



Insurable Value at Risk

Property Market Outlook and the Impact of Inflation on Insurance Valuations

8 September 2022

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Introduction & Our Services

Stay Ahead with KROLL

Data, technology and insights for risk, governance and growth

One Team, One Kroll.

Your preferred partner for all your complex global demands.

With over **6,000 experts** around the world, we create value and impact for our clients and communities.

Valuation

Compliance and Regulation

Corporate Finance and Restructuring

Cyber Risk

Environmental, Social and Governance

Investigations and Disputes

Business Services

Our Evolution

In Operation for
Nearly 100 Years

STORIED BRAND 1932-2004

- Duff & Phelps founded as investment research firm

NEW FIRM, EXPANDING CAPABILITIES 2005-2020

- Started as valuation and corporate finance advisor
- Rapid growth into other governance, risk, compliance and complementary solutions
- Acquired 30+ businesses, including Kroll in 2018

ONE TEAM, ONE KROLL 2021-2022

- Duff & Phelps rebrands as Kroll and completes brand unification
- Full business life cycle capabilities across risk, governance and growth
- Serving clients in 140 markets across nearly every industry and sector

Our locations

Across 30 countries and territories worldwide

The Americas				
Atlanta	Denver	Minneapolis	Richardson	Toronto
Austin	Diamond Bar	Morristown	San Francisco	Washington, D.C.
Bogota	Ellensburg	Nashville	São Paulo	Waterbury
Boston	Houston	New York	Seattle	Westchester
Buenos Aires	Los Angeles	Philadelphia	Secaucus	
Chicago	Mexico City	Reno	Silicon Valley	
Dallas	Miami	Reston	St. Louis	

Europe and Middle East				
Abu Dhabi	Bilbao	Gibraltar	Manchester	Pesaro
Agrate	Birmingham	Lisbon	Milano	Preston
Brianza	Channel	London	Moscow	Riyadh
Amsterdam	Islands	Longford	Munich	Rome
Barcelona	Dubai	Luxembourg	Padua	Turin
Bari	Dublin	Madrid	Paris	Zurich
Berlin	Frankfurt			

Asia Pacific			
Bangalore	Hong Kong	Mumbai	Singapore
Beijing	Hyderabad	New Delhi	Sydney
Guangzhou	Jakarta	Shanghai	Taipei
Hanoi	Kuala Lumpur	Shenzhen	Tokyo

Caribbean	
British Virgin Islands	Cayman Islands



Valuation Professional Affiliations

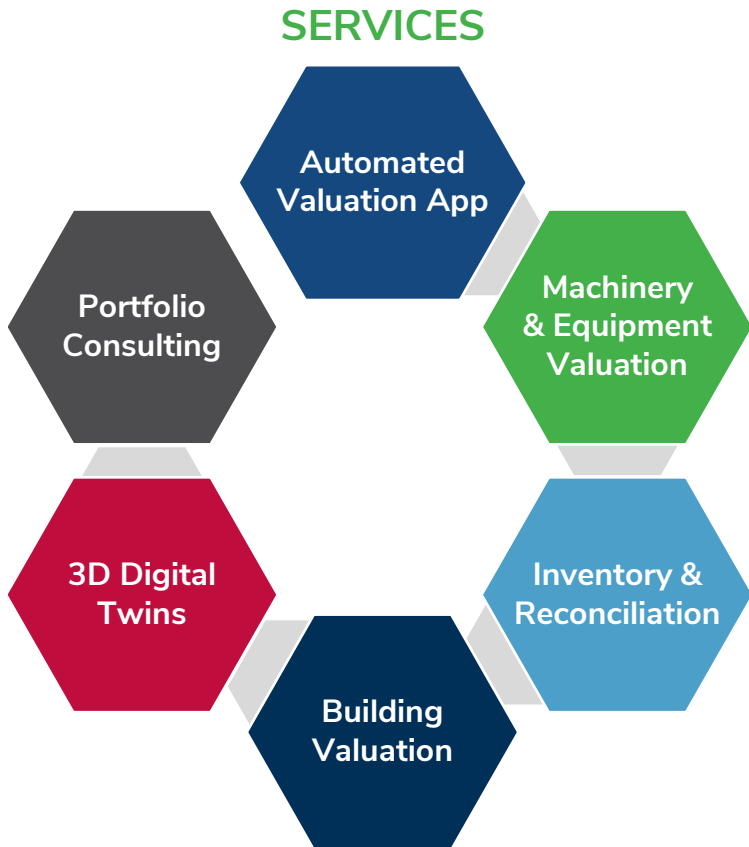
Respected across the globe for our expertise

Our managing directors provide input to regulators and standard-setters and actively contribute to the development of valuation industry best practices.



FIXED ASSET ADVISORY SERVICES

Kroll provides comprehensive valuation and advisory services to insurers and corporates



Benefits



Improved risk management



Determine adequacy of insurance coverage



Improved marketability to underwriters



Substantiation for proof of loss

One Team One Kroll



Central valuation team with global assistance



One firm to value both real estate and machinery & equipment



Reduction in costs and carbon footprint



Synergies and cohesion

The Inflation Impact

1946
Hungary
41,900,000,000,000,000%

1994
Yugoslavia
3,130,000,000%

1944
Greece
30,000,000,000%

1989
Poland
774%

1922
Soviet Union
213%

2008
Zimbabwe
79,600,000,000%

1948
China
5,070%

1985
Bolivia
20,000%

1990
Brazil
82%

1796
France
304%

1923
Germany
29,525%

1988
Vietnam
774%

2022
Turkey
78%

2018
Venezuela
234%

Inflation Today

Switzerland	3.4	Spain	10.2		
France	5.8	Slovenia	10.4		
Luxembourg	7.4	Hungary	11.7		
Germany	7.6	Croatia	12.1	Somalia	7.0
Finland	7.8	Slovakia	13.2	Congo	7.1
Italy	8.0	Romania	15.1	South Africa	7.4
Denmark	8.2	Poland	15.5	Mali	7.5
Netherlands	8.6	Russia	15.9	Lesotho	7.8
Austria	8.7	Bulgaria	16.9	Kenya	7.9
Portugal	8.7	Czech Rep	17.2	Togo	8.0
Sweden	8.7	Belarus	17.6	Senegal	8.9
Iceland	8.8	Ukraine	21.5	Rwanda	16.1
Ireland	9.1	Estonia	21.9	Burundi	17.6
UK	9.1	Moldiova	31.8	Nigeria	18.6
Belgium	9.6	Turkey	78.6	Sierra Leone	22.4

How it all began

COVID-19 pandemic

Blockage of Suez channel

Winter storm in Texas affecting many refineries

Fire in main BASF plant in Germany

Outage of styrene and propylene oxide plant in the Netherlands

War in Ukraine

Increased demand for construction material in China

Disruption to deliver \$9 bln. worth of goods each day

Lack of plastics products used in construction processes

Pressure on energy sector

Huge energy restructuring needed

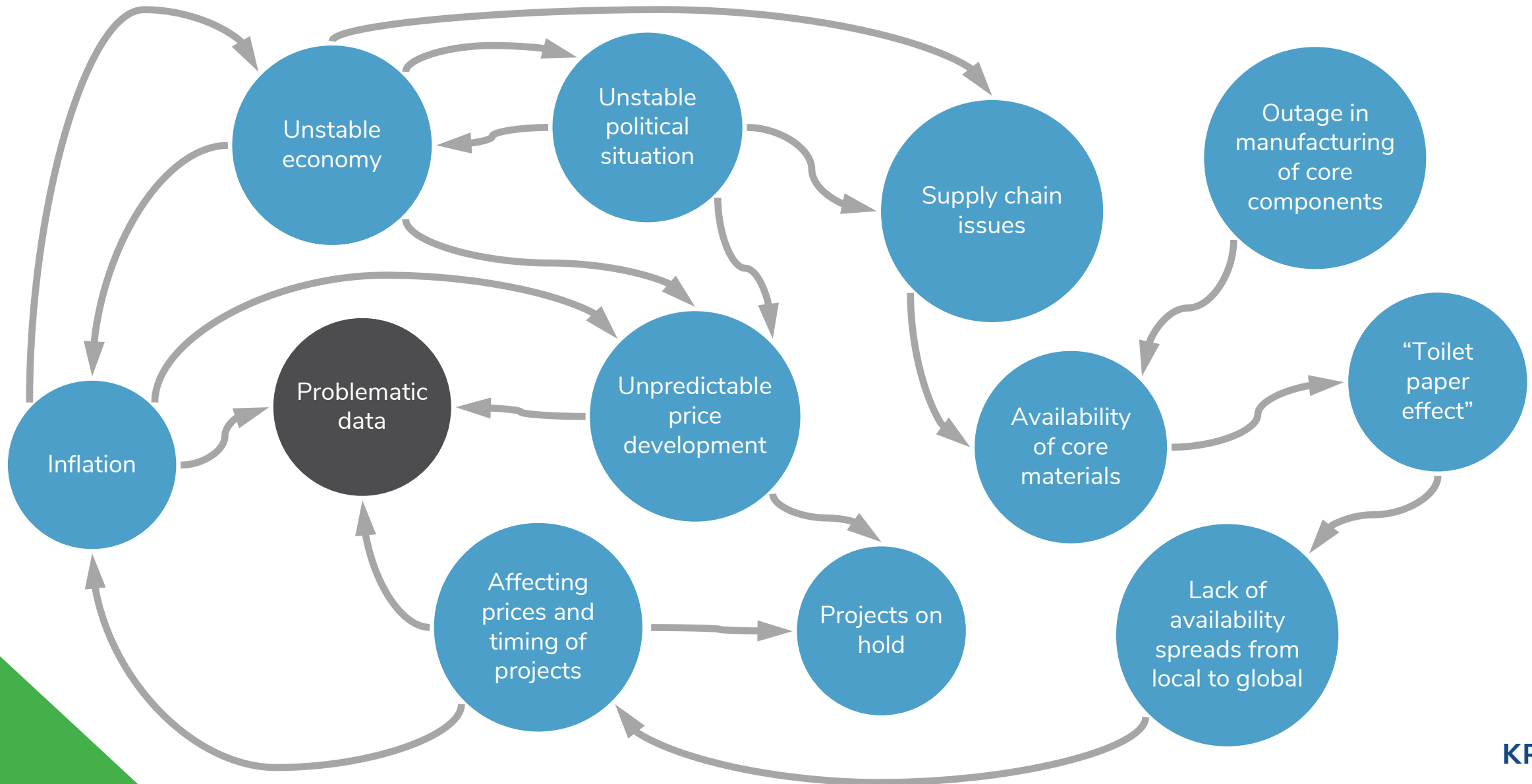
Skyrocketing prices for construction materials and other products

Small businesses at risk

Difficulties to budget cost and time for construction projects

Inflation

What Can Go Wrong



Where Are We Now

Russia's war in Ukraine, rising inflation fanned by soaring energy and food costs, and prolonged Covid-19 lockdowns in China's export hubs are all threatening the companies from Germany to the U.K.



