

Financial Review of the Global Oil and Natural Gas Industry: 2020



Petroleum and Liquid Fuels Markets Team

May 2021

Key findings for 2020

- Brent crude oil daily average prices were \$43.21 per barrel in 2020—33% lower than 2019 levels and the lowest annual average since 2004.
- In this study of 92 companies, the combined petroleum liquids production decreased 5% in 2020 from 2019, and natural gas production decreased 6%.
- As a result of both relatively few discoveries and downward proved reserves revisions, total proved reserves declined 9% in 2020.
- Finding plus lifting costs decreased 5% from 2019 to 2020.
- Several acquisitions and company dissolutions in 2020 reduced the total number of companies in this study from 102 in 2019 to 92 in 2020.
- Most refiners' earnings per barrel processed were negative in 2020.

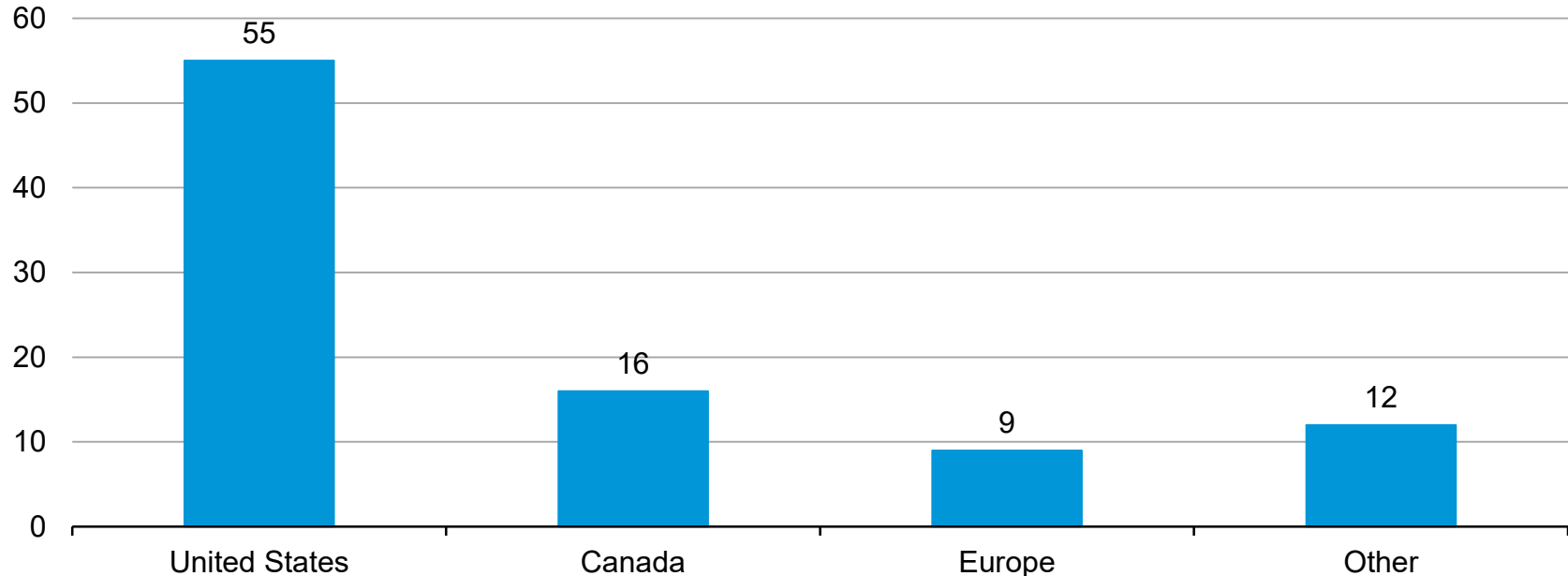
Note: The 92 companies analyzed in this study publish publicly available financial statements. A full list of the companies included and a glossary of terms begin on slide 24.

Upstream

Most company headquarters included in our study were located in the United States

Geographic distribution of global oil and natural gas company headquarters, 2020

number of companies



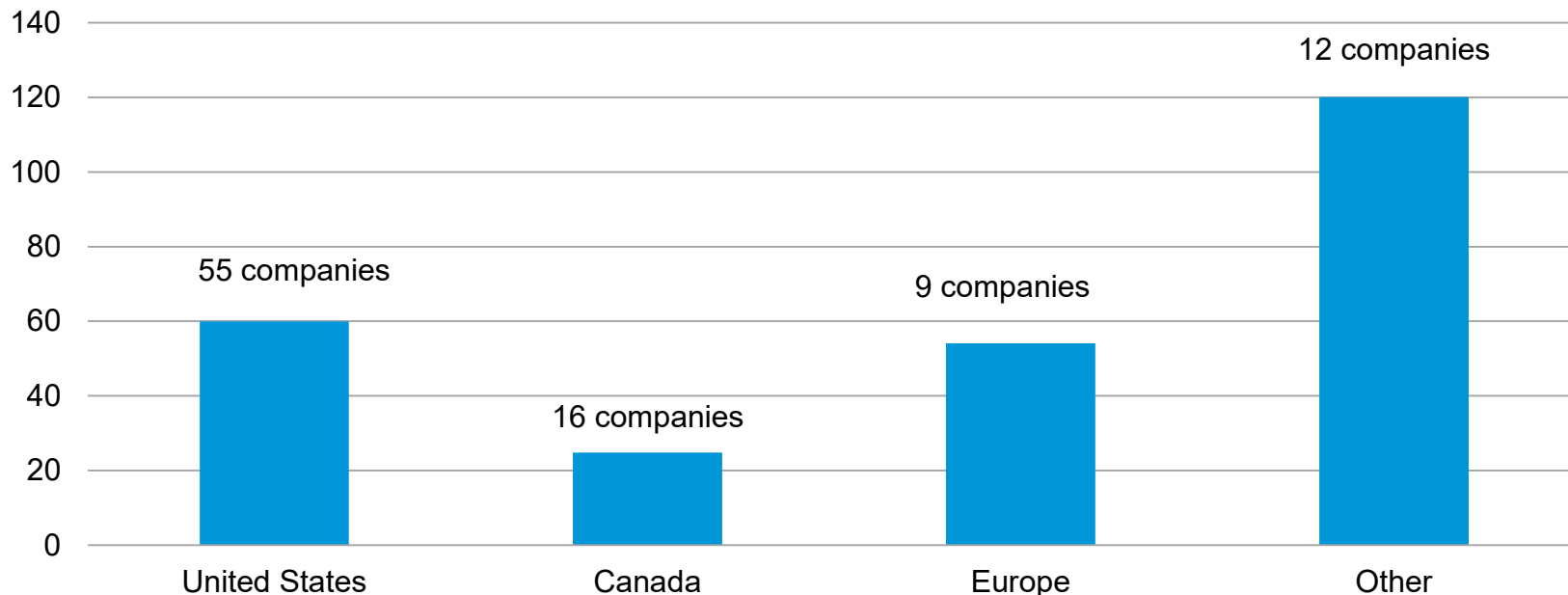
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: *Other* includes Argentina, Brazil, Chile, China, Colombia, Mexico, Thailand, and Russia

