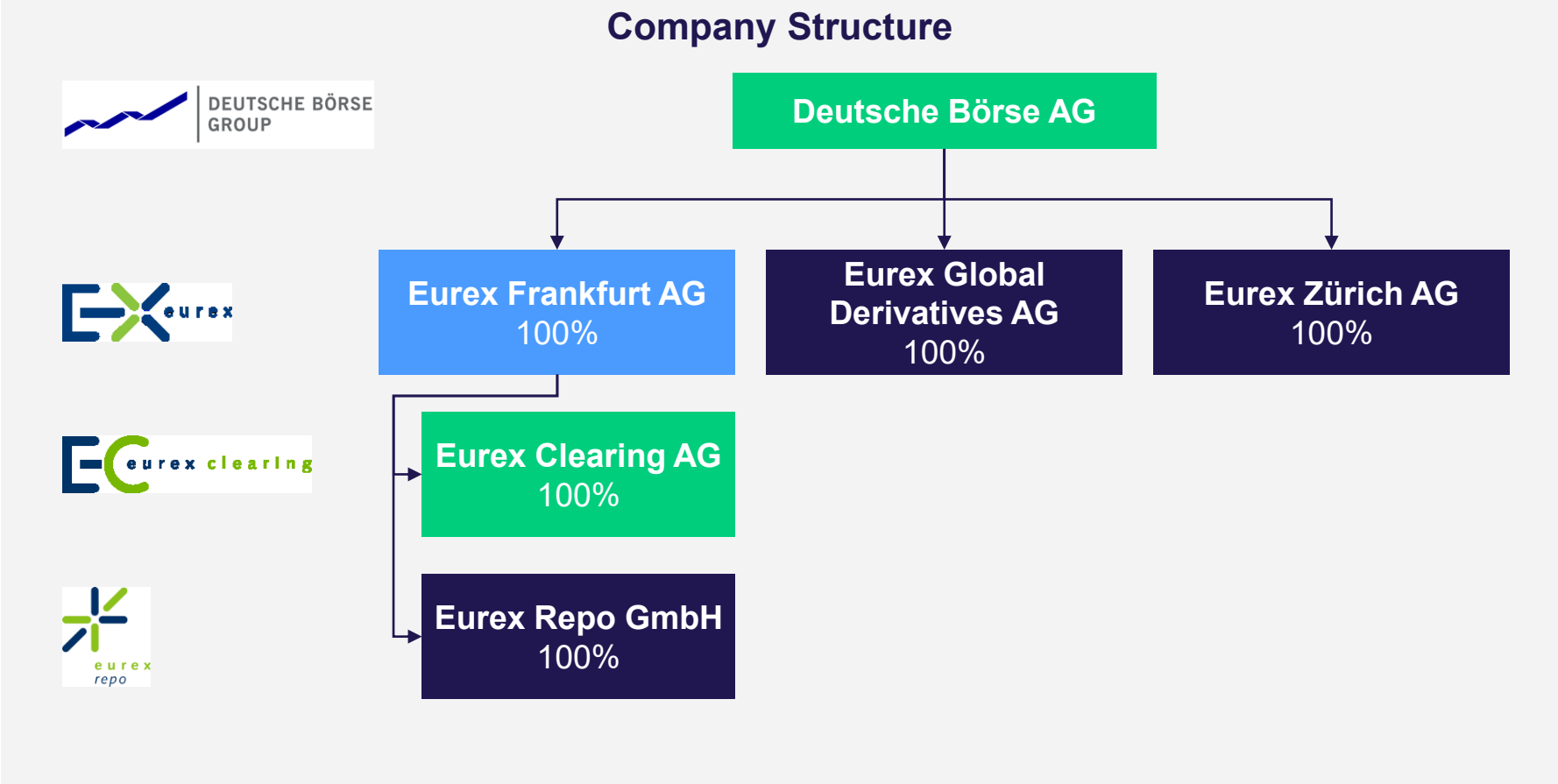
Agenda

- 1 Eurex Clearing and its Risk Management Framework
- 2 Covid 2020 lookback
- 3 Conflict in Ukraine
- 4 Eurex Clearing reflection on the industry discussion

1 **Eurex Clearing and its Risk Management Framework**

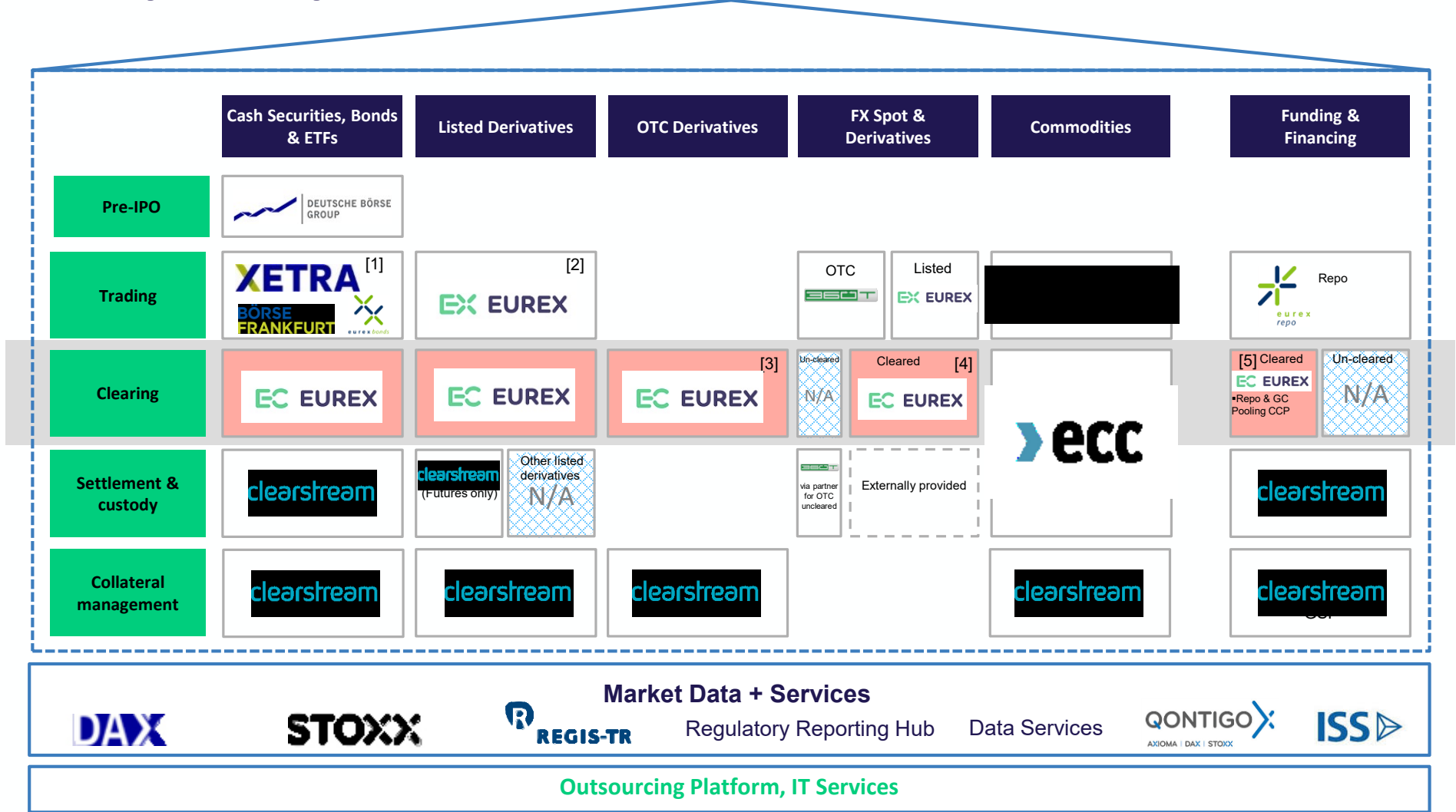
Introduction to Eurex Clearing

Eurex Clearing is a wholly-owned integral part of Deutsche Börse Group



Market Coverage

Integrated trading, clearing and settlement across all financial asset classes



EUREX

^[1] >1000 German and international shares as well as >1000 ETF can be traded

^[2] Listed Currencies Traded: EUR, CHF, GBP, USD,

^[3] Clearing Currencies: EUR, CHF, (GBP)⁶
Internal

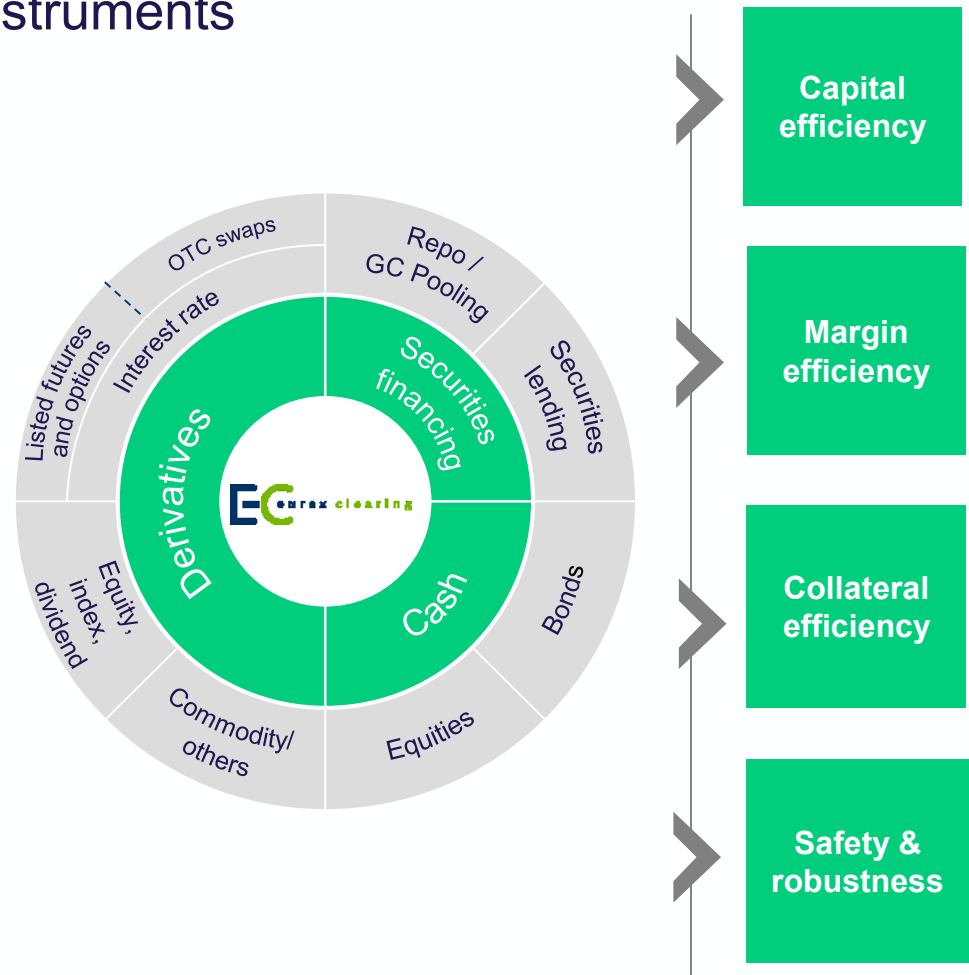
^[4] Currencies Cleared: EUR, CHF, GBP, USD, KRW, JPY, TWD, CNY, AUD, NZD