Supply
chain



Energy



War in
Ukraine

Where Are We Now

Supply Chain

- Lockdown in Shanghai led to 20-30% drop in export volumes
- The shipment rates are 40% higher
- Demand has remained strong (in 2021, US import from China at ca \$43bln.) – all the capacity is booked, no matter what the rate is
- Supply chain chaos – empty shipping containers across the world are in the wrong place
- Estimated lead for shipping an item from China to USA takes 74 days longer
- Prolonged wait time means added costs for businesses
- Cargo ship delays affect “just-in-time” manufacturing – many companies reported disrupted production cycles
- Due to war in Ukraine, railway transport is no longer an option
- The cost of shipping container increased from \$3,000 to \$15,000

Where Are We Now

Energy

- The increase in energy prices over the past two years has been the largest since the 1973 oil crisis
- Gas and electricity prices will “remain high and volatile until at least 2023” according to long term forecasts quoted in a draft of the European Commission’s communication on energy prices
- Prices have already hit energy-intensive industries with high manufacturing costs and will likely increase prices for other commodities, including food
- Sustained high energy prices are hurting throughout the economy and are expected to remain a key driver of inflation

Where Are We Now

War in Ukraine

- Basic things like shipping pallets - made of Russian nails and wood from Belarus and Ukraine - are getting scarcer in Germany
- The EU's plan to ban Russian coal imports may further boost energy prices on the continent and lead to output cuts for many metal and chemical manufacturers
- In the event of a prolonged war, or additional sanctions on Russia, energy prices could be even higher and more volatile than currently projected.

Producer Prices: **Manufacture of Basic Metal**



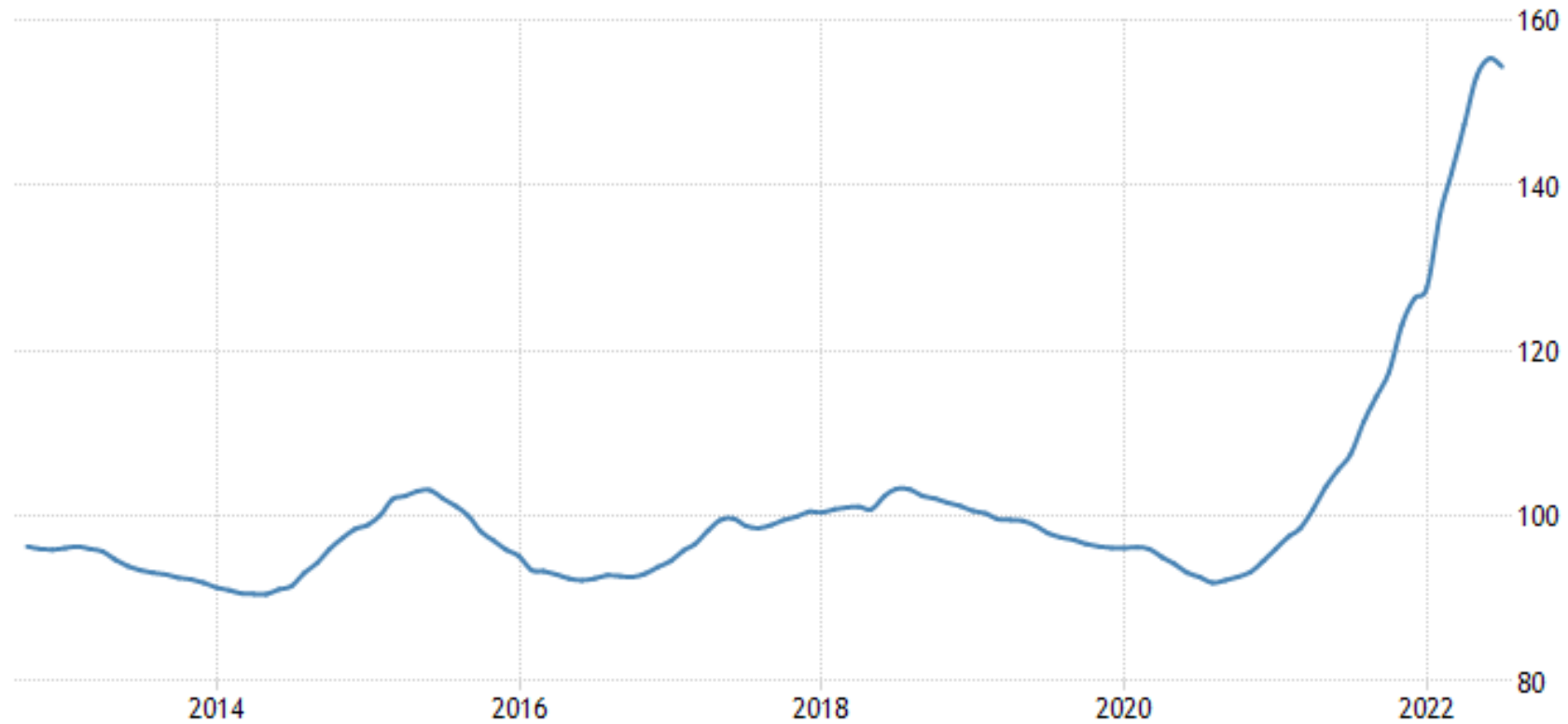
Source: Trading Economics

Producer Prices: Manufacture of Basic Iron, Steel and of Ferro-Alloys



Source: Trading Economics

Producer Prices: Aluminum Production



Source: Trading Economics

Producer Prices: Copper Production



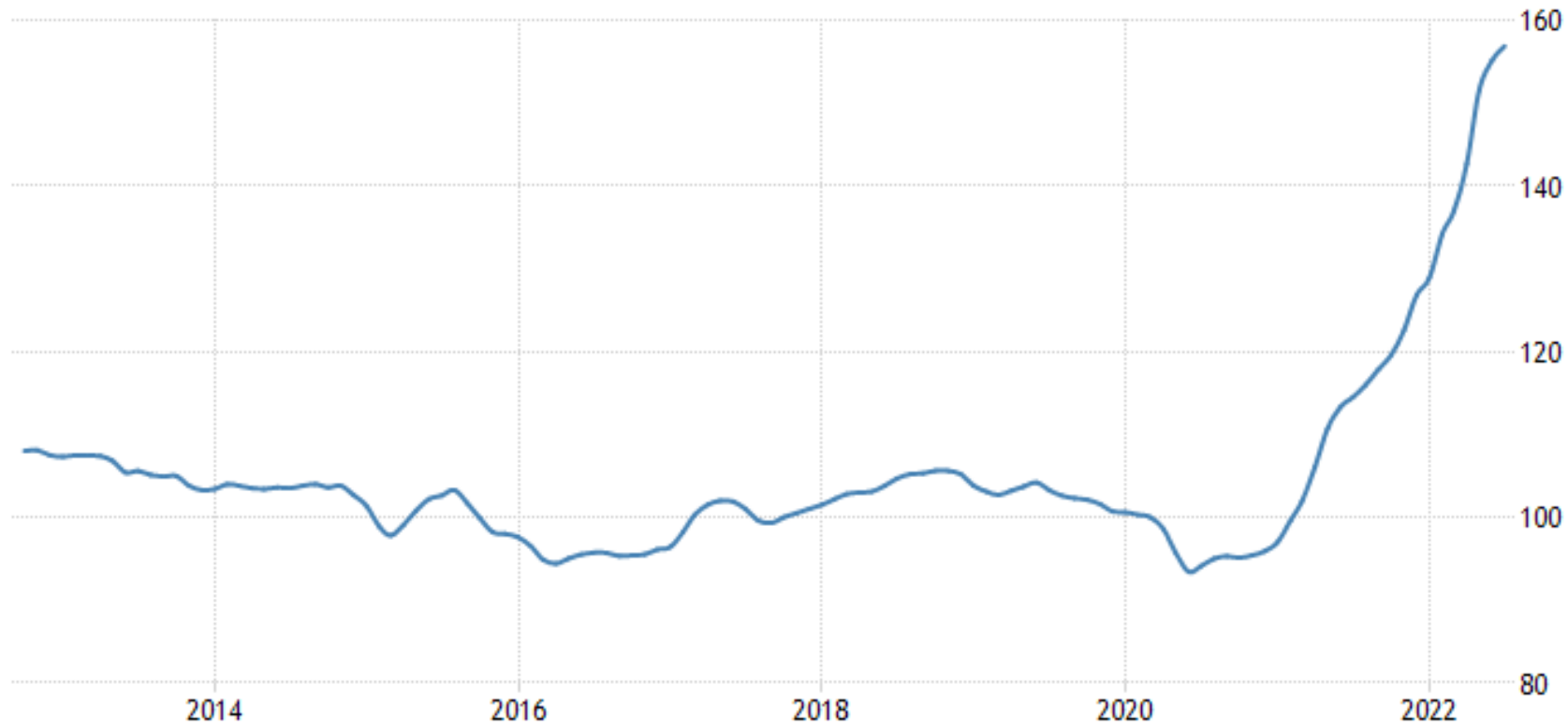
Source: Trading Economics

Producer Prices: Lead, Zinc and Tin Production



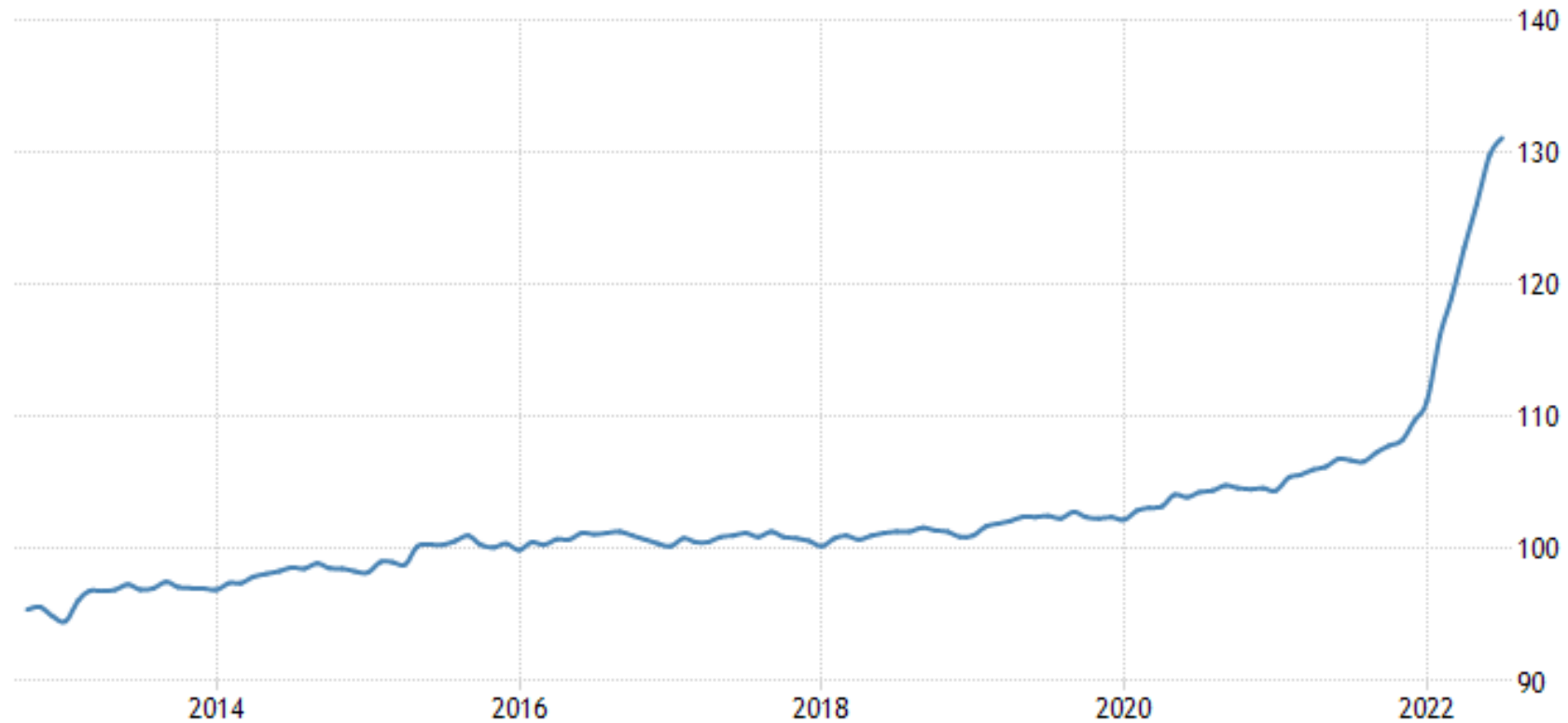
Source: Trading Economics

Producer Prices: Manufacture of Basic Chemicals, Fertilizers and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms



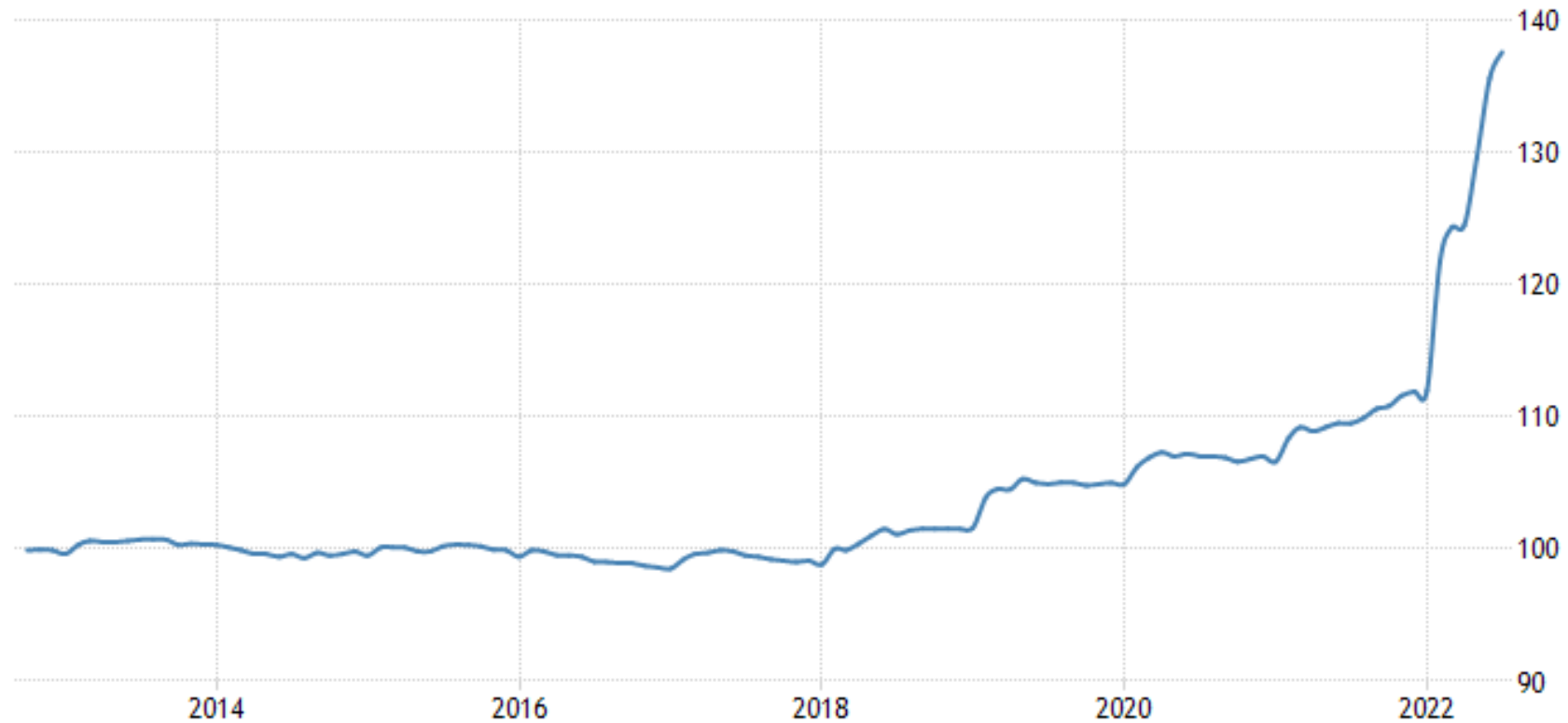
Source: Trading Economics

Producer Prices: Manufacture of Bricks, Tiles and Construction Products



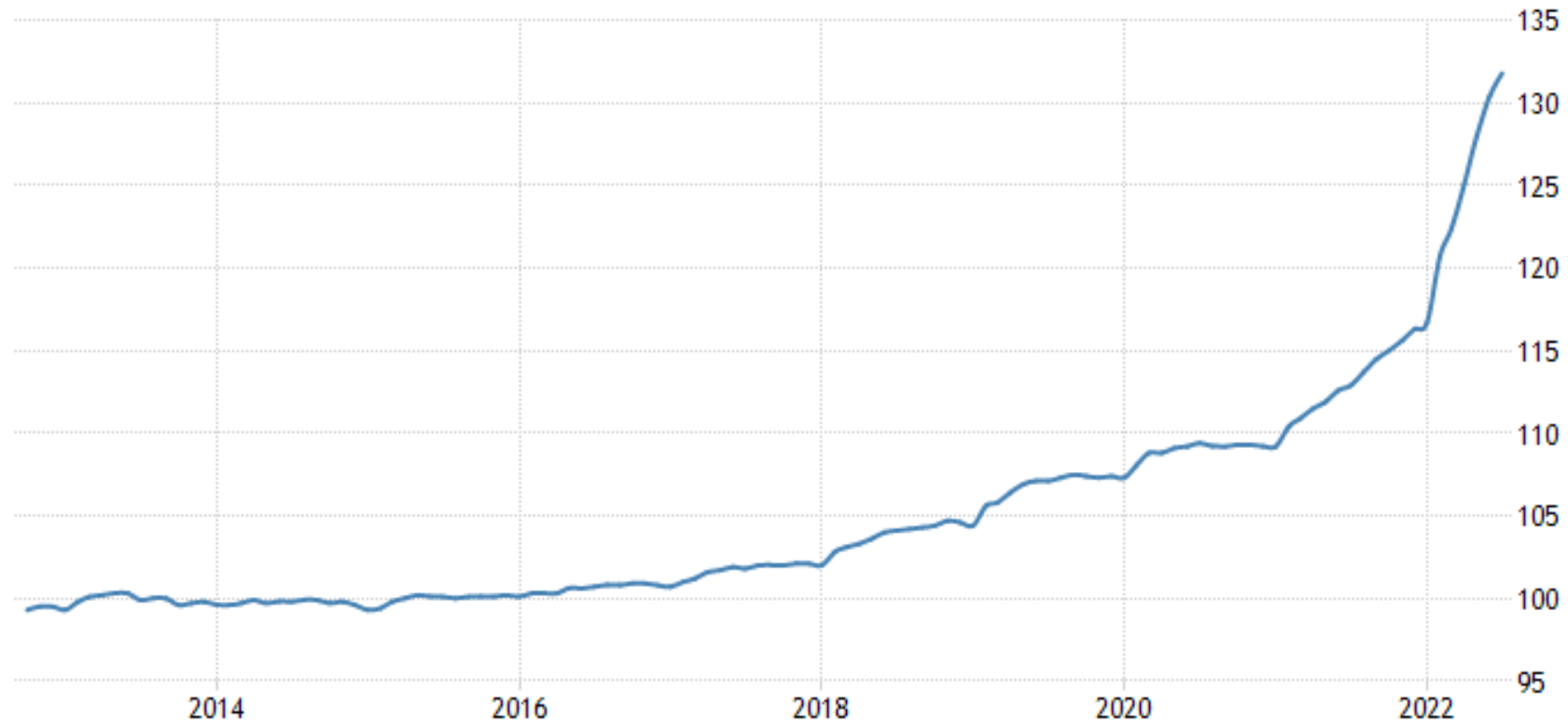
Source: Trading Economics

Producer Prices: Manufacture of Cement, Lime and Plaster



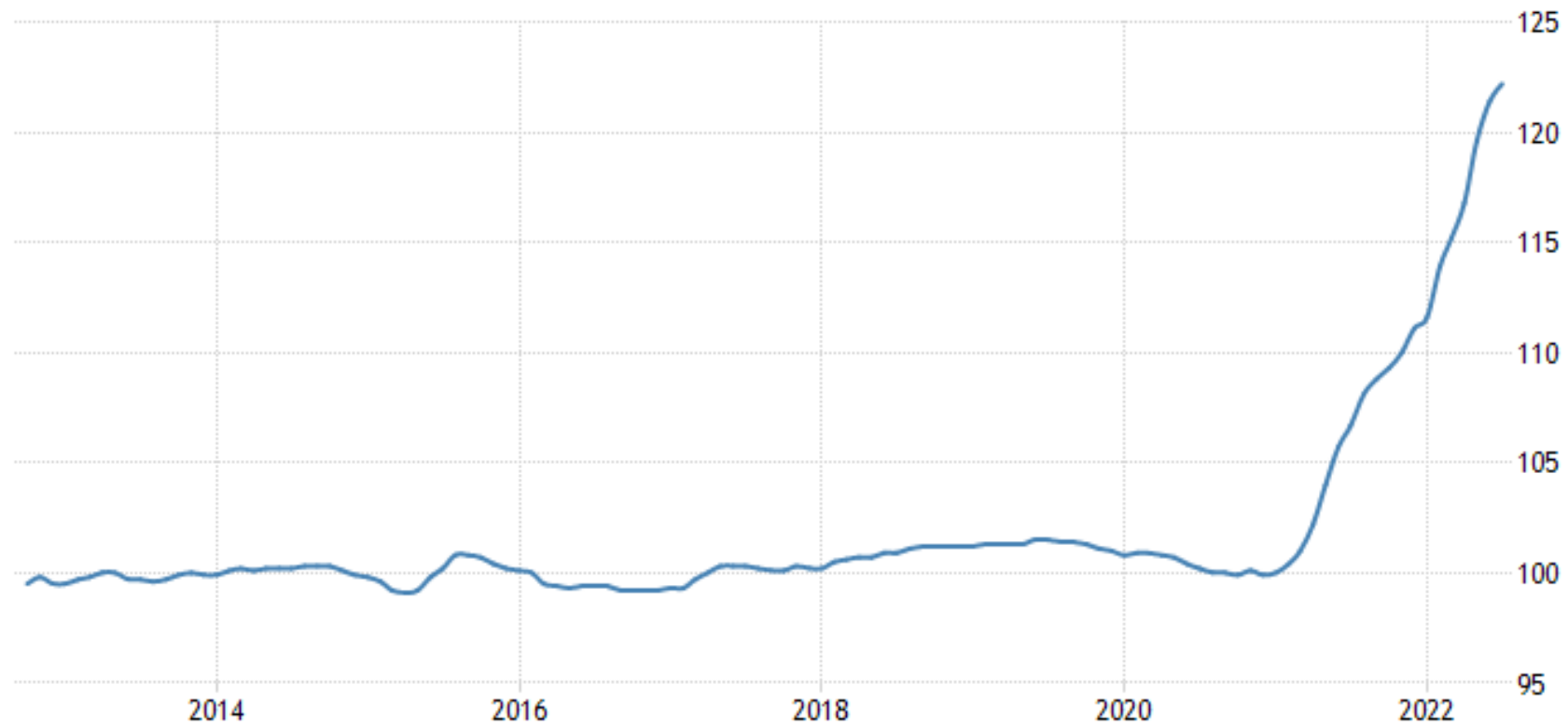
Source: Trading Economics