Global oil and natural gas company proved reserves were highest in the *other* category

Proved reserves of global oil and natural gas companies by region of headquarters, 2020

billion barrels of oil equivalent



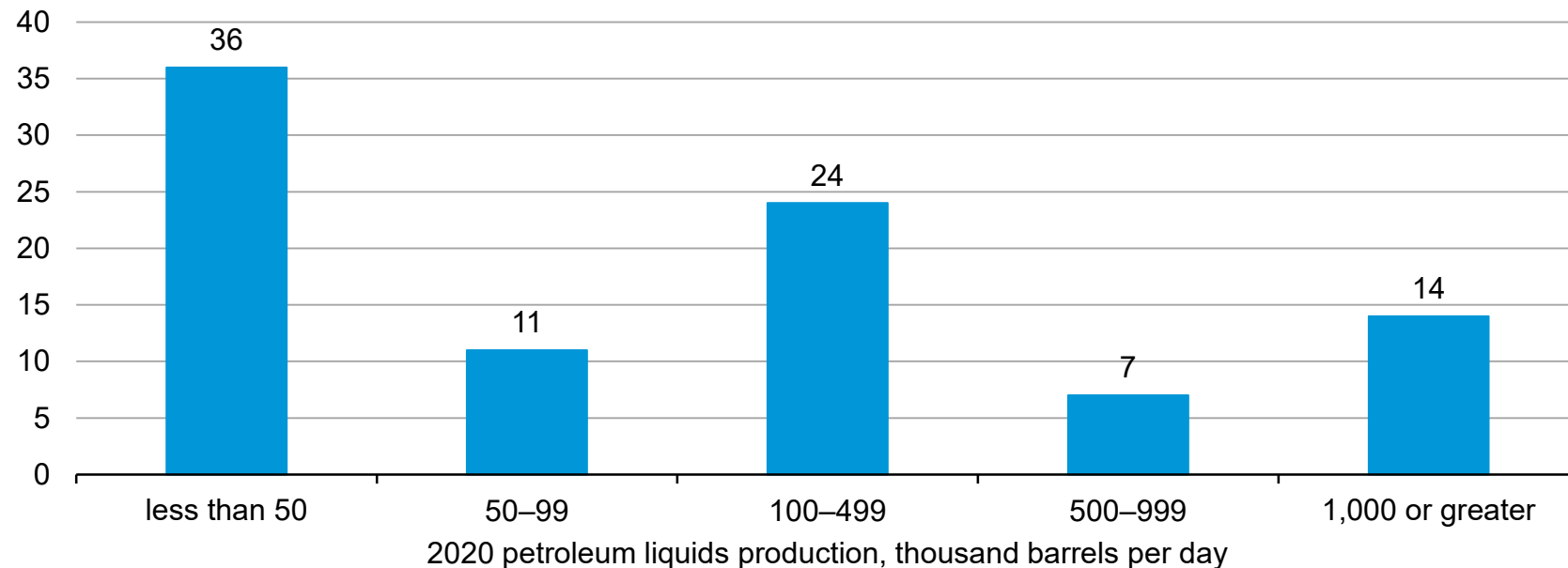
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: *Other* includes Argentina, Brazil, Chile, China, Colombia, Mexico, Thailand, and Russia

Almost 40% of companies we included produced less than 50,000 barrels per day in 2020