^[5] GC Pooling Currencies: EUR, CHF, GBP, USD,

19 May 2022

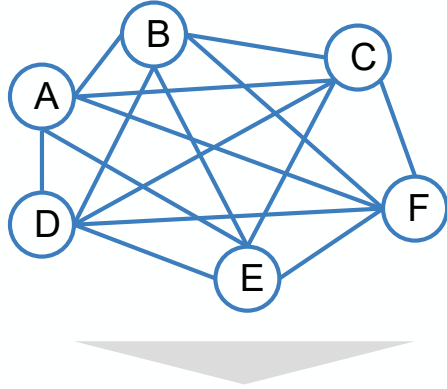
Integrated CCP Model: Optimising Transaction Economics

Eurex clearing AG is the only fully integrated QCCP maximising capital, margin and collateral efficiencies across instruments

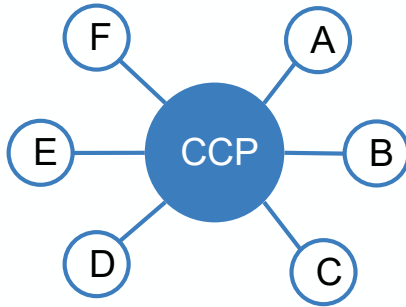


Benefits of central counterparty clearing

Bilateral market structure



CCP market structure



Key logic of central clearing

Reduce systemic risk by:

- Reducing interconnectedness
- Counterparty risk reduction
by collateralization of exposures stemming from cleared portfolios

Eurex Clearing's Risk Management Framework

Counterparty Assessment

- Eurex Clearing has **strict criteria** for counterparties to guarantee that clearing members, payment banks, treasury counterparts have sufficient credit quality and financial strength
- **Credit assessments** are repeated on a regular basis

Collateral and Member Monitoring

- Eurex Clearing only accepts secure, liquid and accessible collateral with low credit risk
- A comprehensive risk management framework has been established in order to identify, **manage and control credit, concentration and wrong way risks**

Margining

- Margin requirements are aimed to cover potential losses arising during the default management process according to the “defaulter pays” scheme
- Margin requirements are **monitored and enforced intraday**

Stress Testing

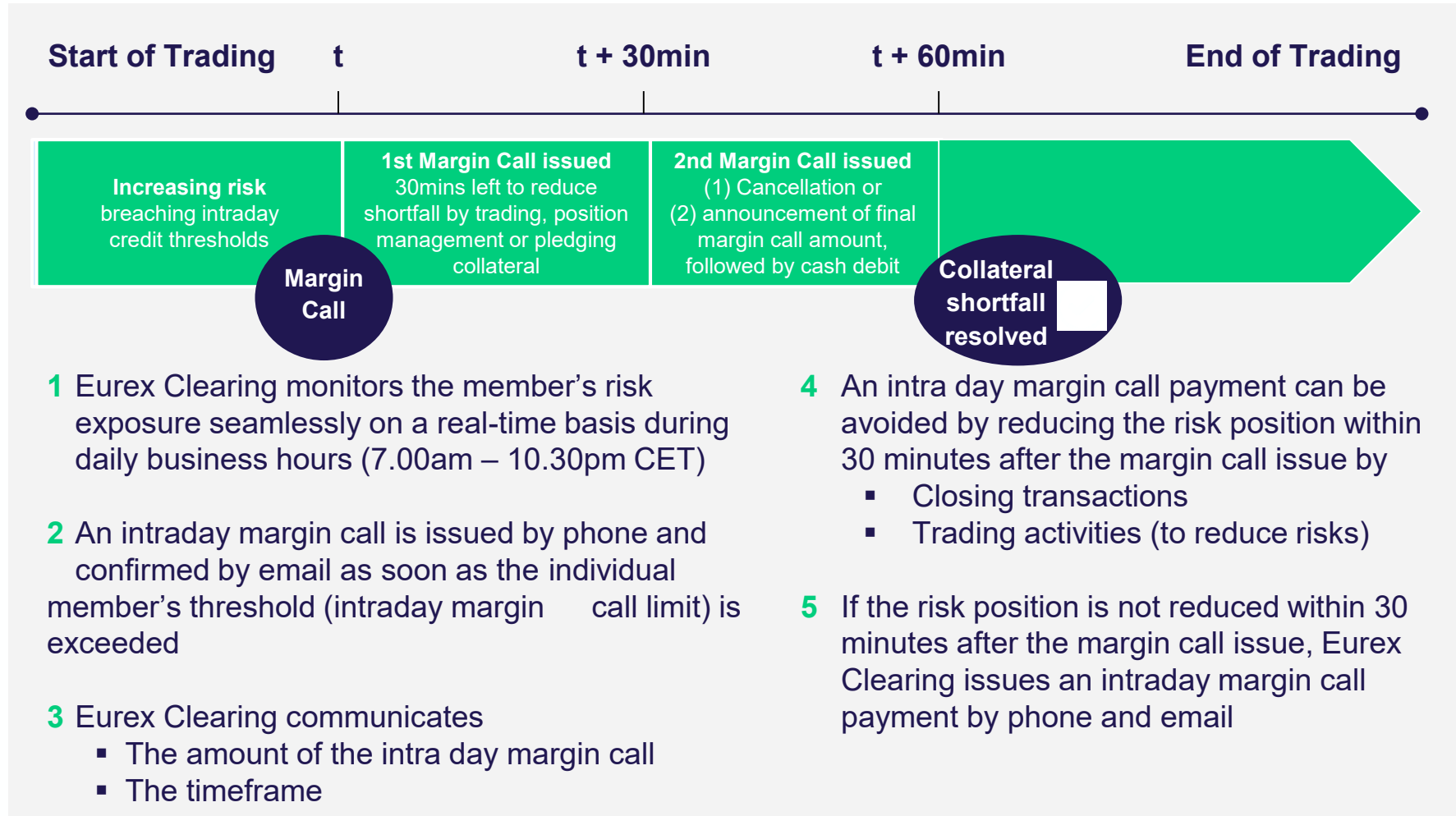
- The adequacy of the **Clearing Fund size**, Eurex Clearing's total financial resources and liquid financial resources is verified by means of stress tests

Default Management Process

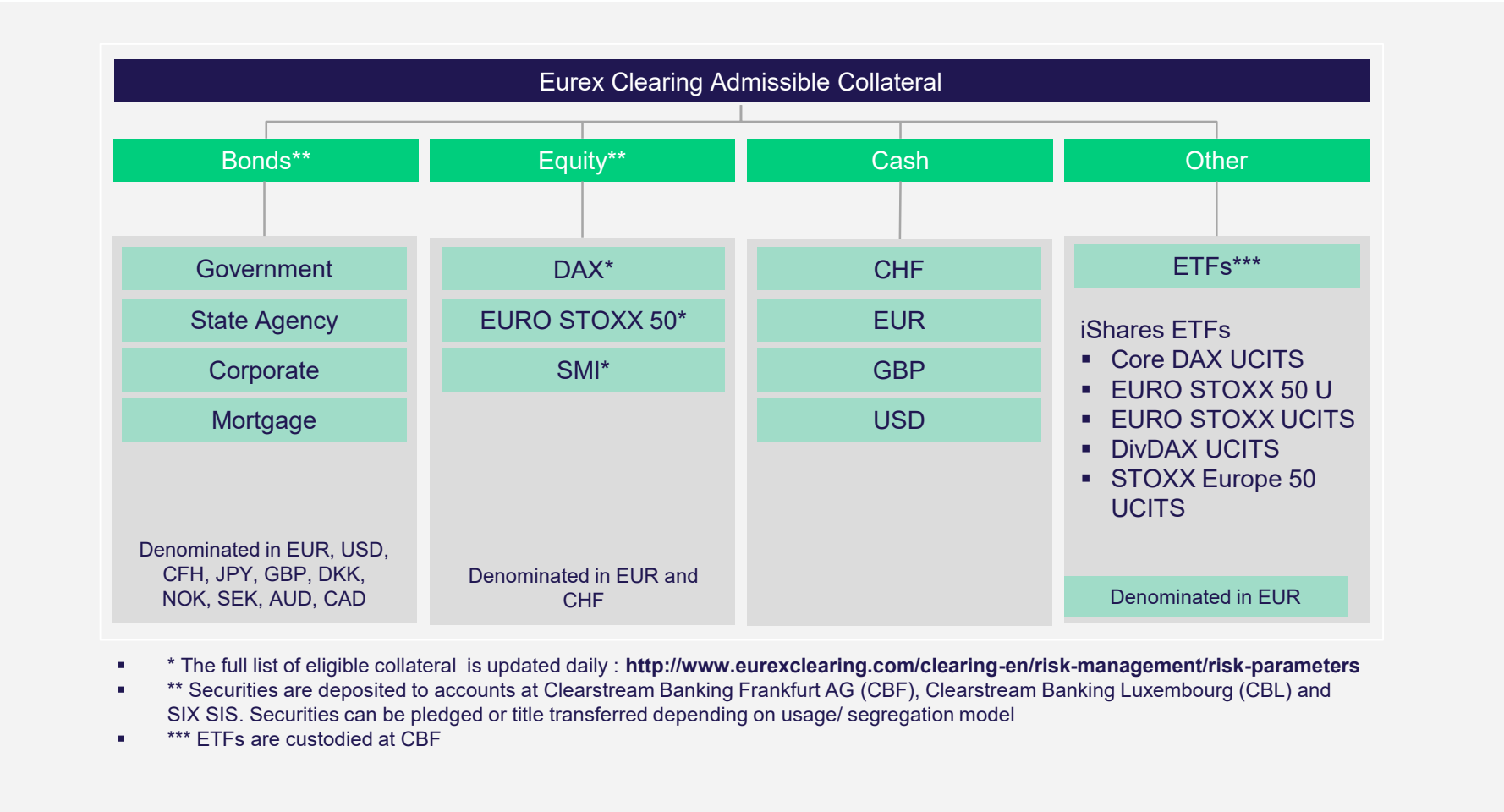
- When a Clearing Member goes into default, one of Eurex Clearing's principle objectives is to **protect customers** and minimize harm to clients and their positions
- **Losses** to the CCP's lines of defence **and the disruption of the wider market are minimized**