Producer Prices: Manufacture of Concrete Products for Construction Purposes



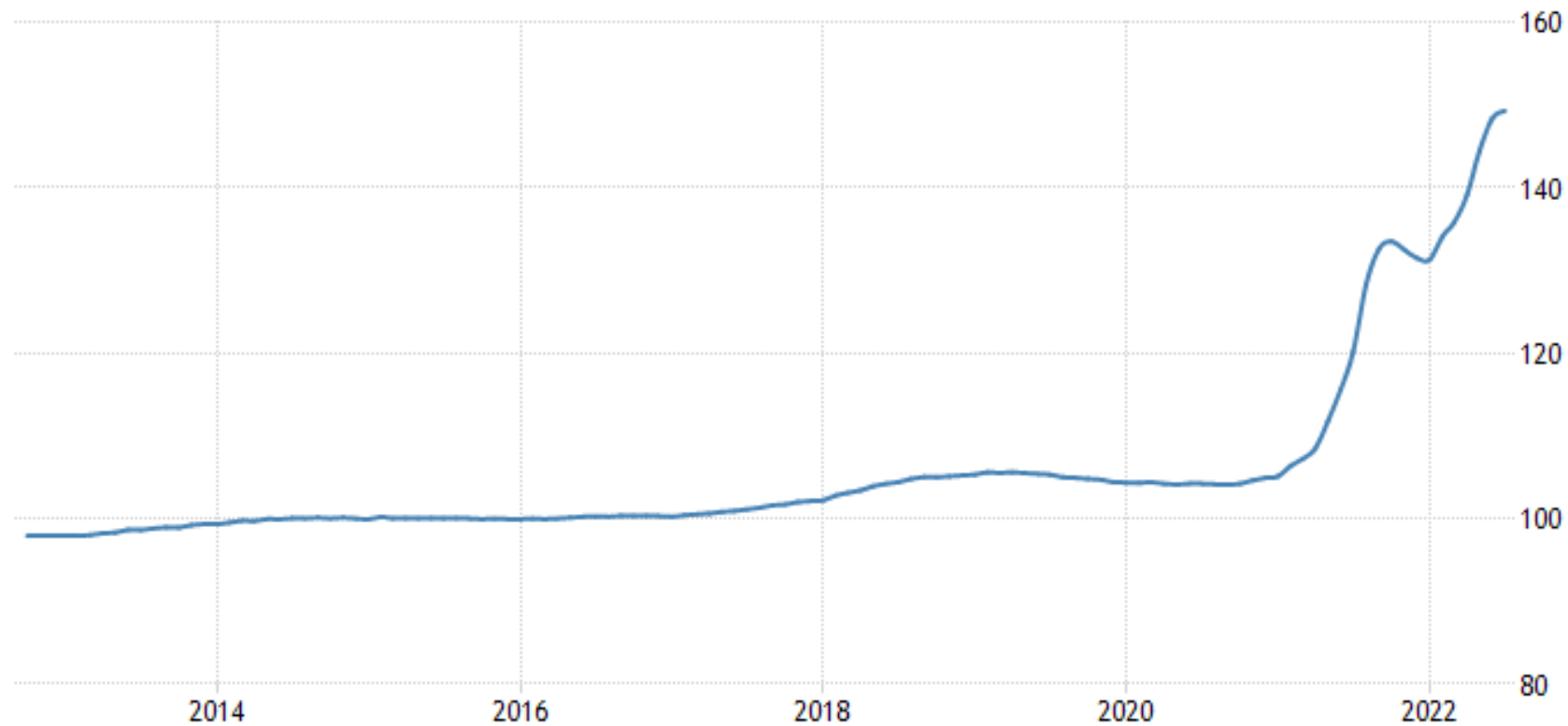
Source: Trading Economics

Producer Prices: Manufacture of Plastics Products



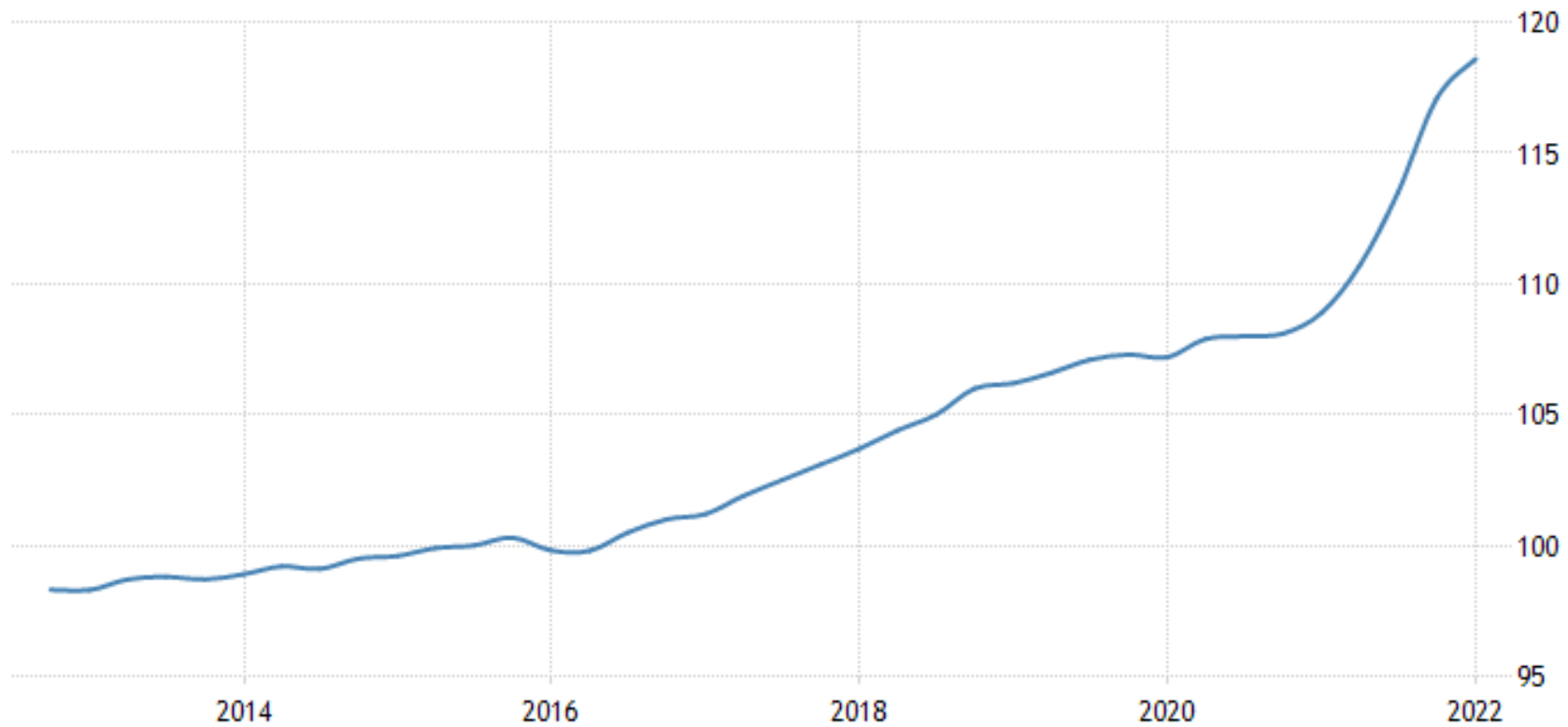
Source: Trading Economics

Construction Cost Index: Manufacture of Wood and of Products of Wood and Cork, Except Furniture