Distribution of companies by volume of petroleum liquids produced, 2020

number of companies

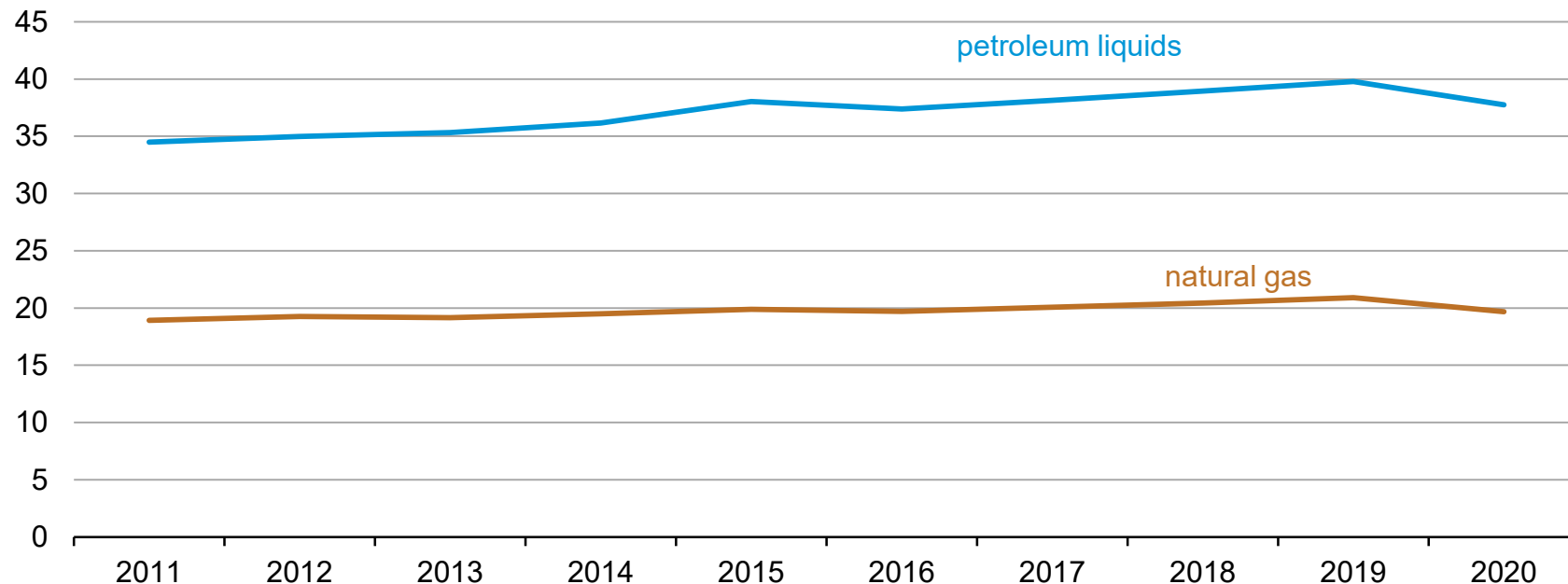


Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Production from the oil and natural gas companies declined in 2020 compared with 2019

Petroleum liquids and natural gas production, 2011–20

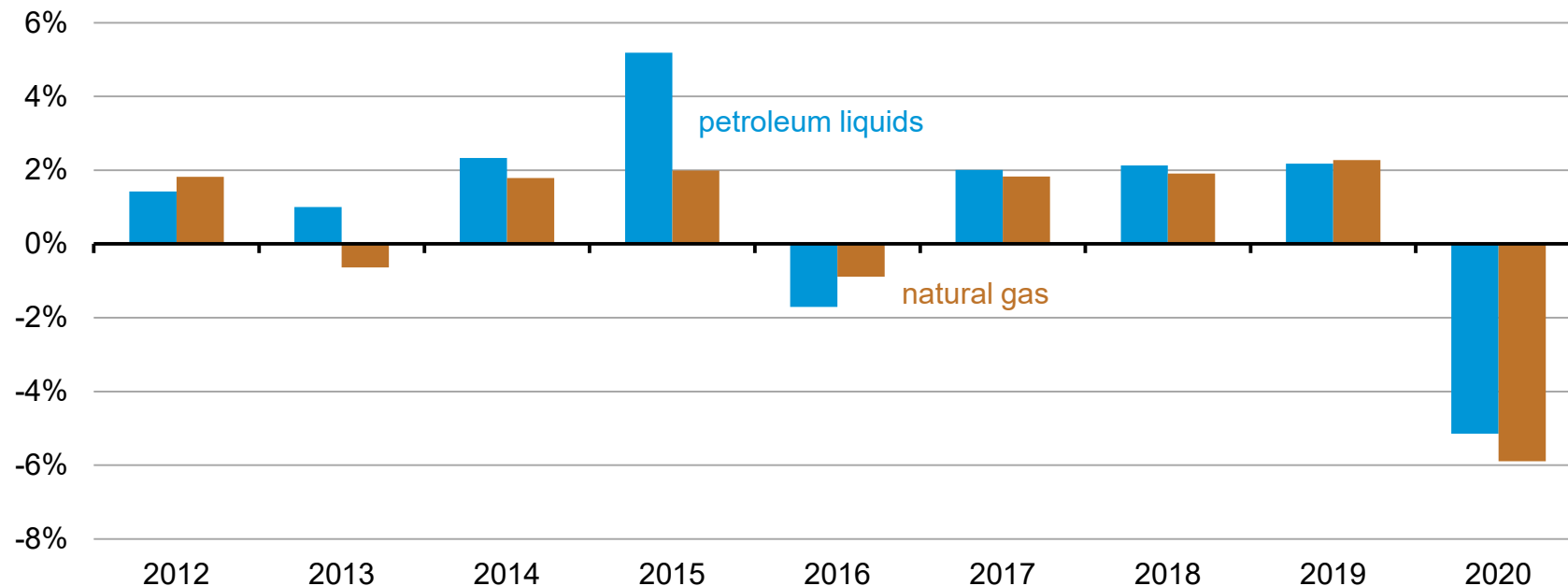
million barrels of oil equivalent per day



Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Petroleum liquids and natural gas production decreased from 2019 to 2020