Intraday Margining

Real-time market monitoring and collection of extra collaterals if needed

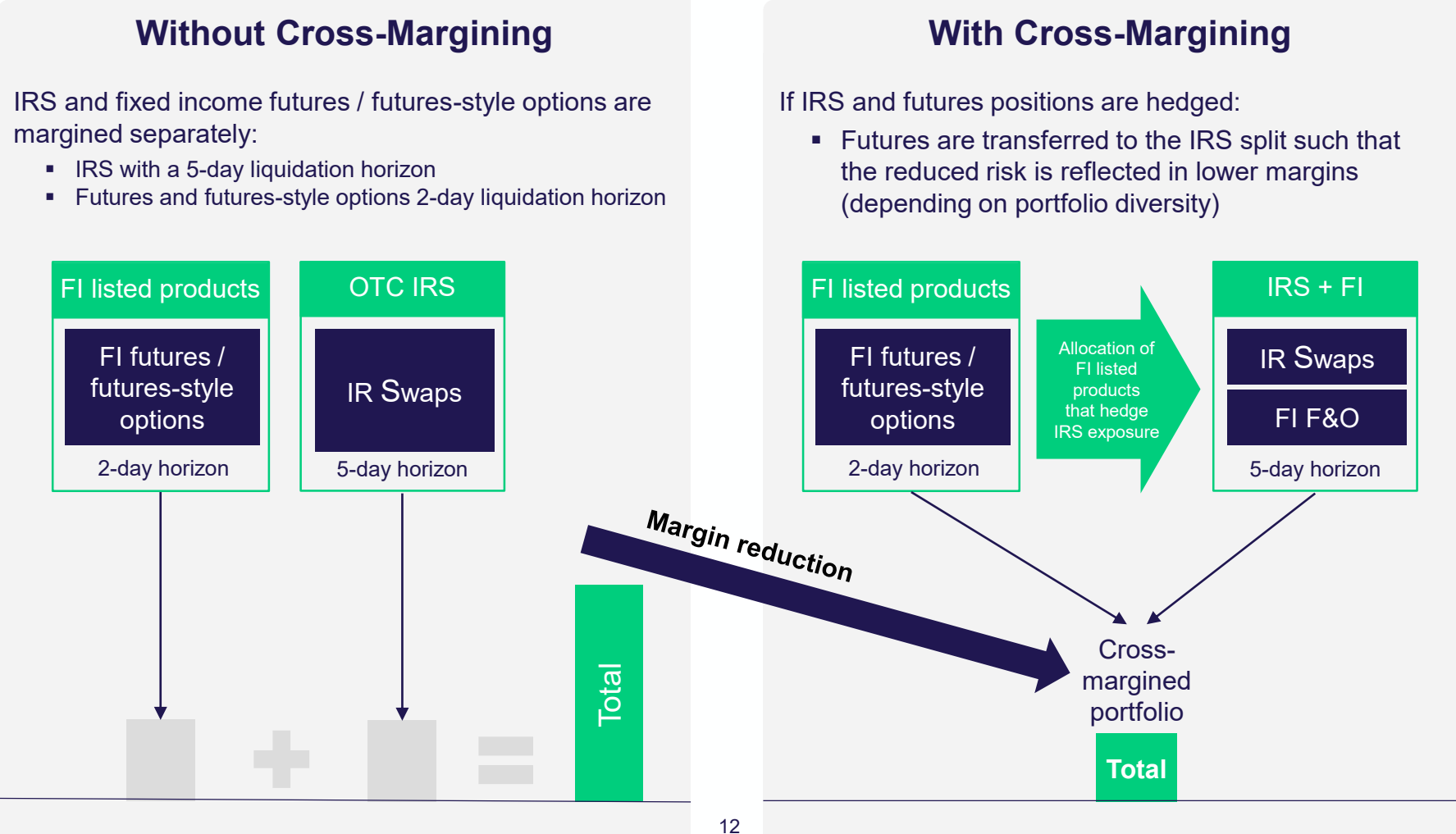


Collateral: >17,000 Eligible ISINs*

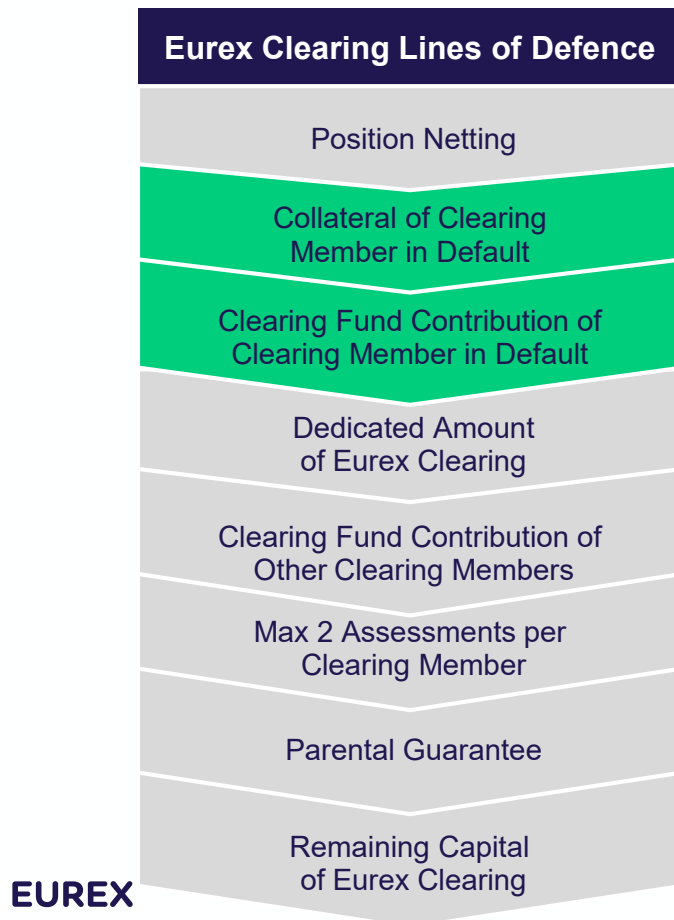


Eurex Clearing Prisma Cross-Margining

- Optimal allocation of positions delivers lowest cost through cross-margining of OTC & ETD
- Portfolio simulations and what-if scenarios available



Eurex Clearing's guiding principle in a default situation is to minimise the effect of the Lines of Defence and to stabilize the markets



- Eurex Clearing provides a multi-level security system
 - 1 First the collateral and the Clearing Fund contribution of the member in default are utilized.
 - 2 After the defaulter's contributions are exhausted, an assigned dedicated amount of Eurex Clearing is applied, before non-defaulting clearing members' Clearing Fund contributions, and remaining capital of Eurex Clearing are used.
- Each clearing member's contribution to the Clearing Fund is based on a **minimum contribution** and a **dynamic component**, accounting for the individual clearing member's risk situation.
- There is one segmented Clearing Fund for listed and OTC business.
- Following a realization of any Clearing Fund contributions of non-defaulted clearing members, such clearing members are asked to provide assessments to their contributions.
- Clearing members' total liability is limited as they have to provide a maximum of two assessments per capped period.

Overview of Default Management Process



- Convention of **Default Management Committees** to support Eurex Clearing throughout the whole DMP
- To protect client assets, positions and collateral are transferred wherever possible
- Portfolio and market **evaluation** in preparation of liquidation
- Handling positions that expire shortly

- Hedging of the defaulted clearing member's portfolio is **executed as early as possible**, to limit losses immediately
- Hedged portfolio is likely to receive better prices in the auction

- **If the portfolio is small** or only few clearing members are active in the involved products then bilateral or on-exchange trades can ensure a timely liquidation
- For particular asset classes independent sale is the main component of default management process
- Mutual default fund will not be utilized, unless all clearing members have the chance to provide a price in the auction

- Participation in auctions is **mandatory for those clearing members who are capable from an operational and risk perspective** to process the respective portfolio
- Clients are allowed to bid via their clearing member
- Default fund juniorisation and penalty fee set incentives for competitive bidding

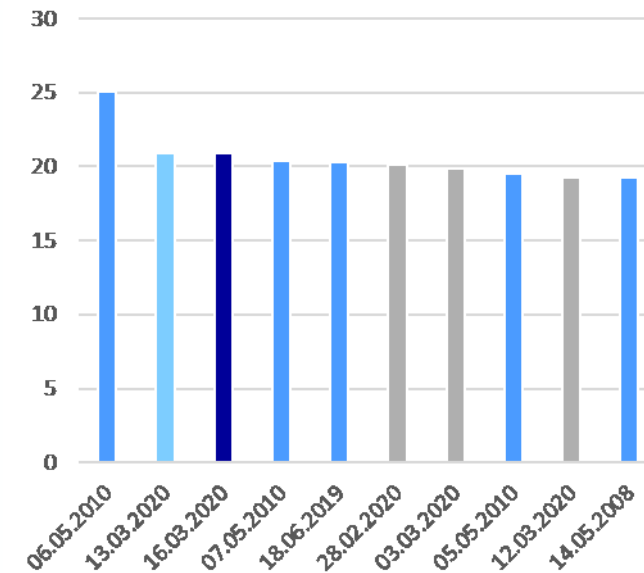
2 Covid 2020 lookback

Trading Volumes & Intraday Margins During Covid-19

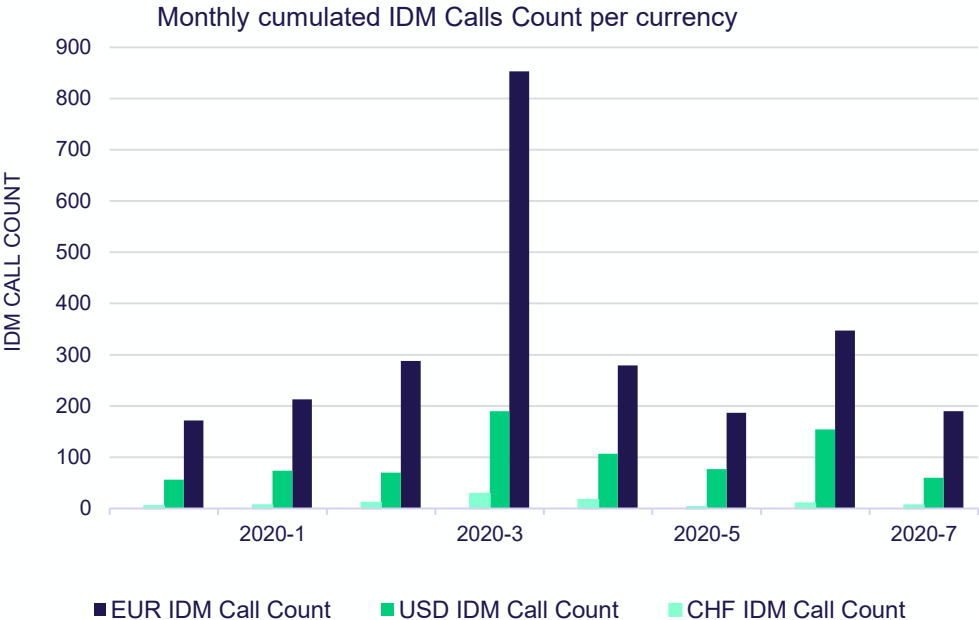
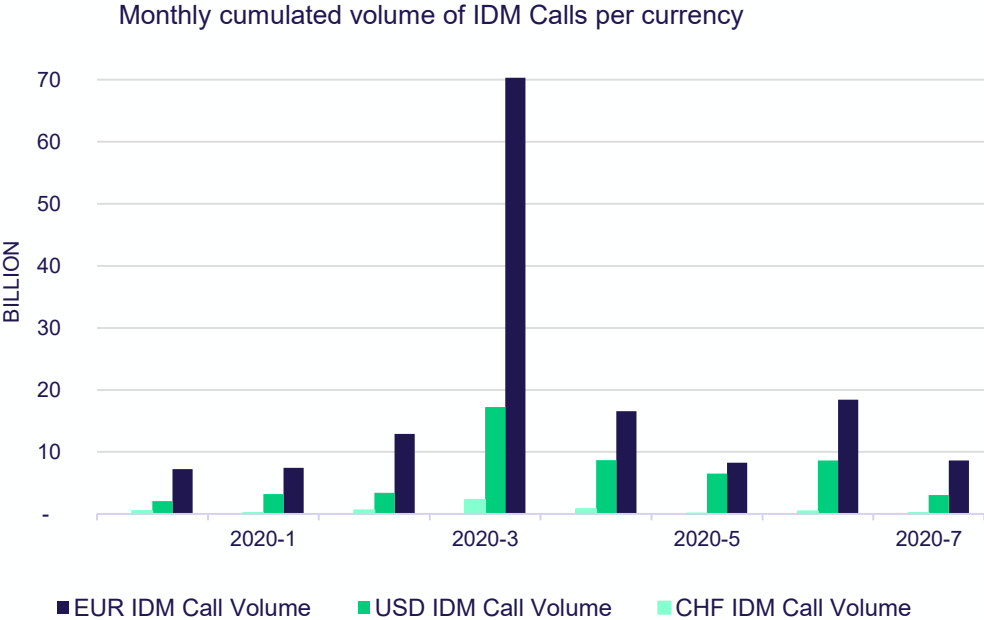
Trading developments