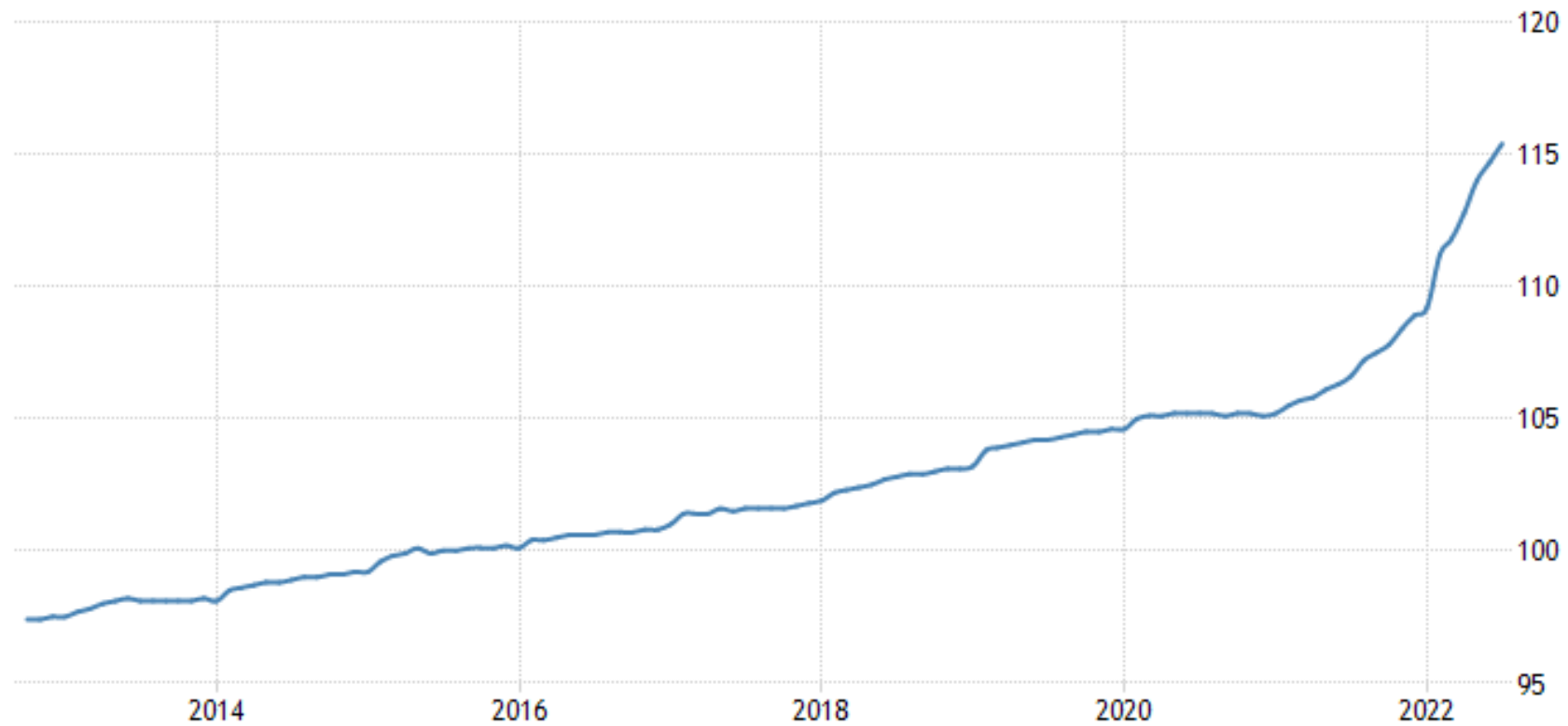
Source: Trading Economics

Construction Cost Index



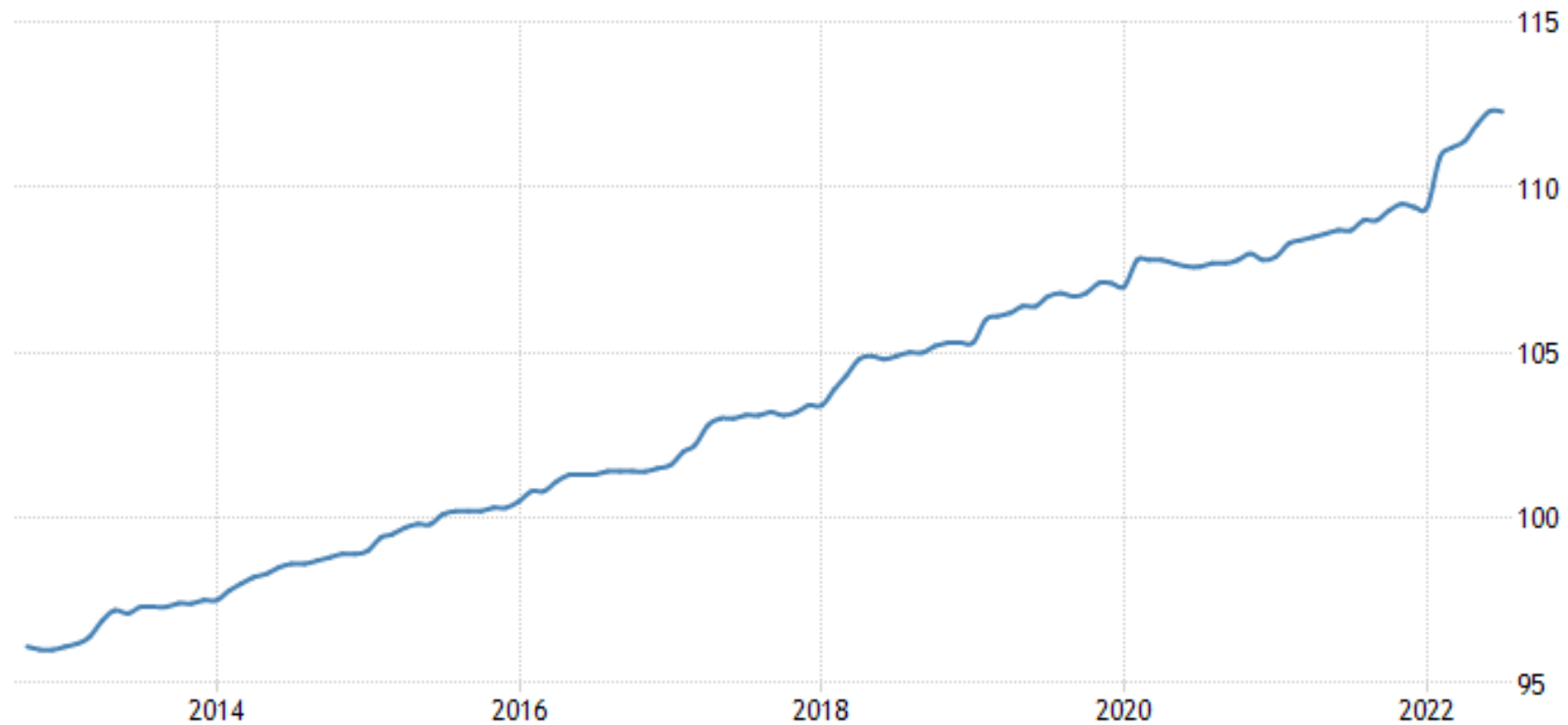
Source: Trading Economics

Producer Prices: **Manufacture of Machinery and Equipment**



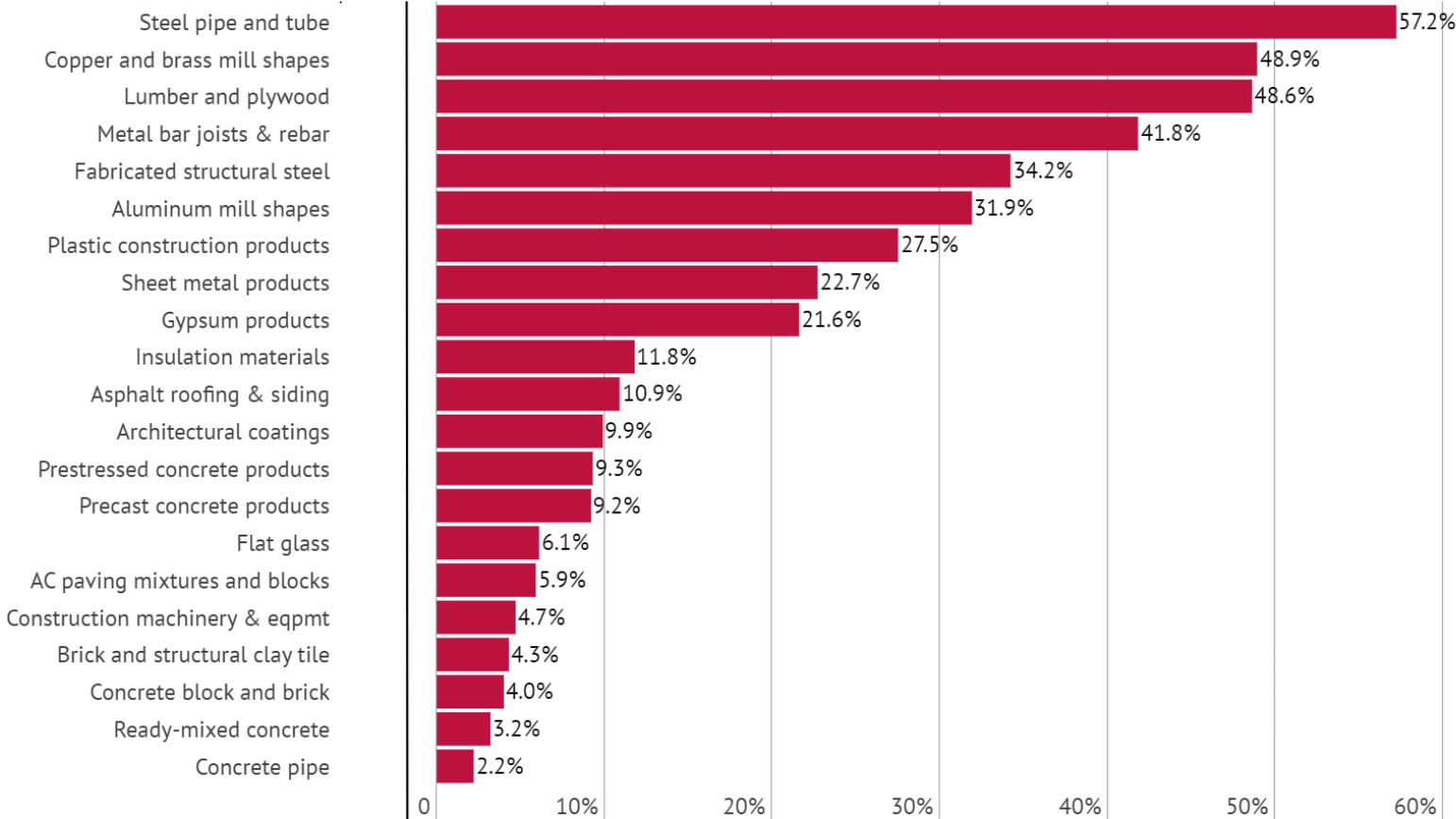
Source: Trading Economics

Producer Prices: Installation of Industrial Machinery and Equipment



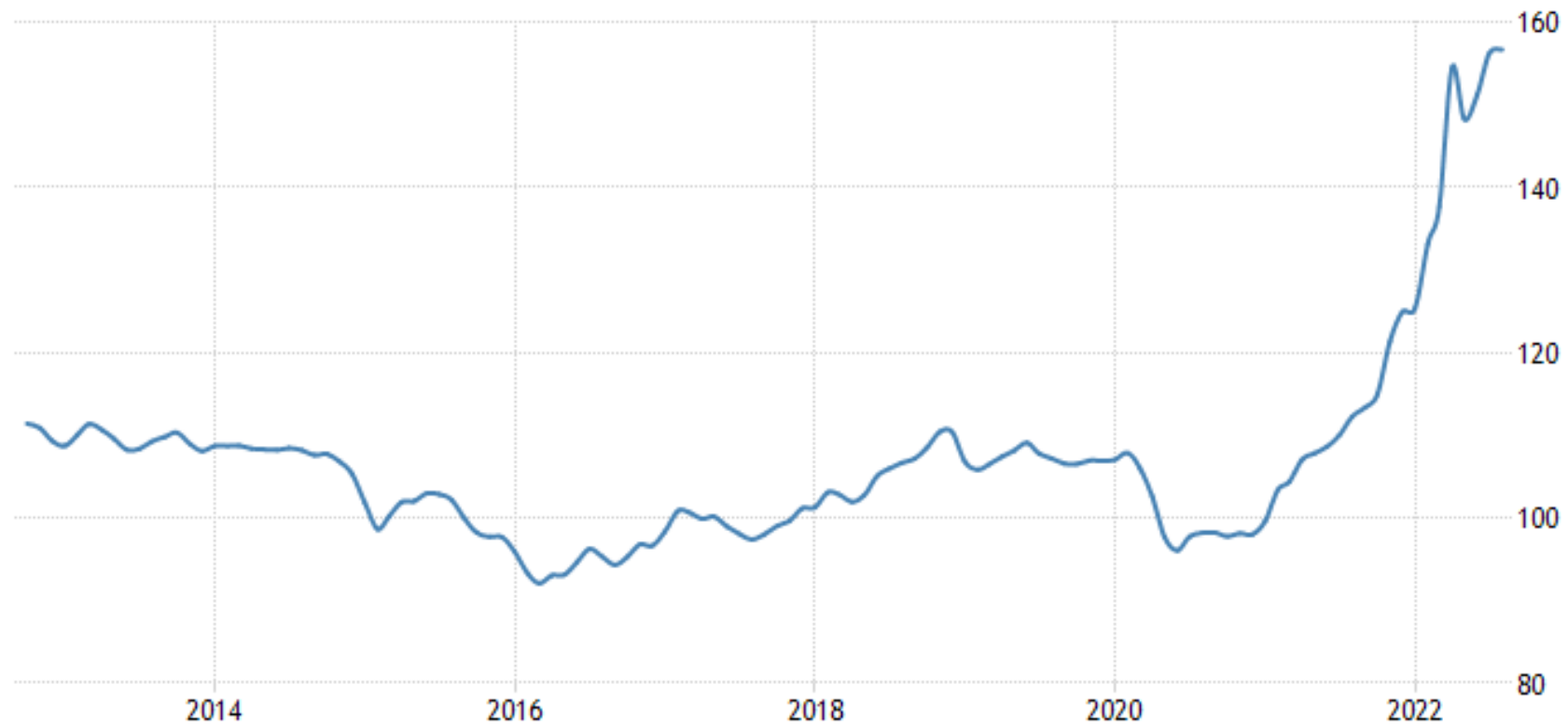
Source: Trading Economics

U.S. Construction Material Prices Movements: Last 12 Months



Source: Cumming

Producer Prices: Energy



Source: Trading Economics

Producer Prices: Extraction of Crude Oil and Natural Gas



Source: Trading Economics

Market Prices: Natural Gas



Source: Trading Economics

Market Prices: Crude Oil



Source: Trading Economics

Market Prices: Coal



Source: Trading Economics

Market Prices: Aluminum



Source: Trading Economics

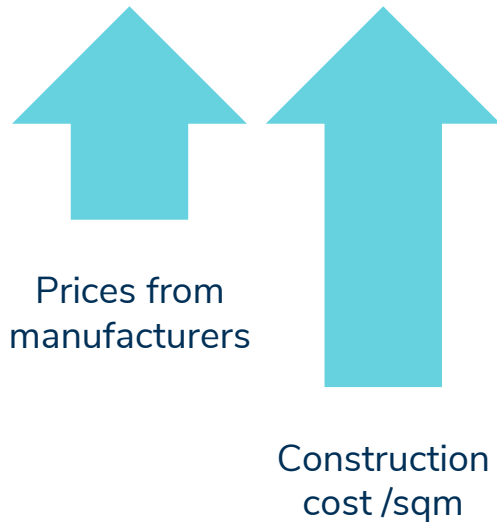
Market Prices: Steel