Petroleum liquids and natural gas production, 2012–20
year-over-year change

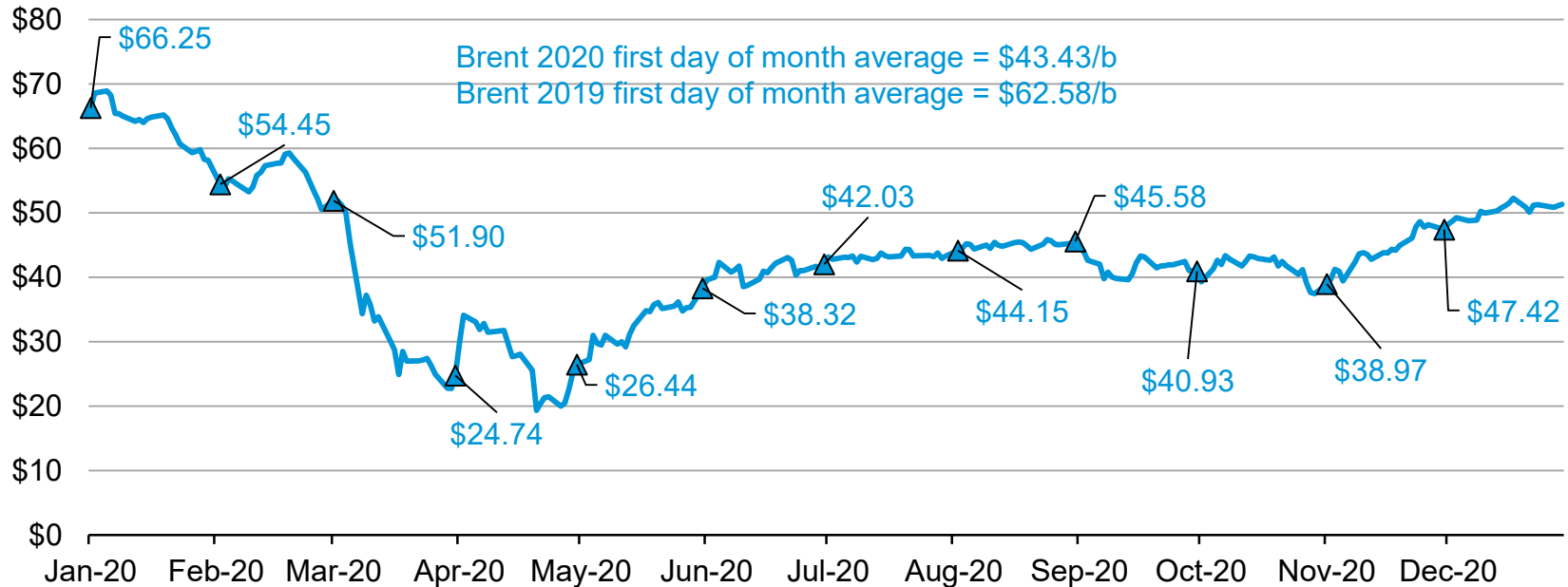


Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

The SEC requires companies to value proved reserves based on an average of the prices on the first day of each month

Brent crude oil front-month futures prices, 2020

dollars per barrel (b)



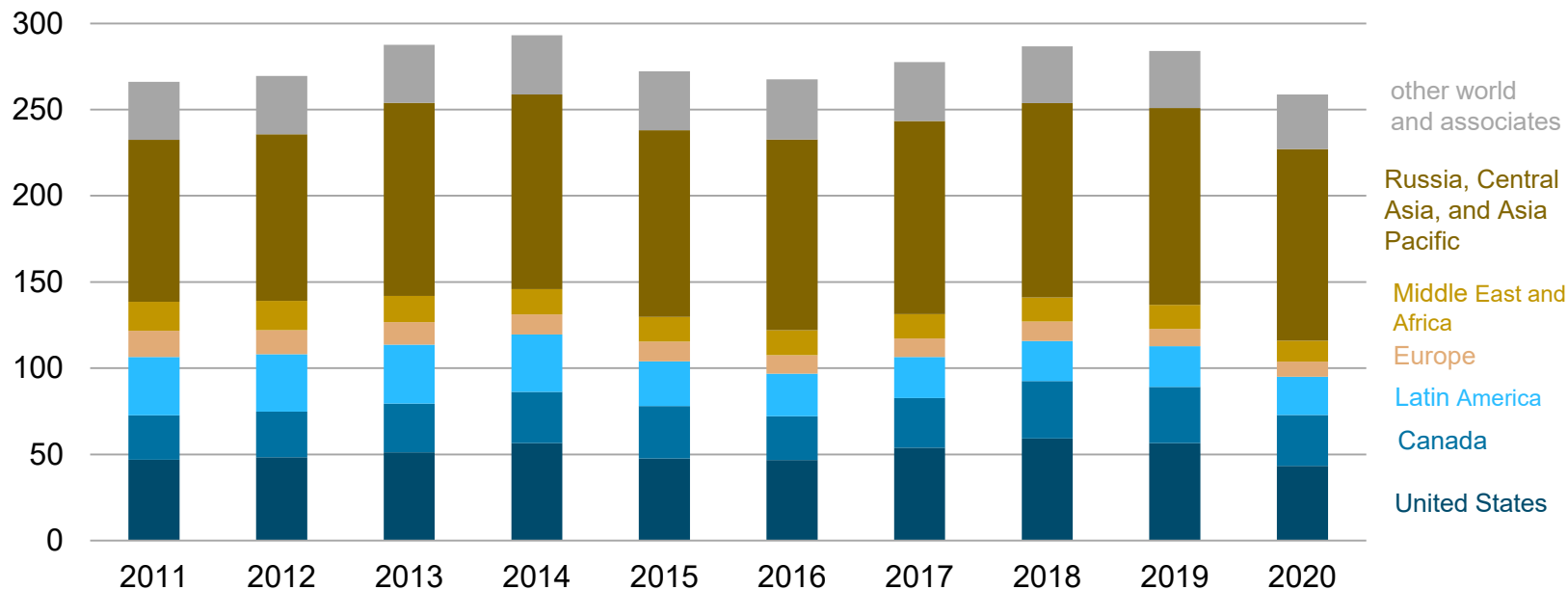
Source: U.S. Energy Information Administration, Intercontinental Exchange, Bloomberg L.P.

Note: SEC = U.S. Securities and Exchange Commission

Global proved reserves totaled 258 billion barrels of oil equivalent at the end of 2020, 9% lower than at the end of 2019