- ✓ Since the beginning of the Covid-19 crisis the trading volume increased significantly:
 - ✓ 5 days were within the all-time top 10 daily volumes
 - ✓ the average number of traded contracts per day is **14.7 million** compared to **7.7 million** in 2019
- ✓ Record volumes have been a real life stress test for the entire industry from Systems & Operations perspective:
 - ✓ ECAG core systems performed flawlessly in peak volume.

All-time top 10 daily trading volumes



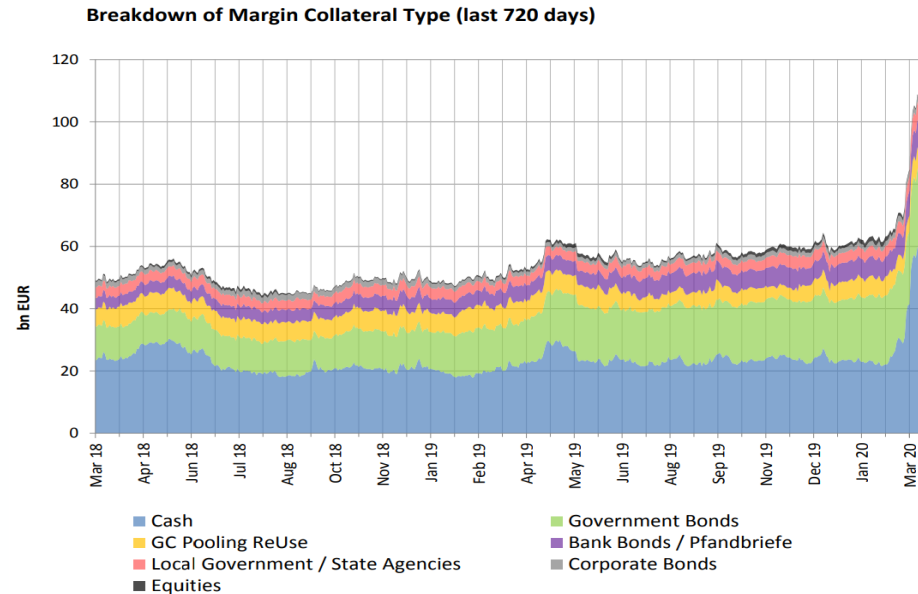
Intraday Margin Calls during COVID crisis



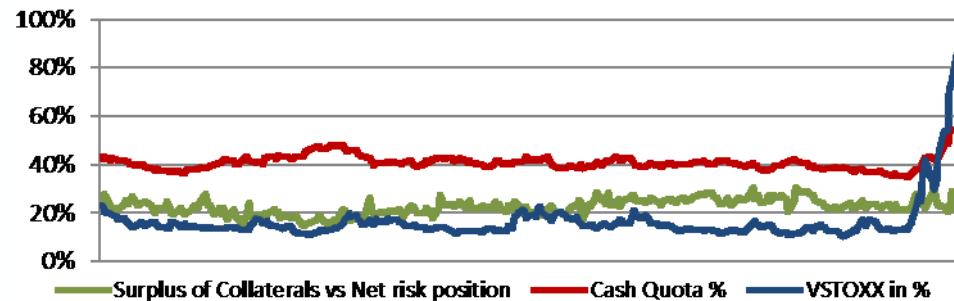
Intraday Margin

- ✓ During the Covid-19 crisis the number and volume of intraday margin calls increased significantly
- ✓ In March 2020 the average number of intraday margin calls per day is **51** compared to **17** in 2019.
- ✓ In March the average of the collected amount per day was **4.23bn EUR** compared to **0.47bn EUR** in 2019.
- ✓ All intraday margin calls were collateralized in a timely manner.

Margin Requirements and Margin Collateral



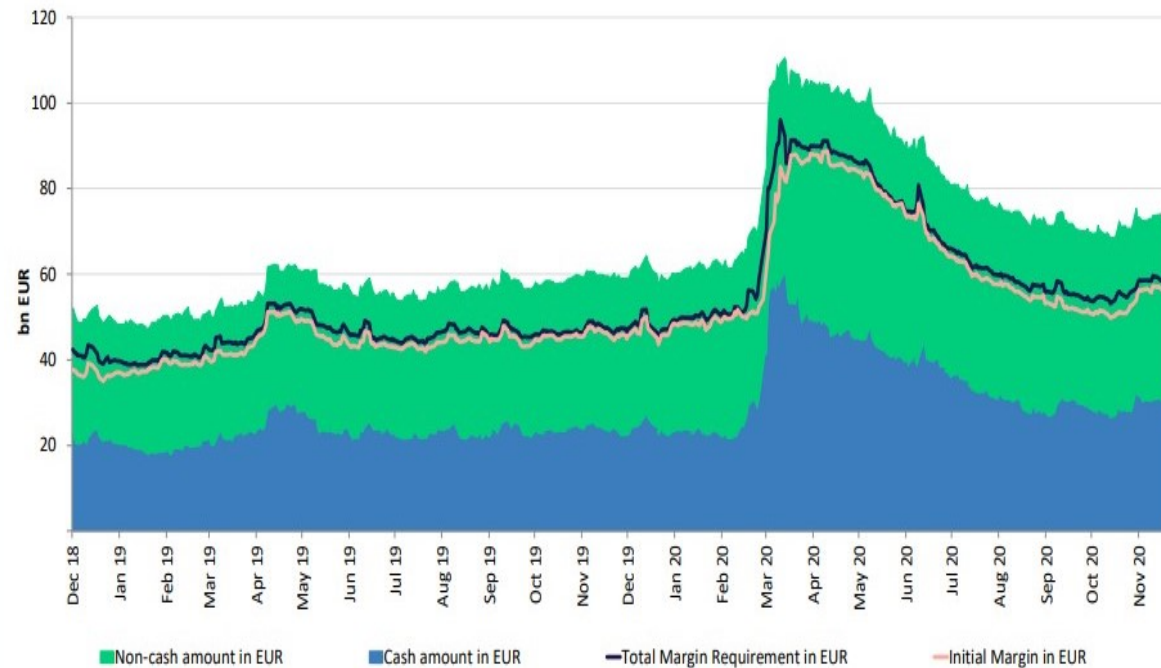
- As the market volatility picked up and market participants increased their exposures, margin collateral increased from **EUR 60bn to 110bn**
- Collateral composition focused more on **cash** with **53.4%** of overall provided collateral being cash (vs 39% for EoY)
- Together, **cash and government bonds** amount to **77.4%** of margin collateral



- **Cash collateral ratio increase**
- **Overcollateralization decreased** compared to end of 2019 standing at 13.7% vs 26% end of Q4
- **Volatility (VStoxx) increased** drastically to 86% (20/03) up from 14% end of Q4

Margin collateral over time

Margin Requirement and Collateral Development (last 720 days)



Key insights

- Following the peak in March, margin requirements started to decline at a slow pace
- Initial Margin and Total Margin Requirement are a function of both **margin model** (which in turn is a function of market volatility) as well as **risk exposures** of cleared portfolios
- **Cash ratio remained stable** throughout 2020; overcollateralization remained well above 10% at all times
- **Stable collateral composition** with dominant role of cash

3 Conflict in Ukraine

Eurex Clearing Risk Management - Ukraine conflict

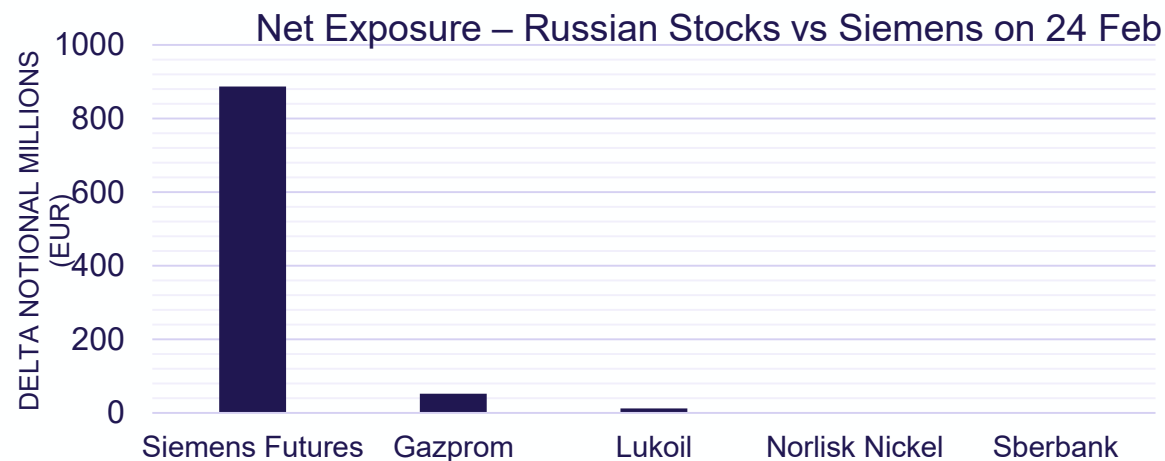
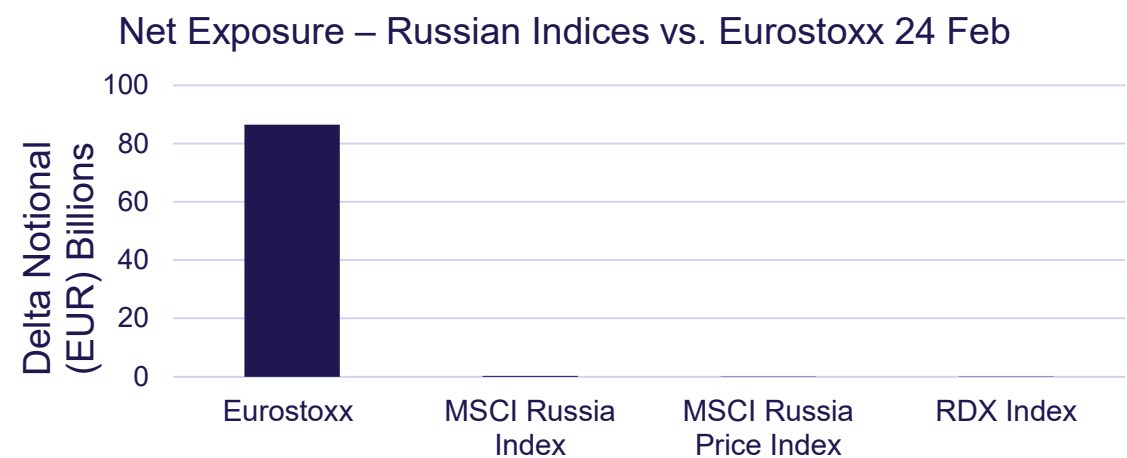
Member Monitoring