Source: Trading Economics

Replacement Cost New

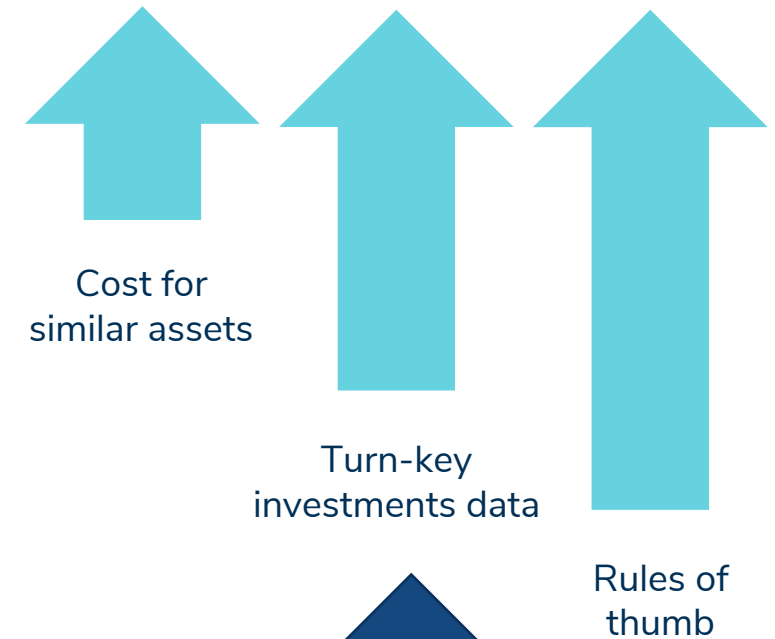
Direct costing



Trending



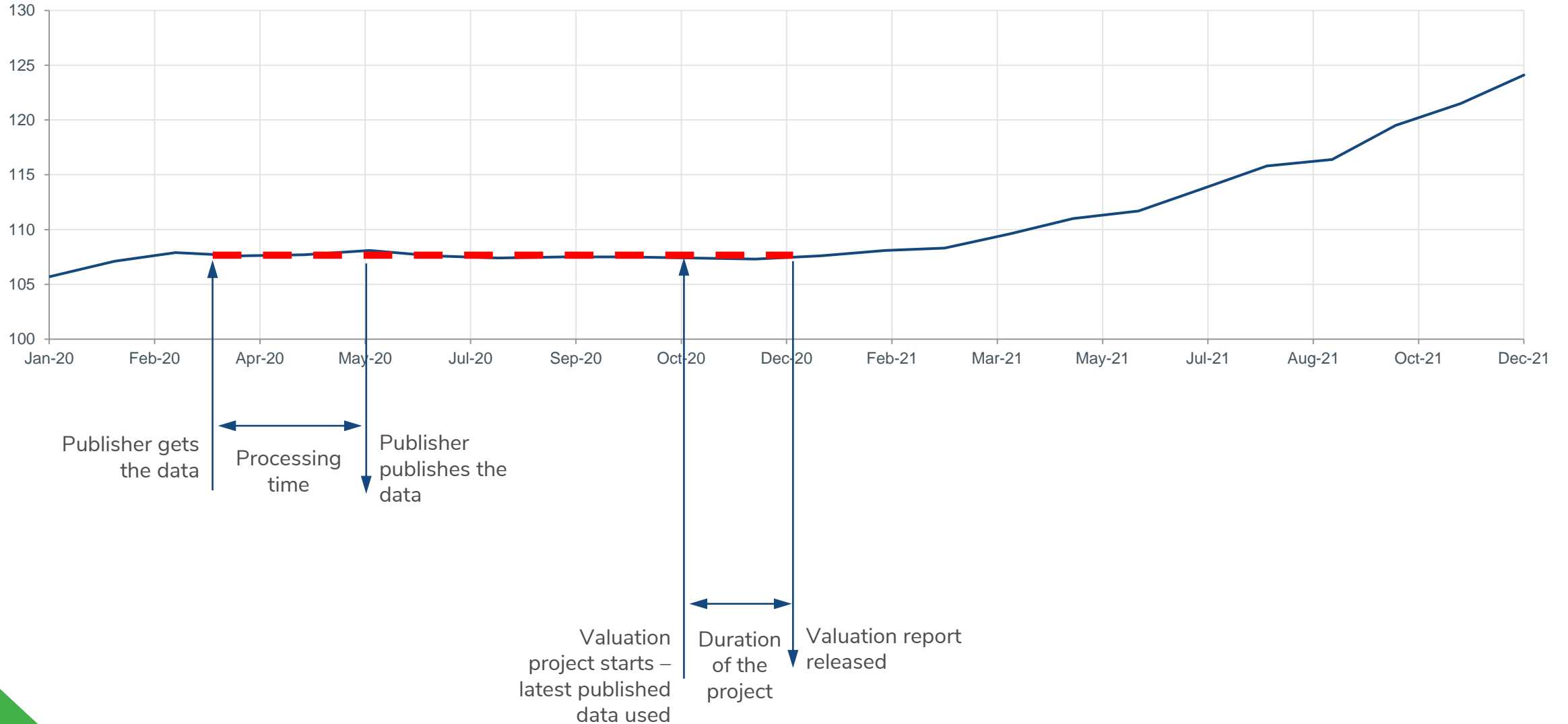
Benchmarking



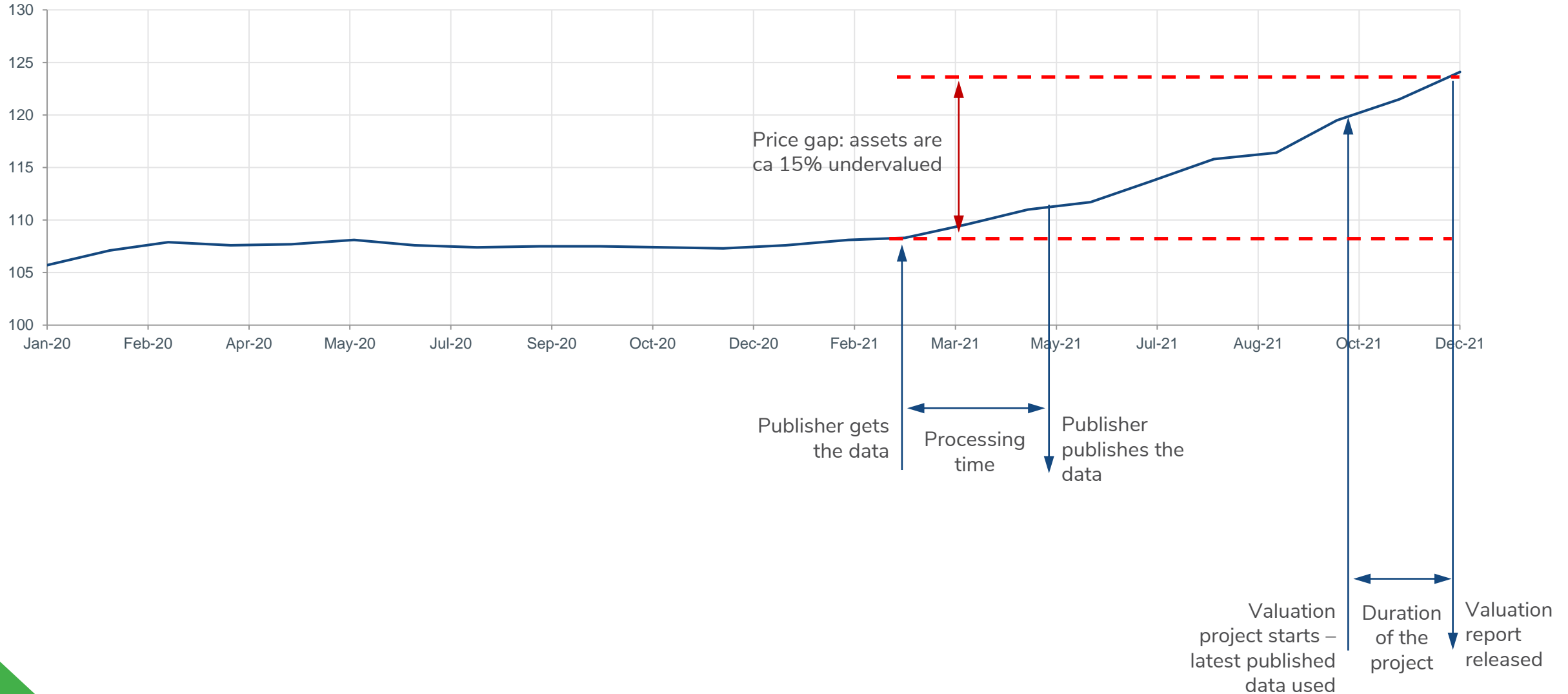
Due to rapid inflation quickly outdated

Due to projects on hold - no benchmarks

How Inflation Affects the Replacement Cost Accuracy



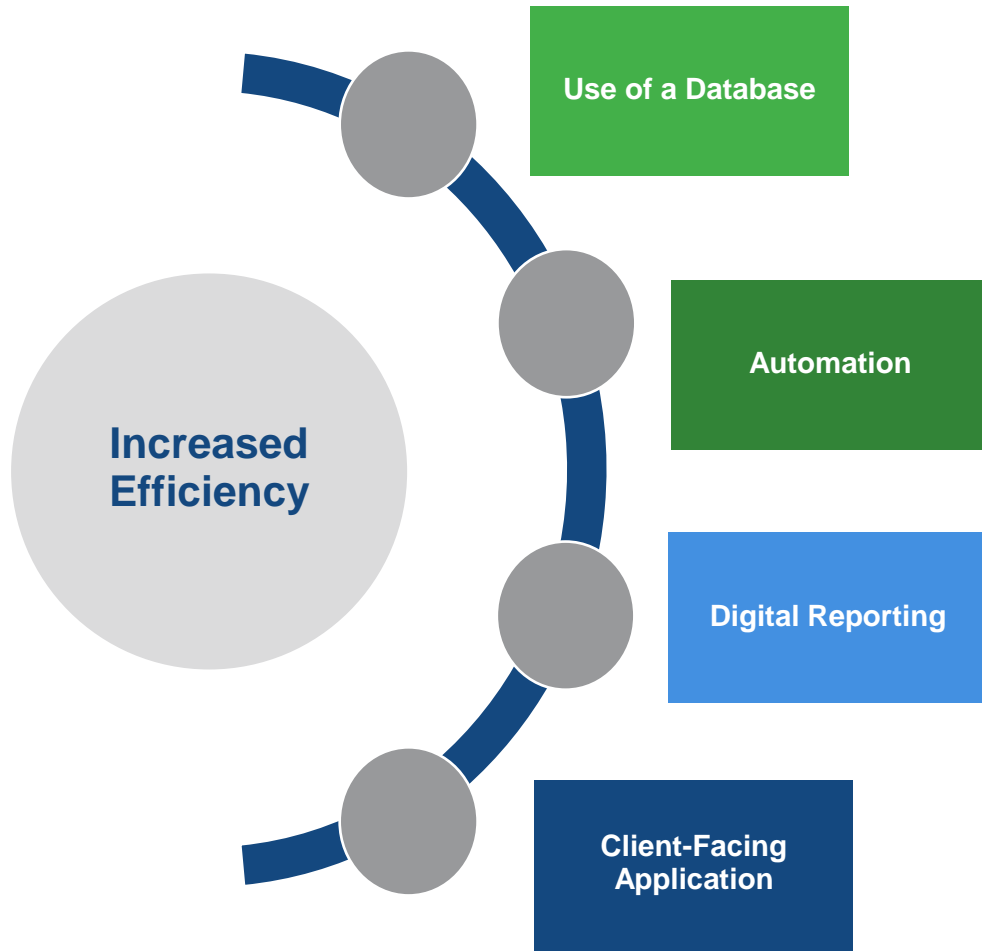
How Inflation Affects the Replacement Cost Accuracy



Questions?

Database & Automation

How We Work



- All data, functions, knowledge in a centralized place for consistency and ease of access.
- Convert Excel models into code that can process data at scale.
- Report results digitally using PowerBI with enhanced visual representations of the data.
- We are working on an Automated Valuation Application with a user interface and more automation.

Database

Statistical Offices

- Producer Price Indices
- Construction Price Indices

New Cost Data