Proved reserves by region, 2011–20

billion barrels of oil equivalent



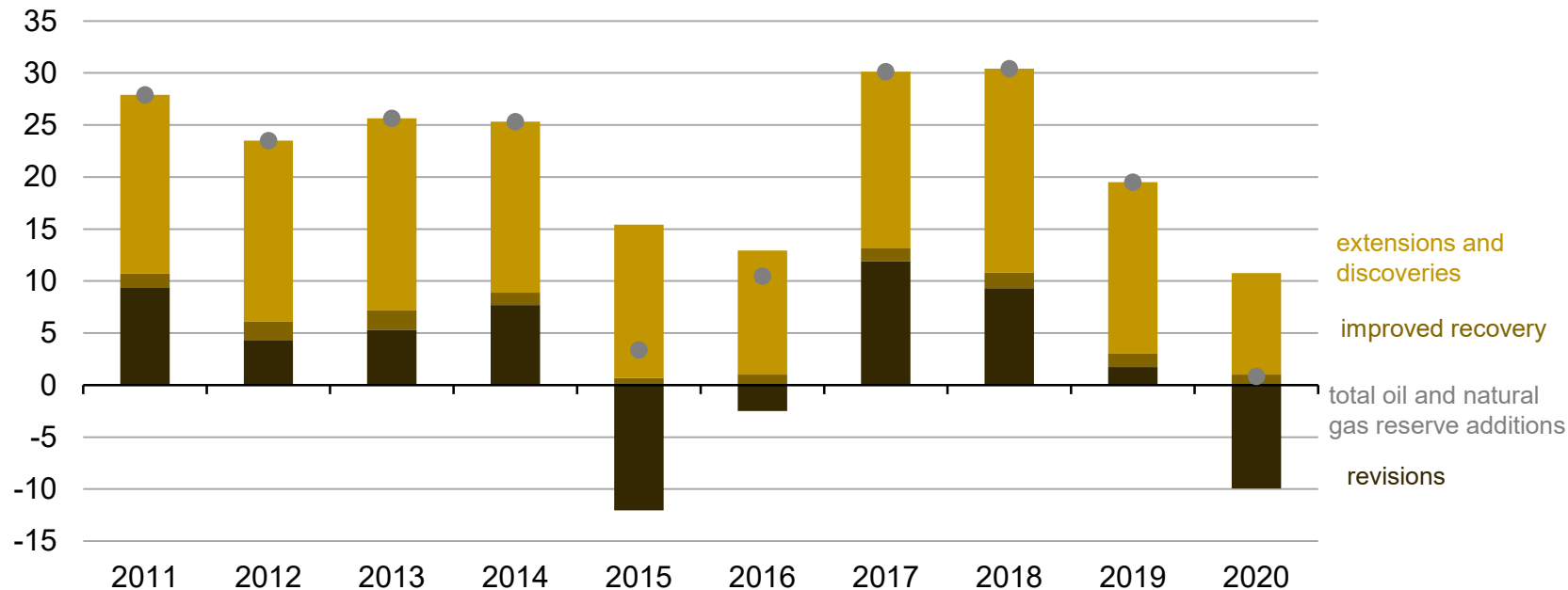
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Mergers and acquisitions between companies may affect net reserve changes for the year and comparisons between years

Net proved reserve additions for petroleum liquids and natural gas were almost zero in 2020 as a result of negative revisions

Proved reserve additions, 2011–20

billion barrels of oil equivalent

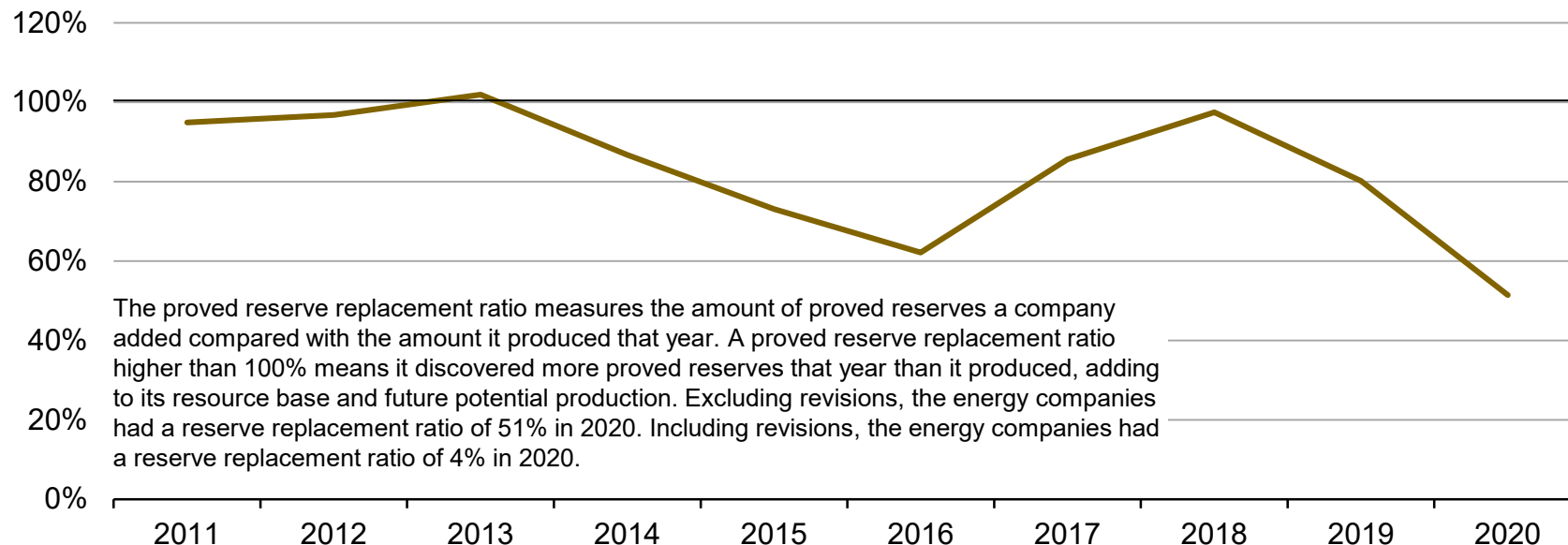


Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Excluding revisions, the companies replaced 51% of their production through organic proved reserve additions

Proved reserve replacement ratio, 2011–20

percentage



The proved reserve replacement ratio measures the amount of proved reserves a company added compared with the amount it produced that year. A proved reserve replacement ratio higher than 100% means it discovered more proved reserves that year than it produced, adding to its resource base and future potential production. Excluding revisions, the energy companies had a reserve replacement ratio of 51% in 2020. Including revisions, the energy companies had a reserve replacement ratio of 4% in 2020.