- No Russian or Ukrainian Clearing Members
- Placement of Clearing Members with significant exposures to Russia on the **watch list** and close monitoring of e.g. stock price moves
- Market Moves led to significant VM payments, but all participants met their **margin calls** in time

Products and Collateral

- Eurex: **Termination of trading** in derivative products and instruments related to Russian entities and cash settlement of open positions in such contracts
- **Suspension of trading** in Russian securities on Xetra
- **Collateral: Ineligibility** of instruments issued by Russia or by companies located in Russia

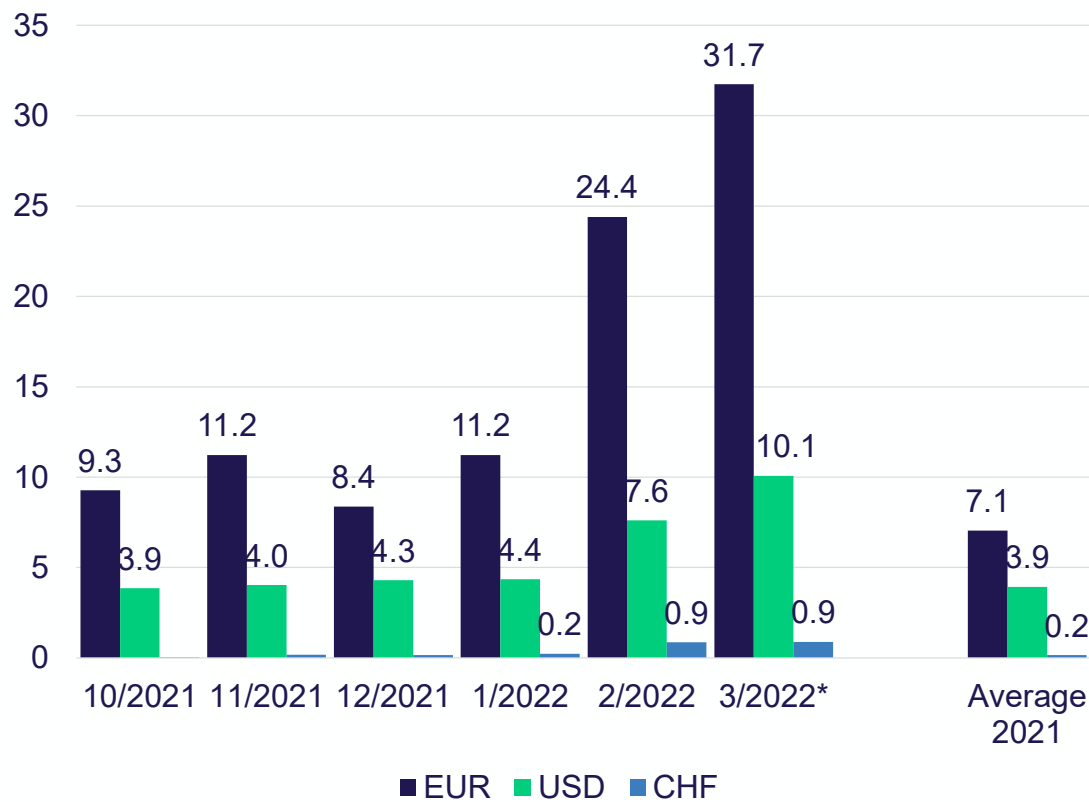
Russian Derivatives Exposure on First Days of Conflict



- Risk to the CCP in case a member with Russian derivatives would default was negligible compared to other cleared Eurex Products
- Thereafter trading in derivative products and instruments related to Russian entities was suspended and open positions were terminated

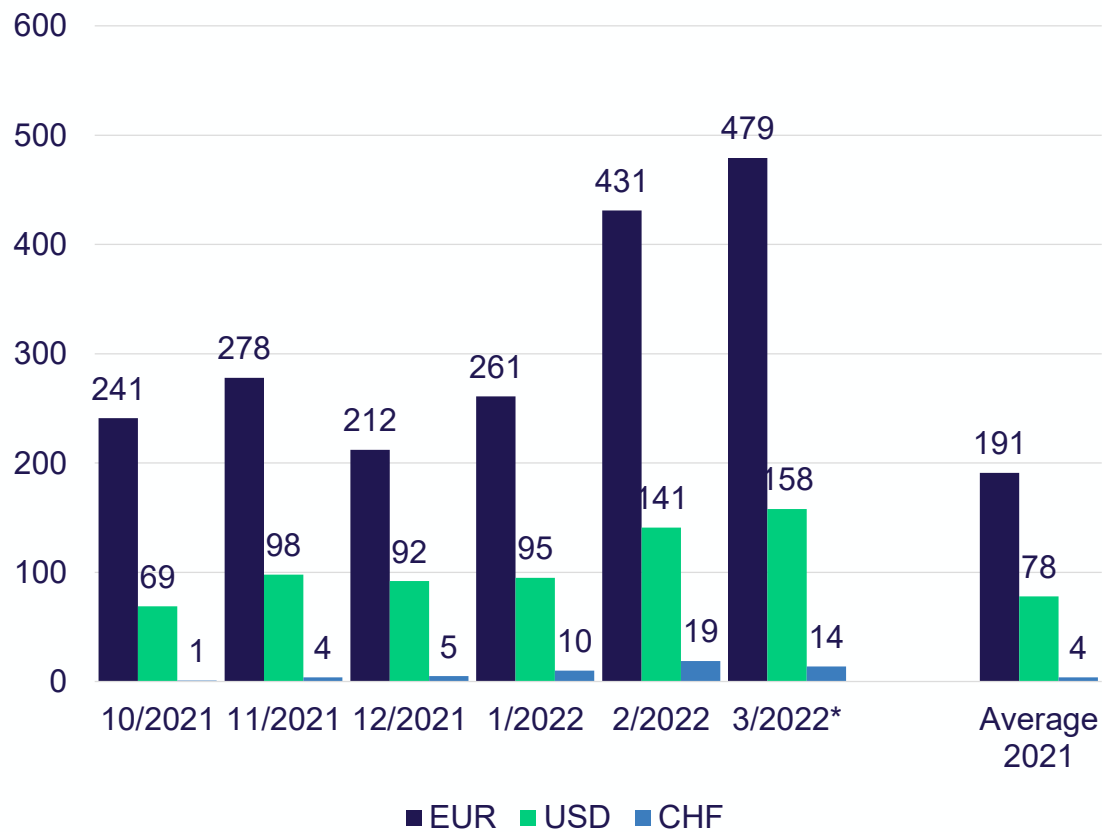
Intraday Margin Calls

IMC Volume (Billion)**

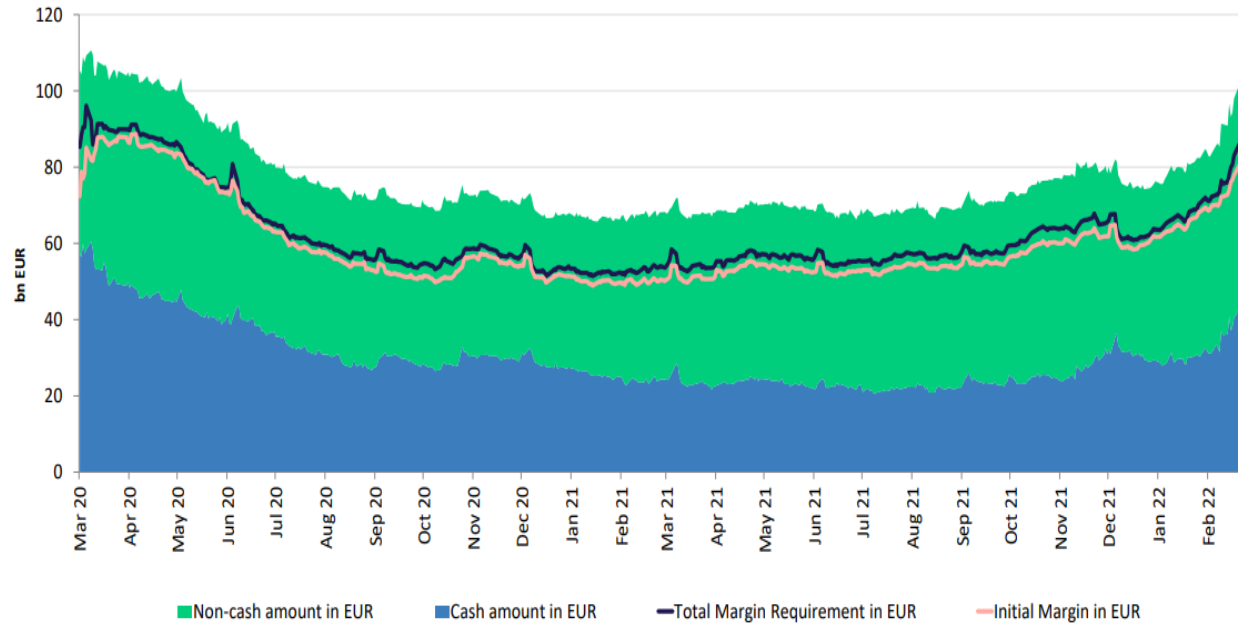


* Month-to-date 15.03
 ** For comparison, IMC Volume in March 2020 (Covid) was EUR 70.3, USD 17.3, CHF 2.3bn

IMC Number



Margin levels



Margin requirements evolution

- Increase of Total Margin Requirement **to 88bn** since the beginning of this year is comfortably covered by Margin Collateral of around **EUR 100bn**
- The **pace of increase** is much less prominent than during Covid crisis
- Moderate increase in both Equity and Fixed Income margin parameters
- Markets remain more volatile than in 2021 but we observe margin levels stabilising after incorporating recent volatility

Eurex Clearing Risk Management view - Ukraine conflict

Model Performance

- Portfolio back-testing confirmed that margin models achieved their target confidence levels, despite single outliers
- In particular, fixed income products experienced margin outliers due to a flight to quality by investors

Comparison with COVID crisis

- Market reactions led to a **similar magnitude of total margin requirement** compared to the breakout of the COVID19 pandemic early 2020, however the **pace of increase is less prominent** than during the Covid crisis
- Robust operational capabilities on ECAG and Clearing Member side ensured no operational issues arose even though operations are still largely performed remotely

Intraday Margin calls during ongoing Russia/Ukraine conflict

Pre-conflict

During the second half of 2021 and beginning of 2022 **number and volume of margin calls were higher** than average but stable despite the ongoing pandemic.