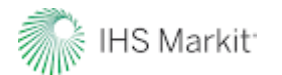
- Construction costs for Real Estate
- Unit costs for Machinery & Equipment

Kroll Standards

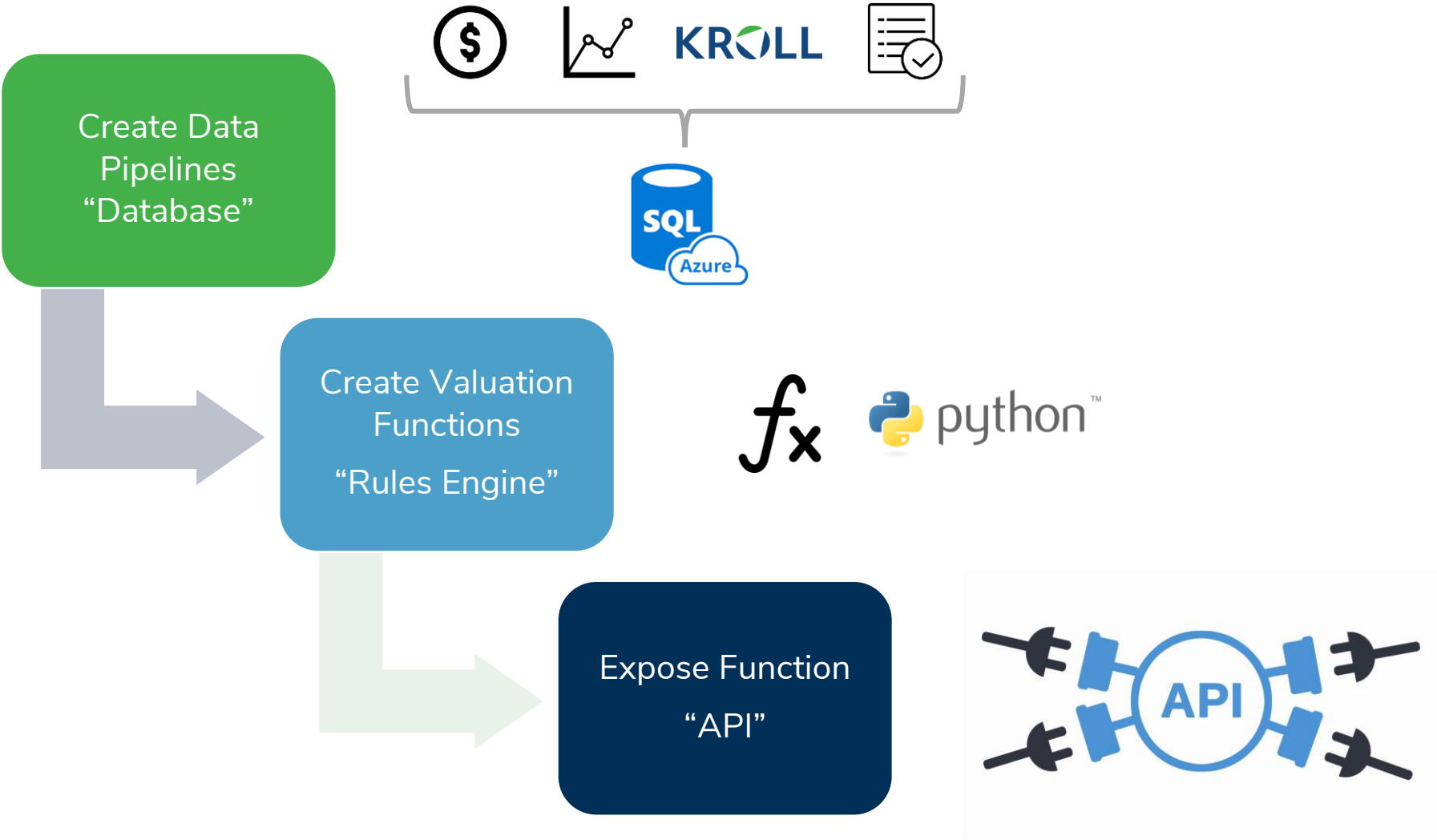
- Valuation Assumptions
- Naming Conventions

Past Projects Results

- Industry insights
- Benchmarking Data



Automation



Digital Reporting (1/2)

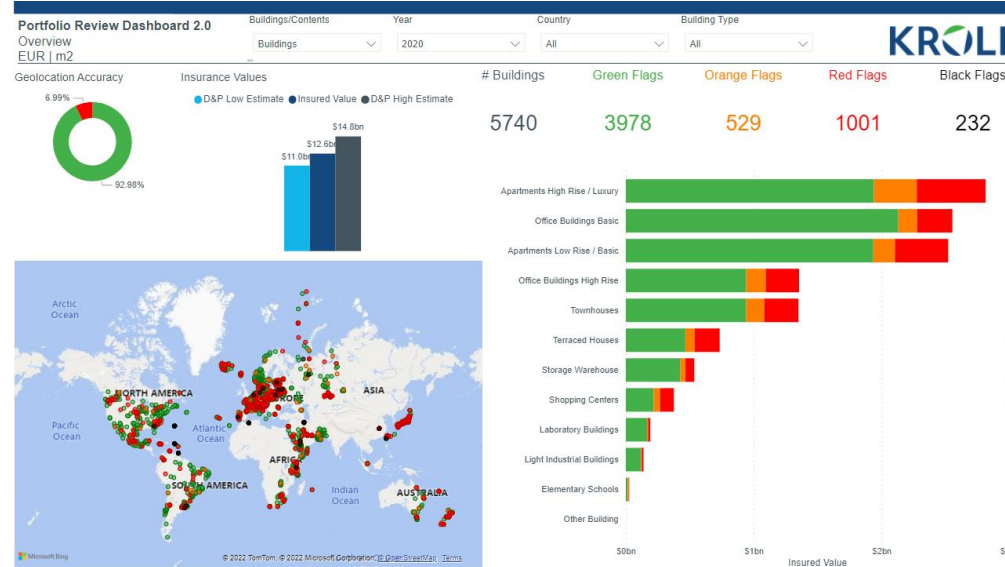
Site Prioritisation

Portfolio Overview

- Green flags indicate that the declared value is appropriate.
- Orange flag means value is slightly outside the range but acceptable.
- Red flags indicate a potential risk.
- Black flags indicate there was not sufficient information available.

Outlier Analysis

- Statistical analysis is performed on the unit costs of comparable buildings or sites across the portfolio to define a lower and upper range for client and Kroll data.
- Values outside this range are “red flags”.

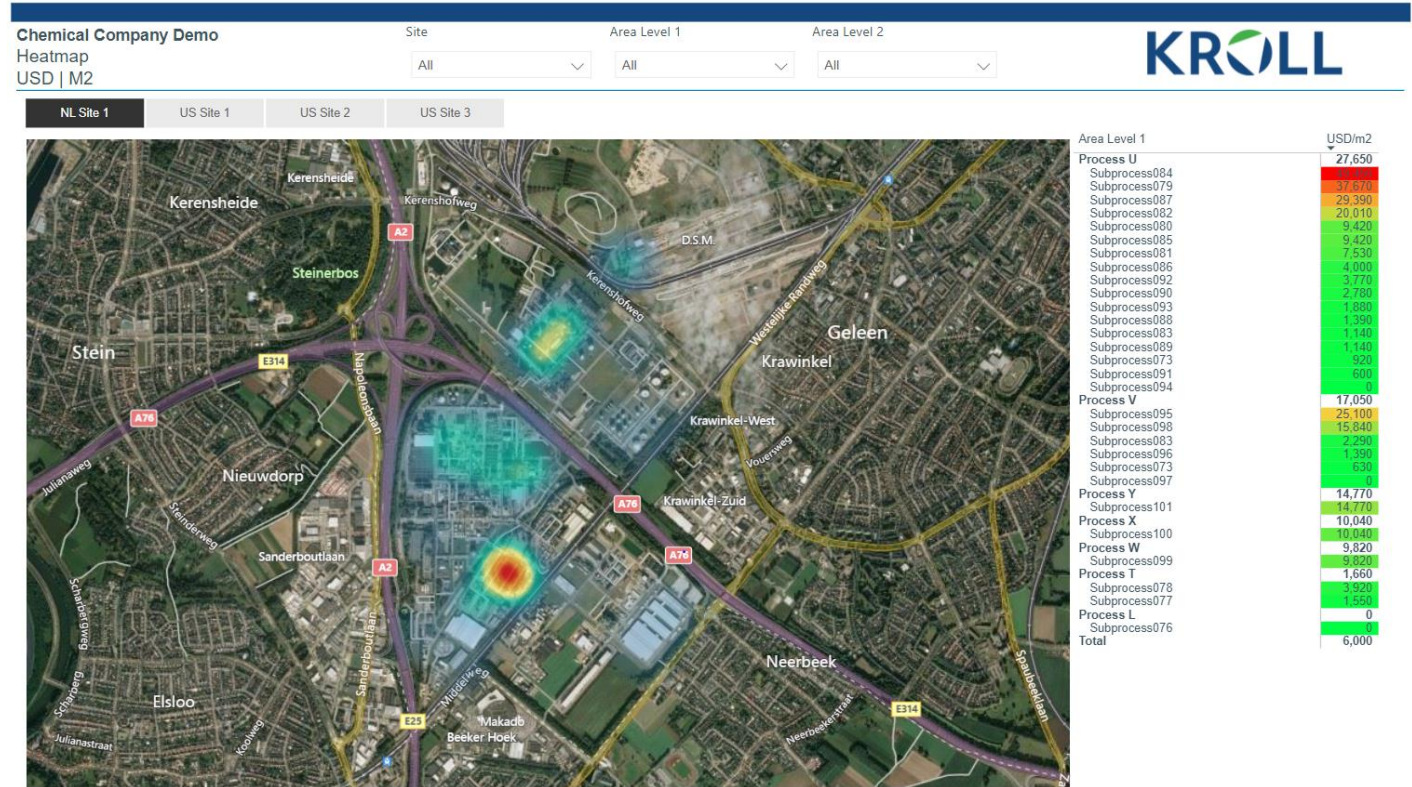


Digital Reporting (2/2)