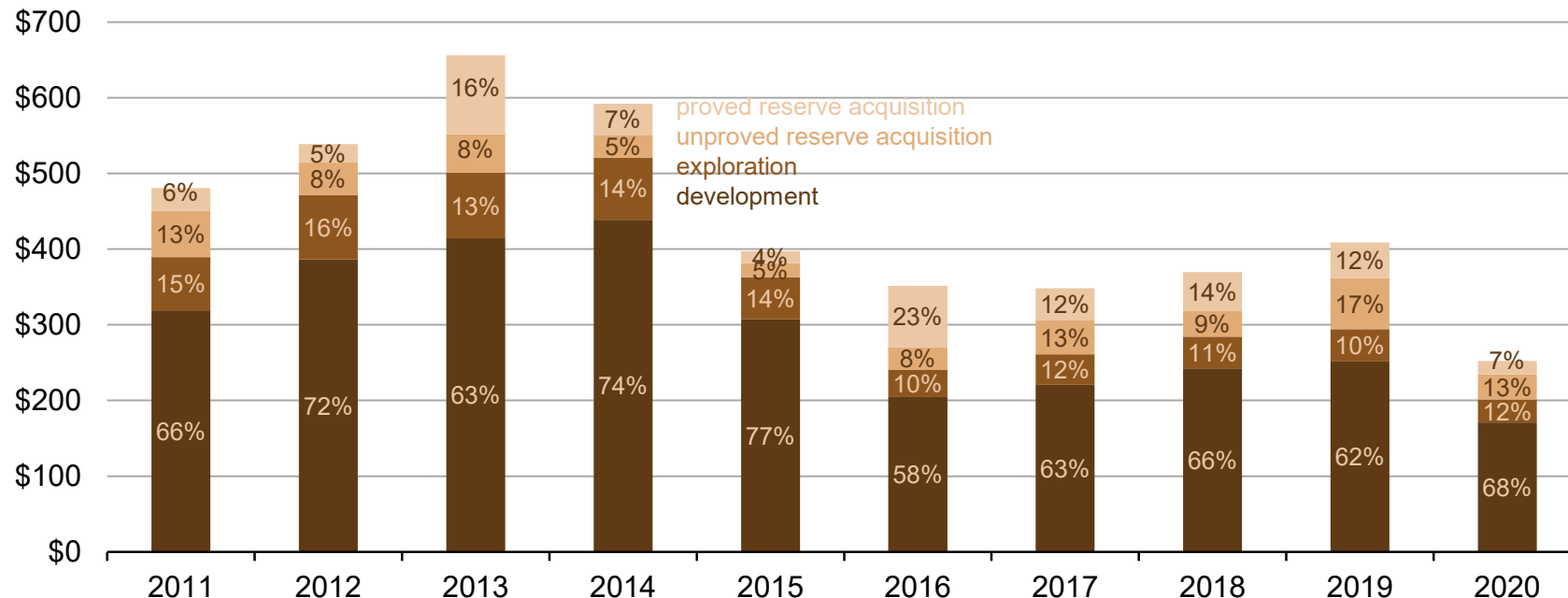
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Excludes proved reserve revisions. Organic proved reserves additions include those added through extensions and discoveries and improved recovery.

Total upstream costs incurred decreased to \$252 billion in 2020, the lowest in the 2011–20 period

Upstream costs incurred, 2011–20

billion dollars



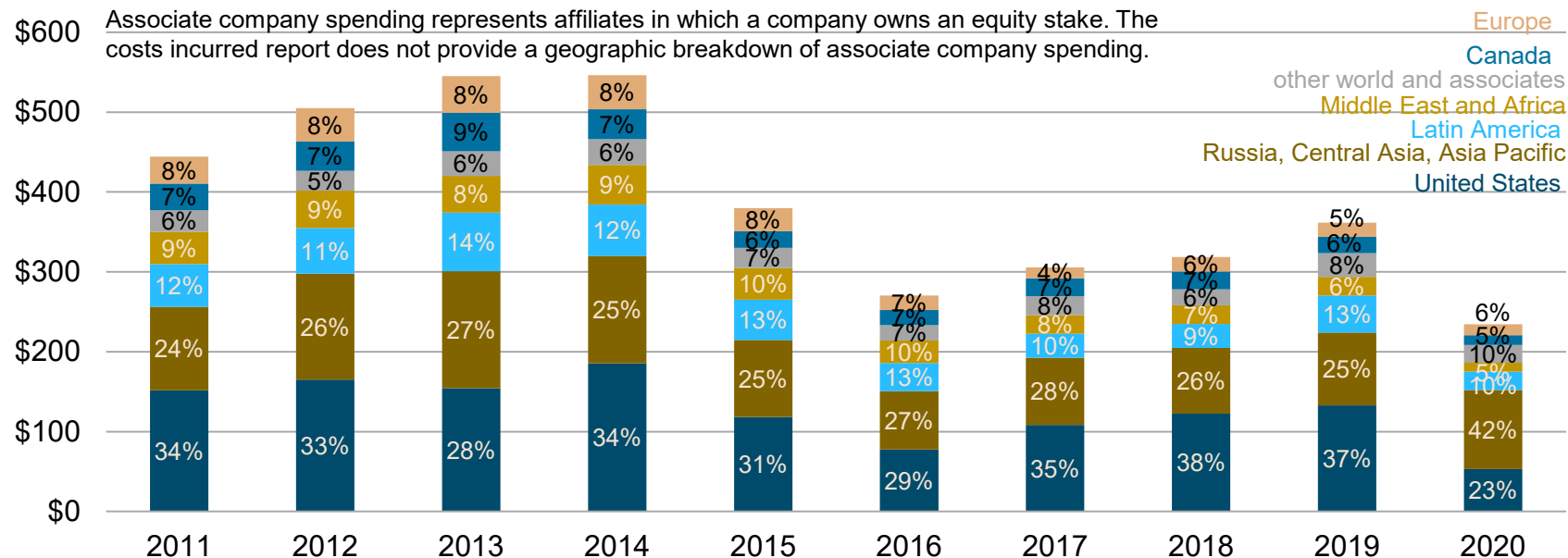
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Percentages are shares of total upstream costs. Percentages may not sum to 100% because of rounding

Most of the decrease in exploration and development spending from 2019 to 2020 was in the United States