Rising tensions and conflict escalation

Increased volatility and margin call volumes noted as of end of February 2022. **The intraday margin call volumes were only topped by those during the pandemic outbreak in March 2020.** Currently, an increased impact of Fixed Income/OTC IRS markets on margin calls can be observed.

Current market

Markets continue to exhibit **high volatility**. All intraday margin calls were collateralized in a timely manner. Intraday cash collateral withdrawals were executed on request.

Outlook

Depending on further developments, **considerable fluctuations in number and volume of intraday margin calls are still expected.**
Increased focus and effort in intraday risk exposure monitoring.

4 Eurex Clearing reflection on the industry discussion

Derivatives clearing performance through the crisis

Worked as designed?

- Prisma **Margin parameters adapted to new level of volatility adequately and gradually, without manual interventions**. Margins for different markets reacted differently, reflecting different volatility patterns.
- Possible drivers for Intraday margin calls are **1) market movements** 2) position changes and 3) margin features. During the Covid 2020 distress, **1) was identified as the biggest driver**.
- **Margin changes were predictable**, thanks to availability of risk model and tools like margin calculators to perform independently a what-if analysis
- **Margin parameters decline slowly**. For most products, it takes 3-6 months to revert to pre-crisis levels if market volatility is at pre-crisis levels during that time.

Zoom in: Addressing complexities, learn from the new developments and continuously improve

CM perspective

- **No harmonization** between CCPs
- Possible liquidity squeeze under stressed market circumstances
- Difficulties to pass on ad-hoc intraday margin calls to clients
- Intraday Margin Call: **Scheduled batch vs. Event-driven**. Tradeoff: operational facilitation vs. uncovered risk if strong market move between batches?

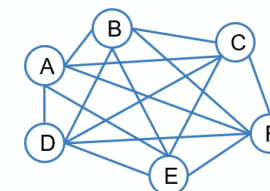
CCP perspective

- CCPs shall not be left with significant uncovered exposures
- Application of operational thresholds only intervene in case of significant uncovered exposures
- Intraday all requirements can be covered also by **non-cash collaterals**, excess collateral can be withdrawn
- **Transparency and intraday margin reports** shall enable clearers to predict intraday margin calls: 1) timing predictability 2) amount predictability – reports are possible, markets remain unpredictable

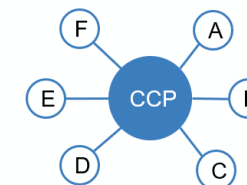
Common interest in resilient CCPs

Counterparty risk mitigation

Bilateral market structure

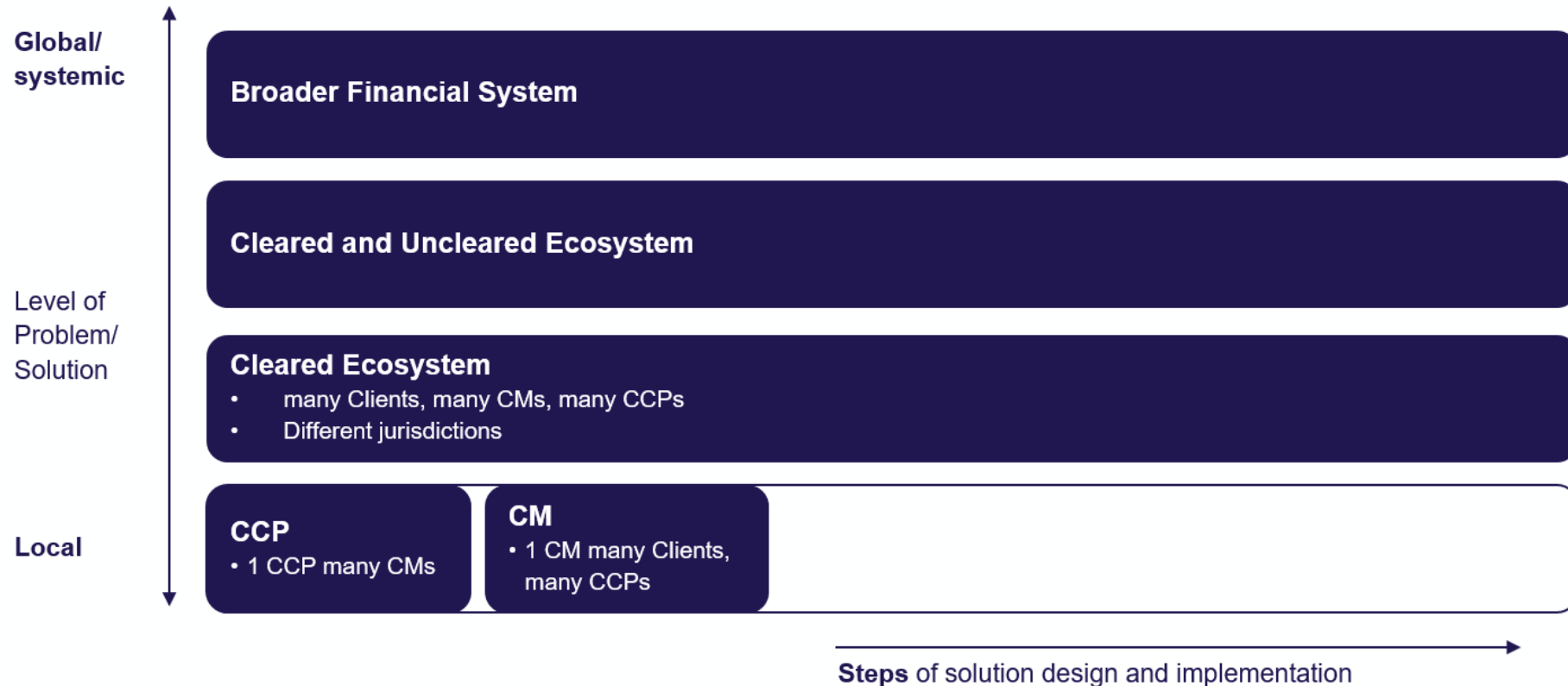


CCP market structure



Zoom out: industry discussion

Saved to this PC



In search of enhancements to prevent potential systemic issues, it would be wise to elaborate also higher level solutions (Cleared & Uncleared) in addition to more “local” solutions at CCPs/CMs or Cleared Ecosystem level

Thank You!

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Initial Margin: Single Margin Parameter (ohne Puffer) Berechnung bei ECC

$$M_X(t) = R_X(t) \cdot \sigma_X(t) \cdot p_X(t) \cdot \sqrt{l_X}.$$

$$R_X = (|q(X_\tau/\sigma_X(\tau-1))_\alpha| + |q(X_\tau/\sigma_X(\tau-1))_{1-\alpha}|)/2.$$

Wird als Quantil der volatilitätsnormierten Renditen berechnet. Wobei $\alpha = 0,99$ und $q(X_\tau)$ ist das empirische α -Quantil von X unter Verwendung von Daten aus den letzten 255 Tage mit Nicht-Null-Renditen

$P_X(t)$ ist der aktuelle Schlusskurs des Kontrakts

Faktor, der für die Skalierung auf eine Liquidationsperiode von l_X Tagen verwendet wird. Liquidationszeitraum beträgt meistens 2 Tage

Die Standardabweichung der täglichen Futures-Renditen $\sigma_X(t)$ wird als exponentiell gewichteter gleitender Durchschnitt der letzten 255 täglichen relativen Nicht-Null-Renditen aus den täglich beobachteten Schlusskurse berechnet



Initial Margin: Single Margin Parameter (mit Puffer) Berechnung bei ECC

- Die ESMA erlaubt drei verschiedene Methoden, um prozyklisches Margining zu verhindern
 1. Anwendung einer 25%igen Gewichtung für Stressvolatilität,
 2. Verwendung aller verfügbaren Daten,
 3. Anwendung eines Puffers von 25%, der vorübergehend ausgeschöpft werden kann.

- ECC setzt Variante 3 um:

$$\mathcal{M}_X = R_X \cdot \sigma_X \cdot \sqrt{2} \cdot \left(1 + \max \left\{ b_X; \frac{w}{255} \frac{\sigma_{\max} - \sigma_X}{\sigma_X} \right\} \right) \cdot p_X$$

$$b_X = \begin{cases} 0.25 & \sigma_X \leq \sigma_{\text{crit}} \\ 0.25 \cdot \left(1 - \frac{\sigma_X - \sigma_{\text{crit}}}{\sigma_{\max} - \sigma_{\text{crit}}} \right) & \text{else} \end{cases}$$

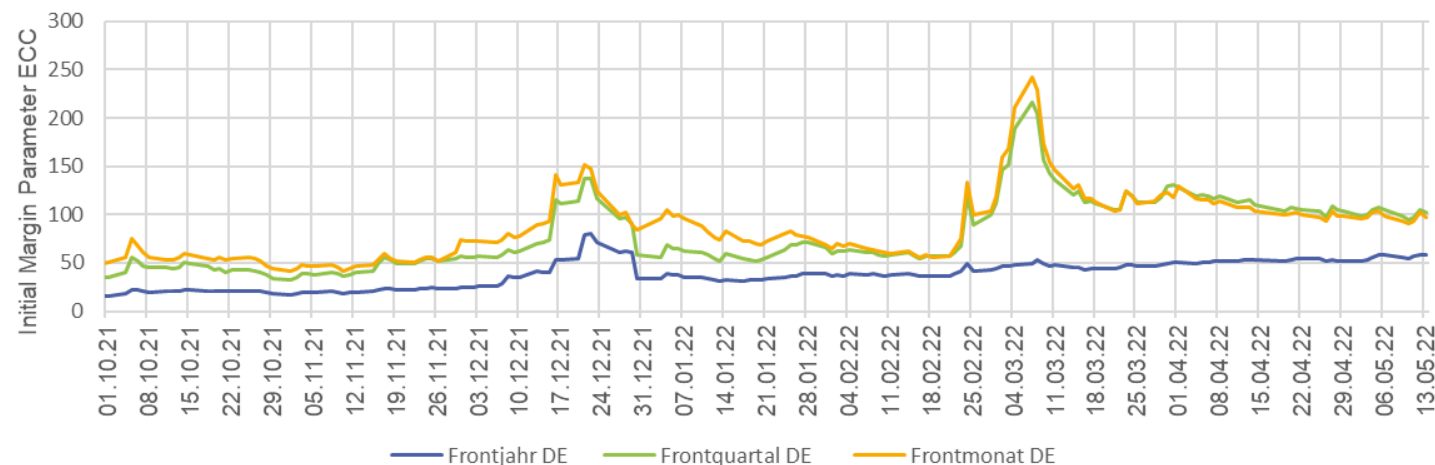
$w = 5 \rightarrow$ dies entspricht einem Stresszeitraum von einer Woche