Heat Mapping

Risk Heat Mapping Applications

- Facilitate Estimated Maximum Loss (EML) calculations, whereby flood, fire, or blast radius from different risk scenarios can be directly translated into monetary damage
- Create value heatmaps to view and analyse value concentrations, targeting high/low risk areas within a production facility and identifying any anomalies to be explored further



Application - Automated Valuation Engine



Data Collection

FAAS platform enables property data collection through user friendly UI

- Occupancy
- Sum Insured
- Address
- Gross Floor Area



Automated Valuations Engine

The FAAS Valuation Engine performs quick and credible automated valuations on the property data



Replacement Cost Estimates

Replacement cost are provided in form of reports using cutting edge technology with enhanced visual representations of the data

- Valuation Reports
- Adequacy assessment
- Portfolio Analysis

Kroll Automated Valuation Tool

Property View

Papendorpseweg 88, Utrecht

EXPERT VALUATION COMPLETE

Details Relationship Graph History Communications

Property Summary

Account
ABC

Country
NL

Location
Papendorpseweg 88, Utrecht, Utrecht 3528 BJ, NLD

Adequacy Estimator **Kroll Valuation** Policy Details

Valuation Summary

Value Adequacy
61%
Urgent Gap

Property
Expert Valuation Complete

Client Declared Value - Building (€)	CDV / m2 (€)
12,489,051	2,020.88
Current Kroll RCN Valuation - Building (€)	Kroll Value / m2 (€)
20,350,000	3,292.88
Amount (Under) / Over Insured	
-7,860,949	

Valuation History

- Clean interface with key valuation data
- View and fields can be easily configured to match any process
- Maintains valuation history for trend reporting

Kroll Automated Valuation Tool

Portfolio Review

Portfolio Summary



Last Updated: Aug 31, 2022 6:25 PM

A-2 Warehousing

Portfolio Details

% Insured Coverage

Valuation Recommended : 85%

Total Customer Declared Value - Building (\$)

\$3,348,043,350

Total Kroll RCN Valuation - Building (\$)

\$3,950,810,000

Total Amount (Under) / Over Insured

-\$602,766,650

Highest Single Customer Declared Value - Building (\$)

\$122,330,000

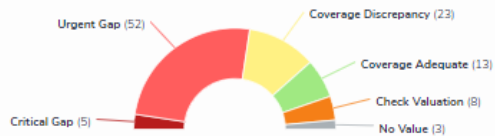
Highest Kroll RCN Value - Building (\$)

\$122,730,000

Number of Properties

104

of Properties by Adequacy



of Properties by Valuation



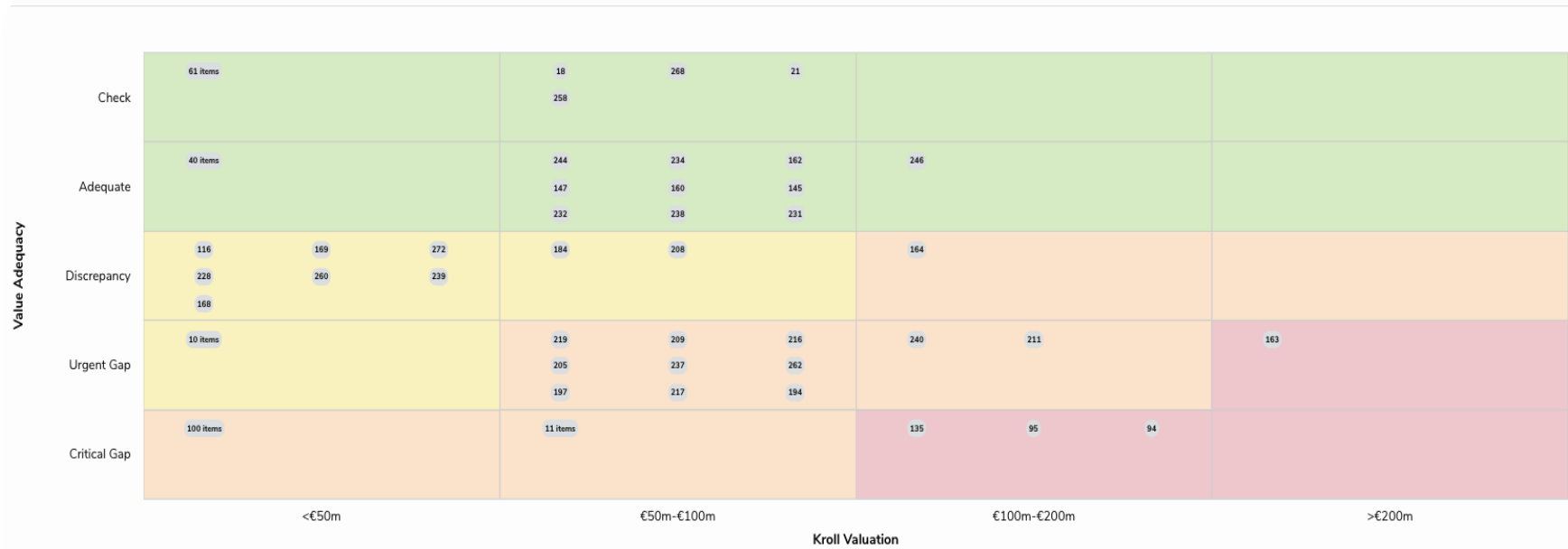
Property Details

Search Table...

Property Name	Property State	Country	Client Declared Value - Building (\$)	Current Kroll RCN Valuation - Building (\$)	CDV / SqFt (\$)	Value Adequacy	Kroll Value / SqFt (\$)
800 East Canal Street Richmond Richmond City VA 2	VA	US	\$0	\$970,000	\$0.00	Critical Gap: 0%	\$90.44
515 N Flagler Dr. West Palm Beach Palm Beach County FL	FL	US	\$0	\$820,000	\$0.00	Critical Gap: 0%	\$223.13
12400 Coit Road, Suite 970 Dallas Dallas TX	TX	US	\$215,000	\$650,000	\$98.67	Critical Gap: 33%	\$298.30
80 Tyson Drive Winchester Frederick VA	VA	US	\$0	\$39,450,000	\$0.00	Critical Gap: 0%	\$97.55
3711 San Gabriel Mission Hidalgo TX	TX	US	\$0	\$8,640,000	\$0.00	Critical Gap: 0%	\$115.18
One Penn Plaza, Suite 4015 New York New York NY	NY	US	\$3,347,000	\$5,800,000	\$168.94	Urgent Gap: 58%	\$292.75
1315 Dean Forest Rd. Savannah Chatham GA	GA	US	\$6,599,000	\$9,830,000	\$74.56	Urgent Gap: 67%	\$111.07
9701 New Decade Drive Pasadena Harris TX	TX	US	\$7,368,000	\$11,320,000	\$71.63	Urgent Gap: 65%	\$110.05
3686 South Central Ave. Rockford Winnebago IL	IL	US	\$8,467,000	\$9,650,000	\$91.04	Coverage Discrepancy: 88%	\$103.76
3500 North Loop Road McDonough Henry GA	GA	US	\$9,223,000	\$11,110,000	\$148.24	Coverage Discrepancy: 83%	\$178.57
235 Apple Valley Rd Duncan Spartanburg SC	SC	US	\$9,353,000	\$17,110,000	\$52.75	Urgent Gap: 55%	\$96.49
1704 S. Interstate 45 Hutchins Dallas TX	TX	US	\$9,986,000	\$13,180,000	\$82.56	Coverage Discrepancy: 76%	\$108.96
231 Apple Valley Rd Duncan Spartanburg SC	SC	US	\$10,298,000	\$18,920,000	\$52.54	Urgent Gap: 54%	\$96.53
417 Apple Valley Road Duncan Spartanburg SC	SC	US	\$11,223,000	\$18,820,000	\$57.55	Urgent Gap: 60%	\$96.51
LSAC Crossville LLC Crossville TN	TN	US	\$0	\$0	\$0.00	Invalid Result: NaN	\$0.00
1133 Poplar Creek Rd. Henderson Vance NC	NC	US	\$12,195,000	\$16,070,000	\$82.71	Coverage Discrepancy: 76%	\$108.99
7820 Reidville Road Greer Greenville SC	SC	US	\$12,417,000	\$12,790,000	\$95.69	Coverage Adequate: 97%	\$98.57

Kroll Automated Valuation Tool

Portfolio Analysis



- Configurable reporting includes heat maps to help identify high risk properties within a customer portfolio

Details

Property Name	Country	Client Declared Value - Building (€)	Current Kroll RCN Valuation - Building (€)	Value Adequacy
Al. Jerozolimskie 142B Warsaw, Poland	PL	67,142,998	1,339,000	Check: 5014%
Al. Jerozolimskie 142A Warsaw, Poland	PL	55,191,448	4,111,000	Check: 1343%
Papendorpseweg 88-104, Utrecht	NL	43,948,340	20,350,000	Check: 216%
Papendorpseweg 100, Utrecht	NL	7,204,860	72,400,000	Critical Gap: 10%
Papendorpseweg 104, Utrecht	NL	16,533,494	15,750,000	Adequate: 105%
Papendorpseweg 100, Utrecht	NL	11,887,961	72,400,000	Critical Gap: 16%

Kroll Automated Valuation Tool

Data Enrichment





The screenshot displays the Kroll logo at the top center. Below it, a message reads: "Please review and correct the information below." The section is titled "Property Details". The first question is "What is the total floor area of this building in m2?", with a text input field containing the value "1260". The second question is "Please select the building frame type that best describes the building construction.", followed by five radio button options: "Concrete Block", "Fire Protected Steel Frame", "Reinforced Concrete Frame", "Solid Brick", and "Steel Frame". The third question is "How many floors are in this building?", with an empty text input field.









Option to use the inbuilt survey functionality to close data gaps with either your engineering team, customer or their broker

Kroll Automated Valuation Tool

No code Platform, Drag and Drop Rules

 **Send to Algorithm** 

TRANSITIONS

Passed	⇒ Transitions to	Algorithmic Valuation Complete		
Building Insured >\$50m	⇒ Transitions to	Flagged For Kroll Review		
Listed = Yes	⇒ Transitions to	Flagged For Kroll Review		
% Insured Coverage	⇒ Transitions to	Flagged For Kroll Review		

[+ ADD TRANSITION](#)

Without needing to code, administrators can set workflow and validation rules to route properties depending on their risk level or any other data point in the system

Questions?

Thank You



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About Kroll

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