Exploration and development costs incurred, 2011–20

billion dollars



Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

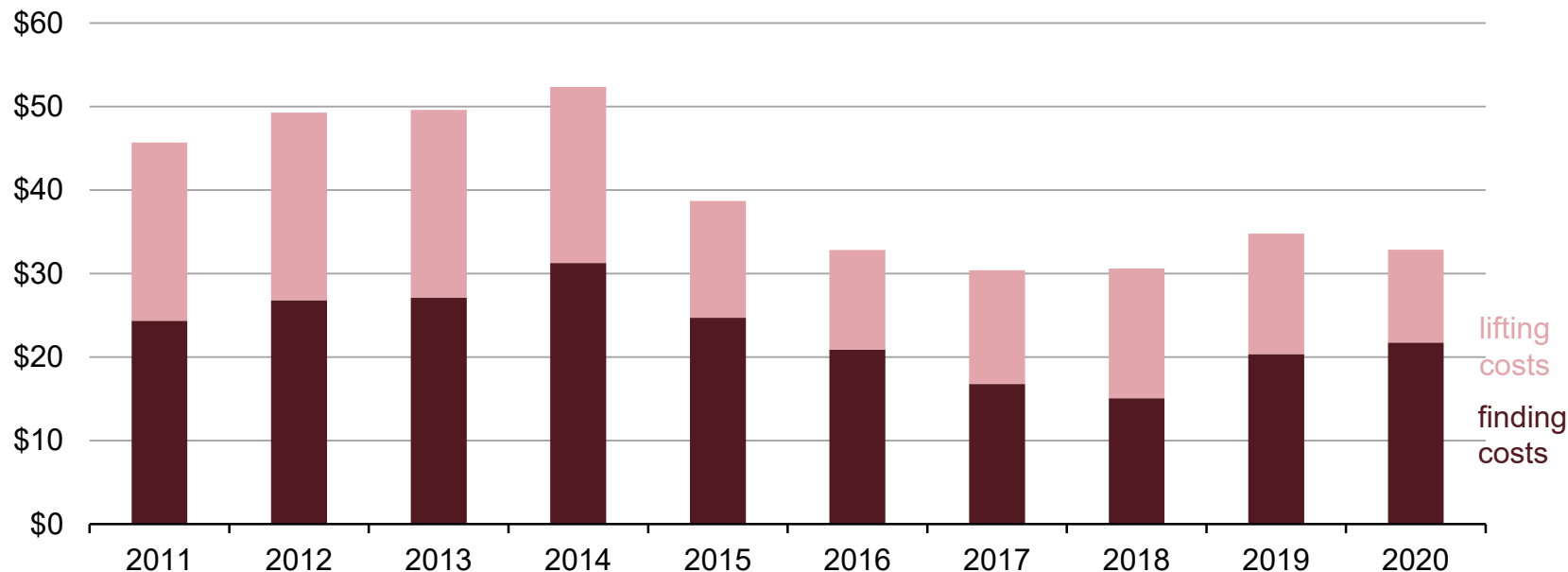
Note: Percentages are shares of global exploration and development costs incurred. Percentages may not sum to 100% because of rounding.

Includes costs incurred from acquiring unproved reserves

Finding plus lifting costs decreased 5% from 2019 to 2020

Finding plus lifting costs, 2011–20

dollars per barrel of oil equivalent



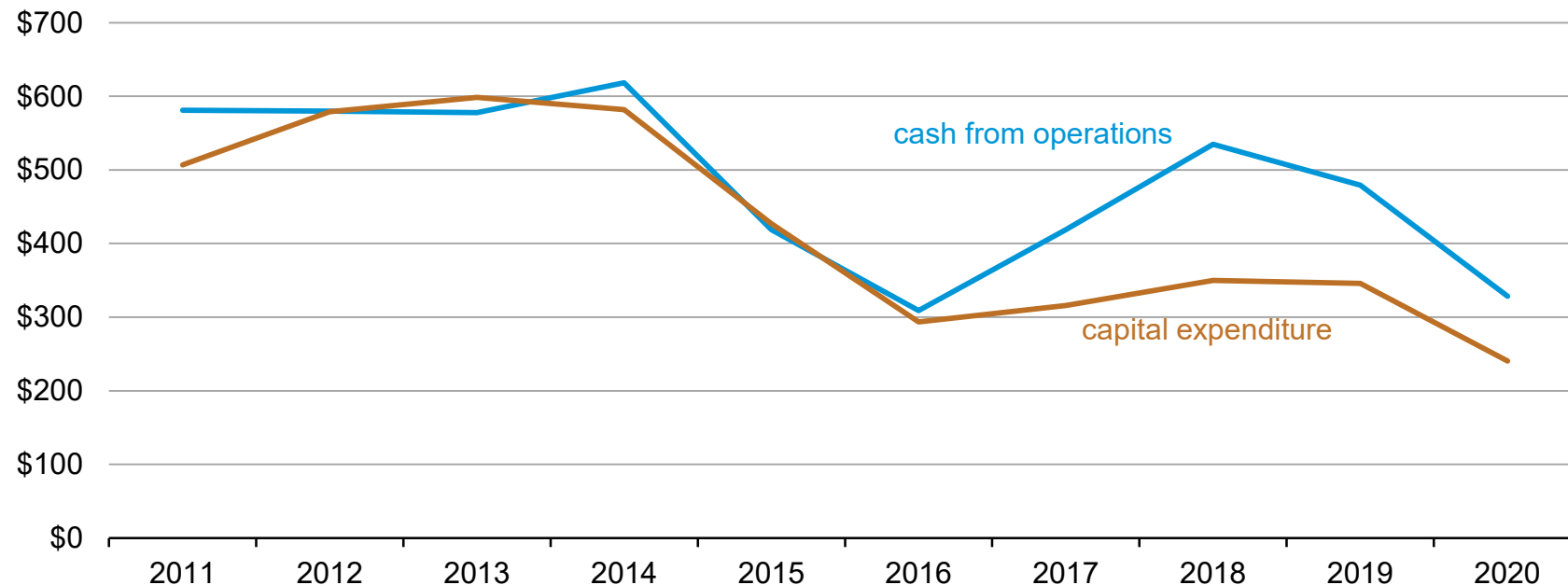
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Excludes proved reserve revisions

Capital expenditure and cash from operations decreased \$106 billion and \$151 billion, respectively, from 2019 to 2020