- Details unter: https://www.ecc.de/fileadmin/ECC/Downloads/Risk_Management/Margining/ECC_Derivative_Market_Margining_V1.6.1.pdf

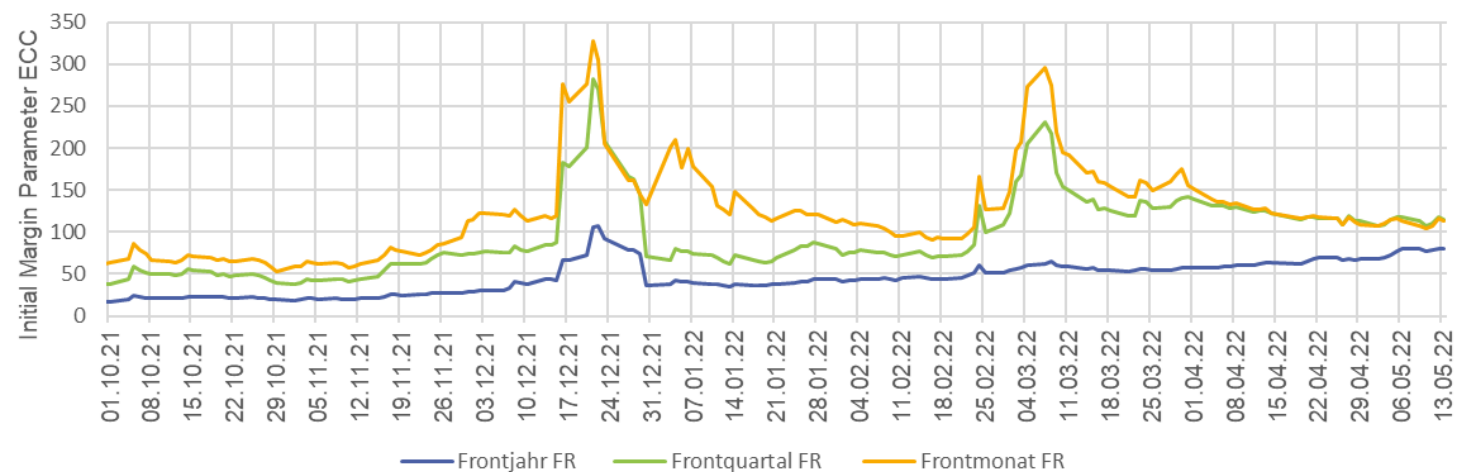


Initial Margin Parameters für ausgewählte Base-Produkte mit Lieferort Deutschland und Frankreich

Margin Parameters Base Kontrakte Deutschland

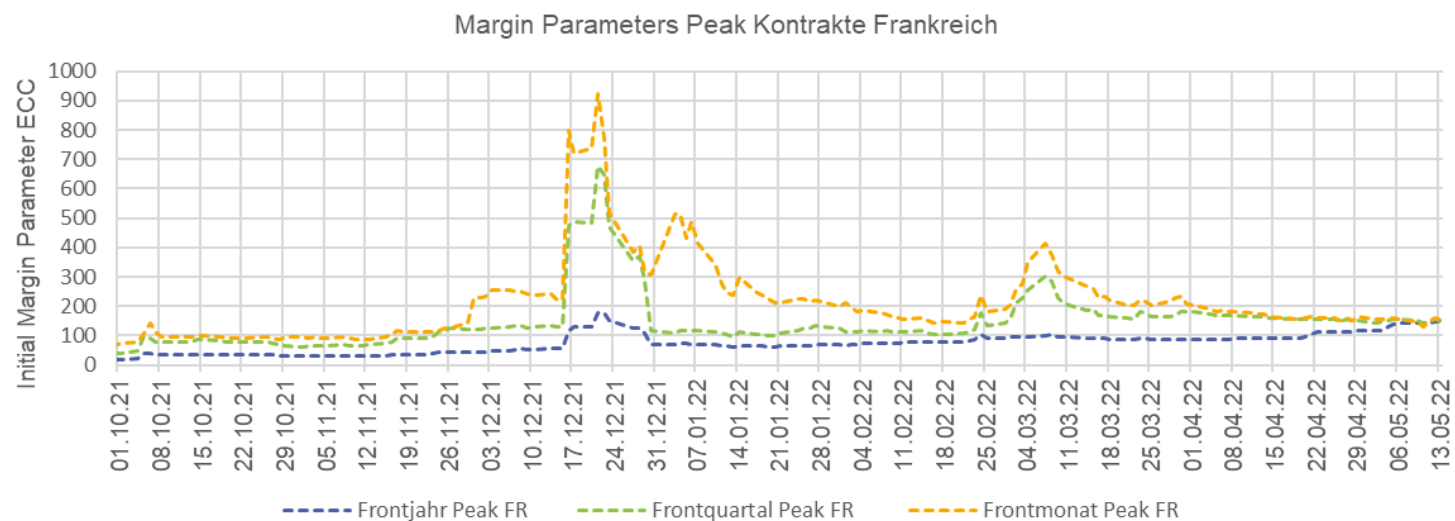
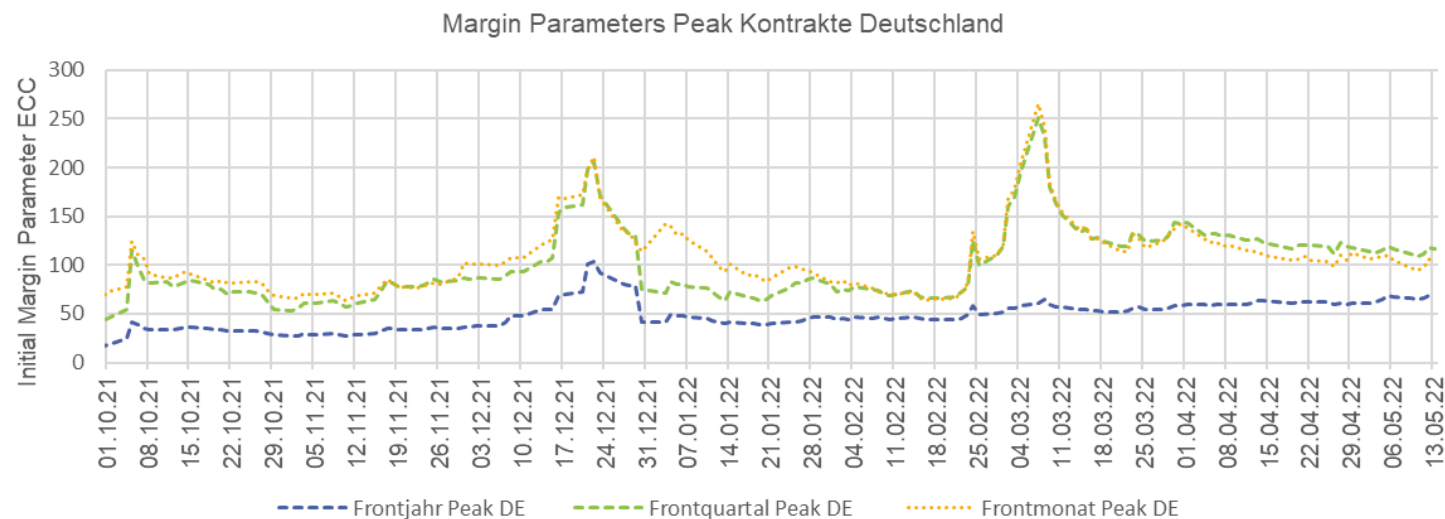


Margin Parameters Base Kontrakte Frankreich





Initial Margin Parameters für ausgewählte Peak-Produkte mit Lieferort Deutschland und Frankreich





Bildung von Benchmark-Portfolien

Portfolio 1:

- Long 1 MW in Frontjahr Base (DE & FR)
- Long 1 MW in Frontquartal Base (DE & FR)
- Long 1 MW in Frontmonat Base (DE & FR)

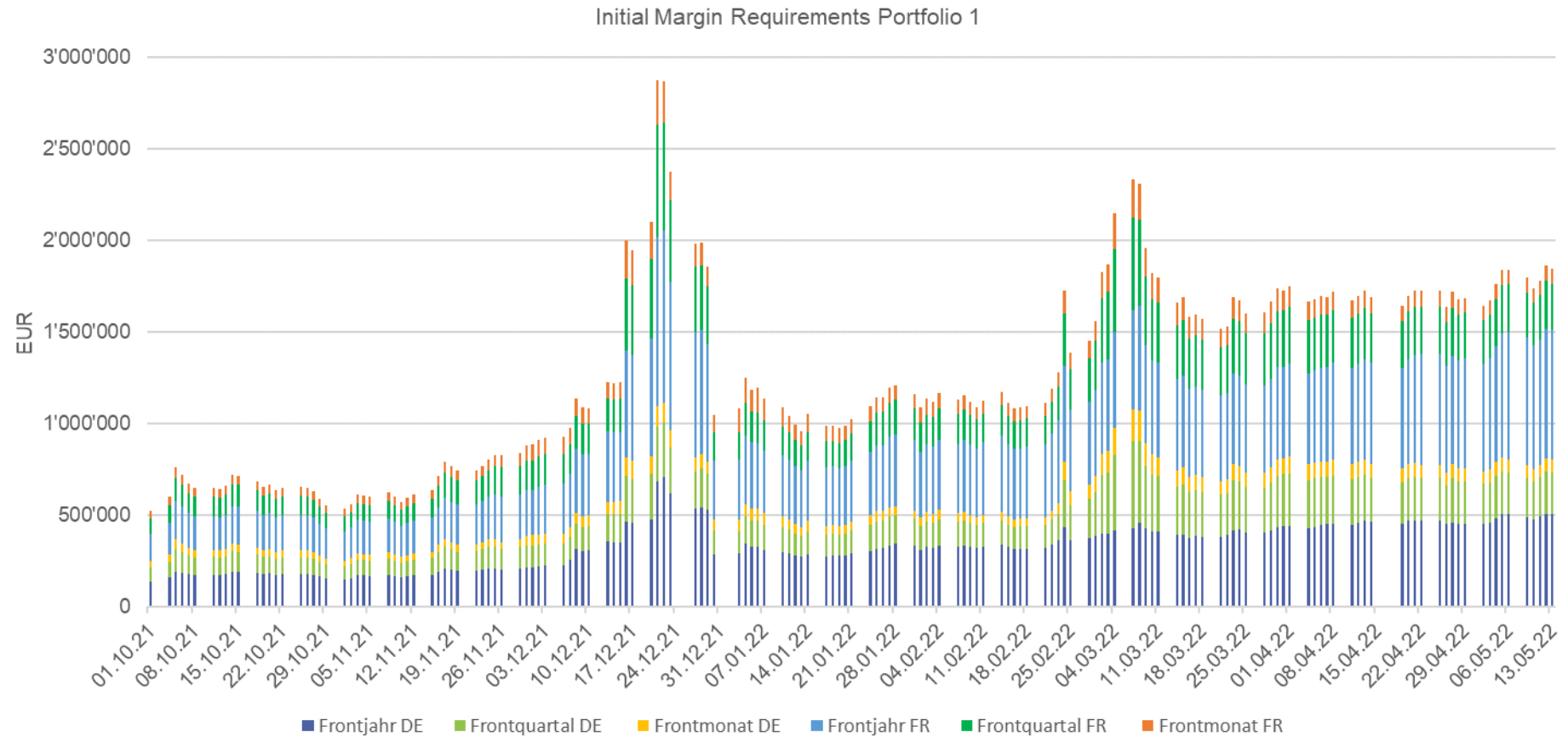
Portfolio 2:

- Long 1 MW in Frontjahr Base (DE & FR)
- Long 1 MW in Frontquartal Base (DE & FR)
- Long 1 MW in Frontmonat Base (DE & FR)
- Long 1 MW in Frontjahr Peak (DE & FR)
- Long 1 MW in Frontquartal Peak (DE & FR)
- Long 1 MW in Frontmonat Peak (DE & FR)

→ Portfolien sind entweder Long oder Short → keine Portfolioeffekte

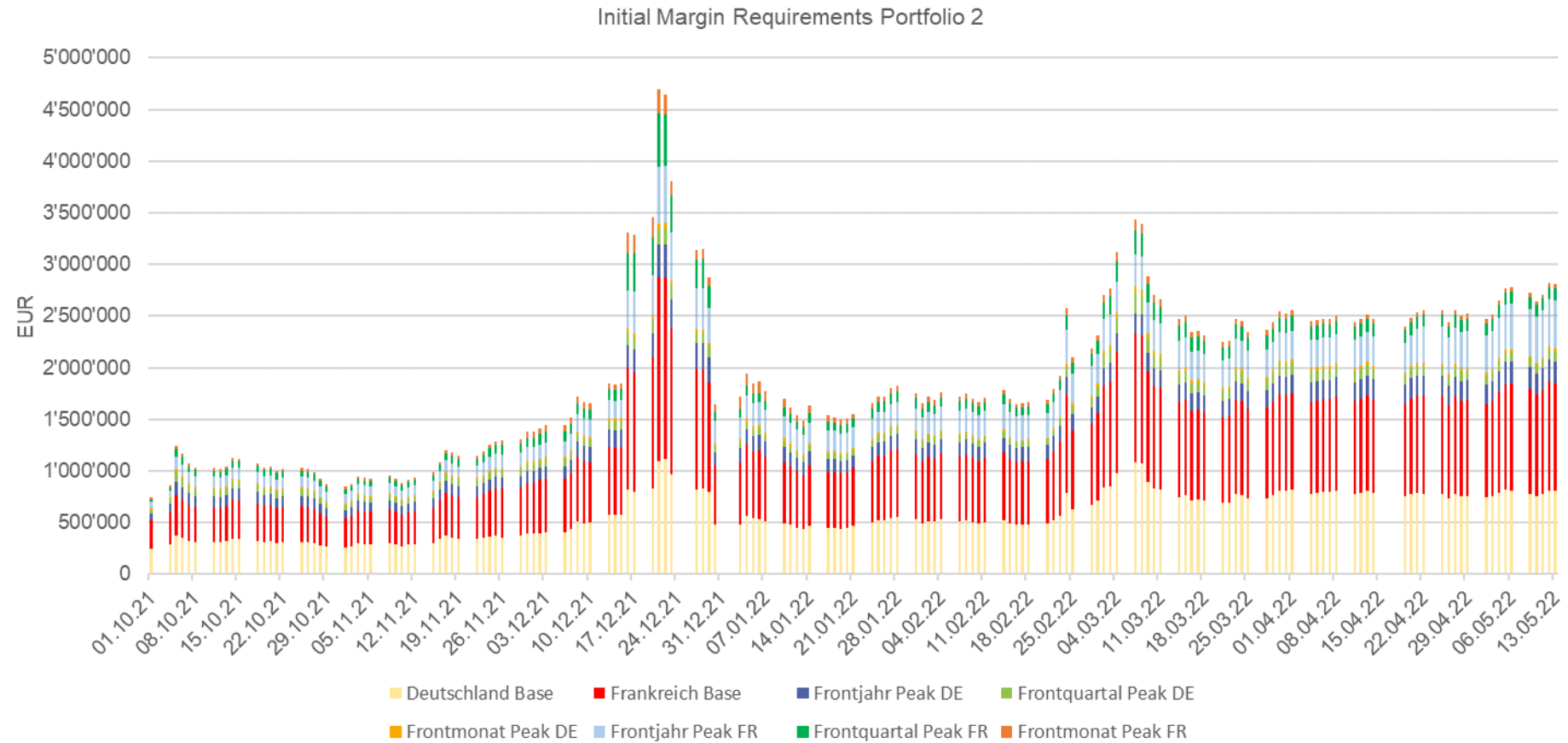


Initial Margin Anforderungen in EUR Portfolio 1



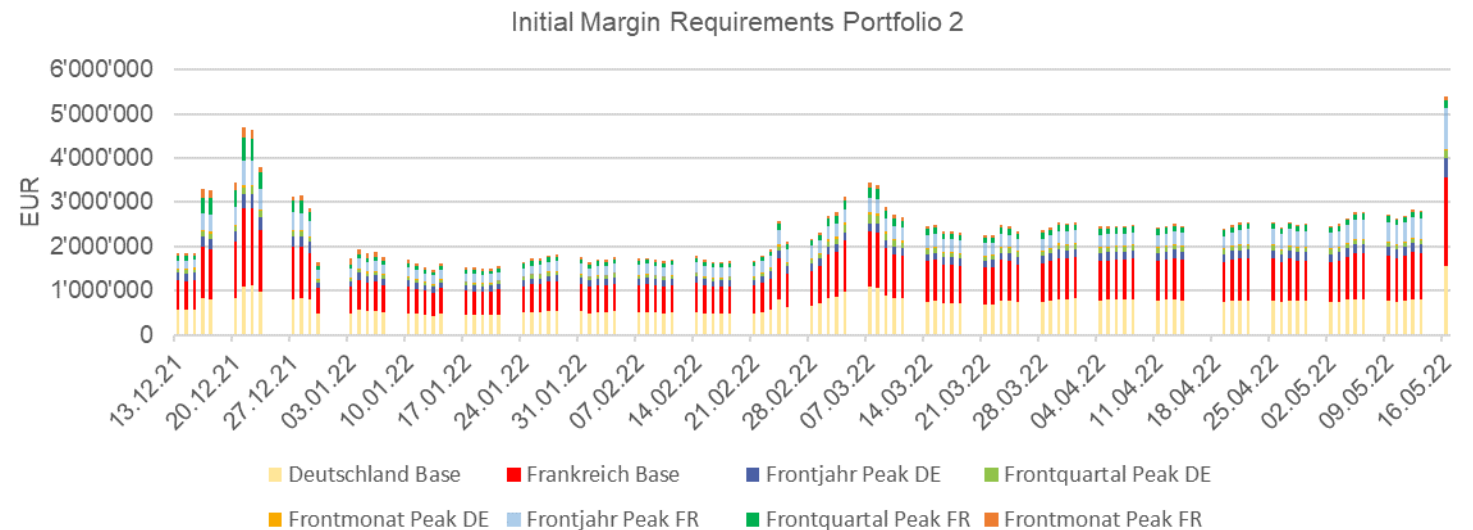
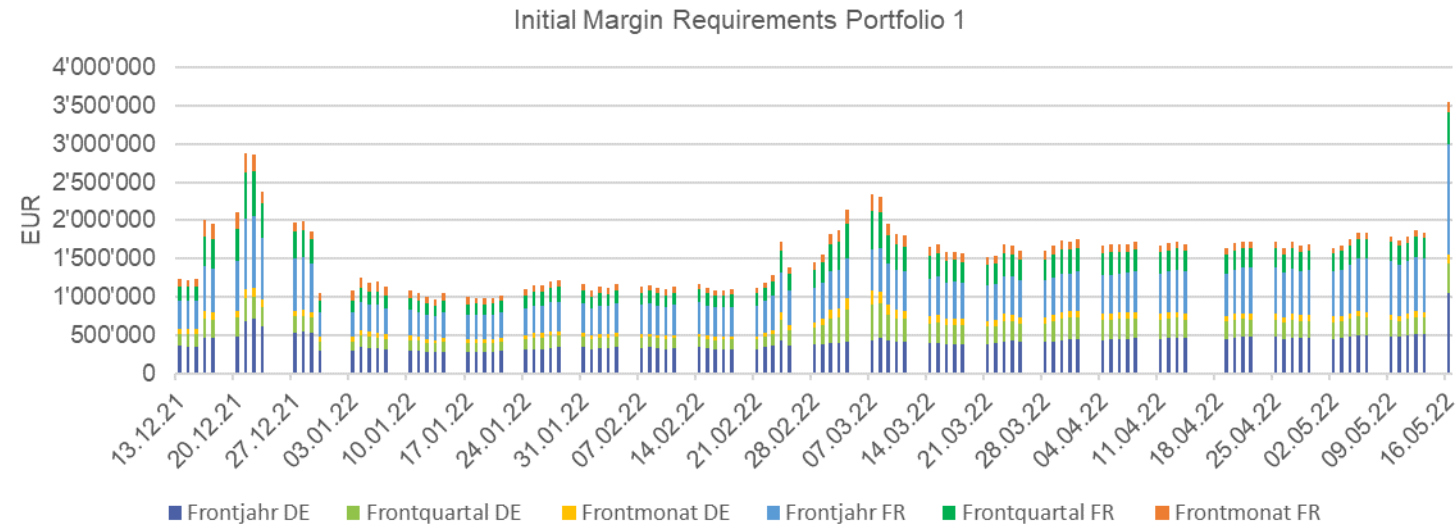


Initial Margin Anforderungen in EUR Portfolio 2





Was-wäre-wenn-Analysen: Szenario morgen Preise 50% höher?





Diskussions- und Fragerunde

Urs Meister, ElCom





Abschliessende Worte und Verabschiedung

Urs Meister und Cornelia Kawann, ElCom





Herzlichen Dank für Ihre Aufmerksamkeit!

- ElCom Markttransparenzbericht 2021 ist im Anschluss an den Workshop auf der Homepage der ElCom verfügbar: [Berichte und Studien \(admin.ch\)](#)
- Bericht über Grenzkapazitäten im Handel: Entwicklung 2018 – 2021 ist ebenfalls auf der Homepage zu finden: [Berichte und Studien \(admin.ch\)](#)
- Umfrage: Um uns immer wieder zu verbessern, bitten wir Sie um Ihr Feedback mittels der Umfrage, welche Sie im Anschluss an den Workshop per Mail erhalten werden.
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