Cash from operations and capital expenditure, 2011–20

billion dollars

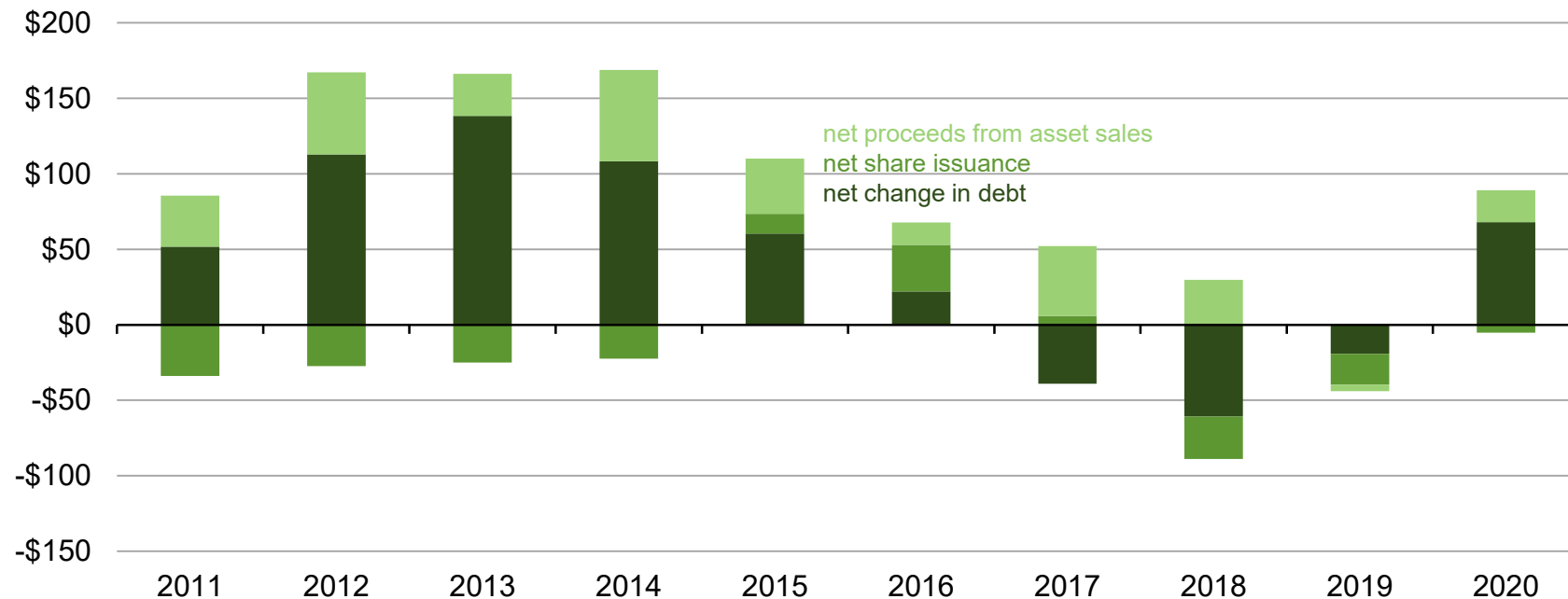


Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

The companies increased net debt by \$68 billion in 2020, the largest annual increase since 2014

Financing activities, 2011–20

billion dollars

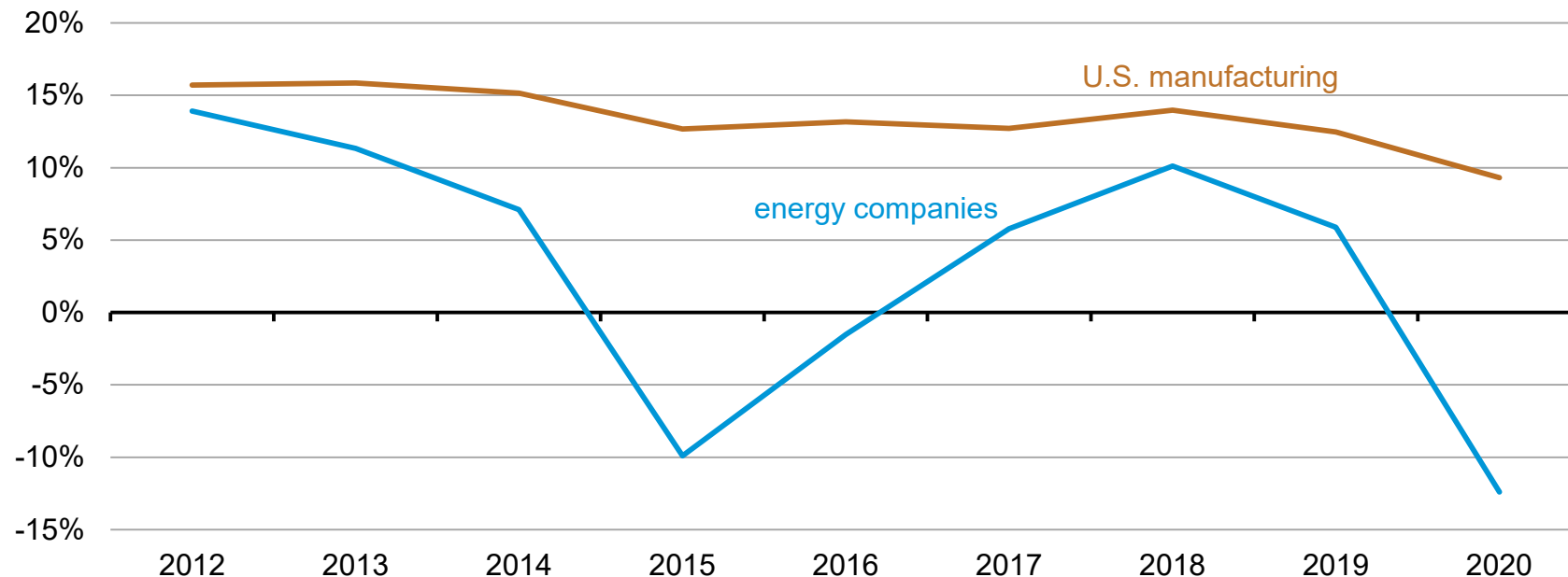


Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Return on equity for the energy companies and for U.S. manufacturing companies decreased to -12% and 9%, respectively, in 2020

Return on equity, energy companies and U.S. manufacturing companies, 2012–20

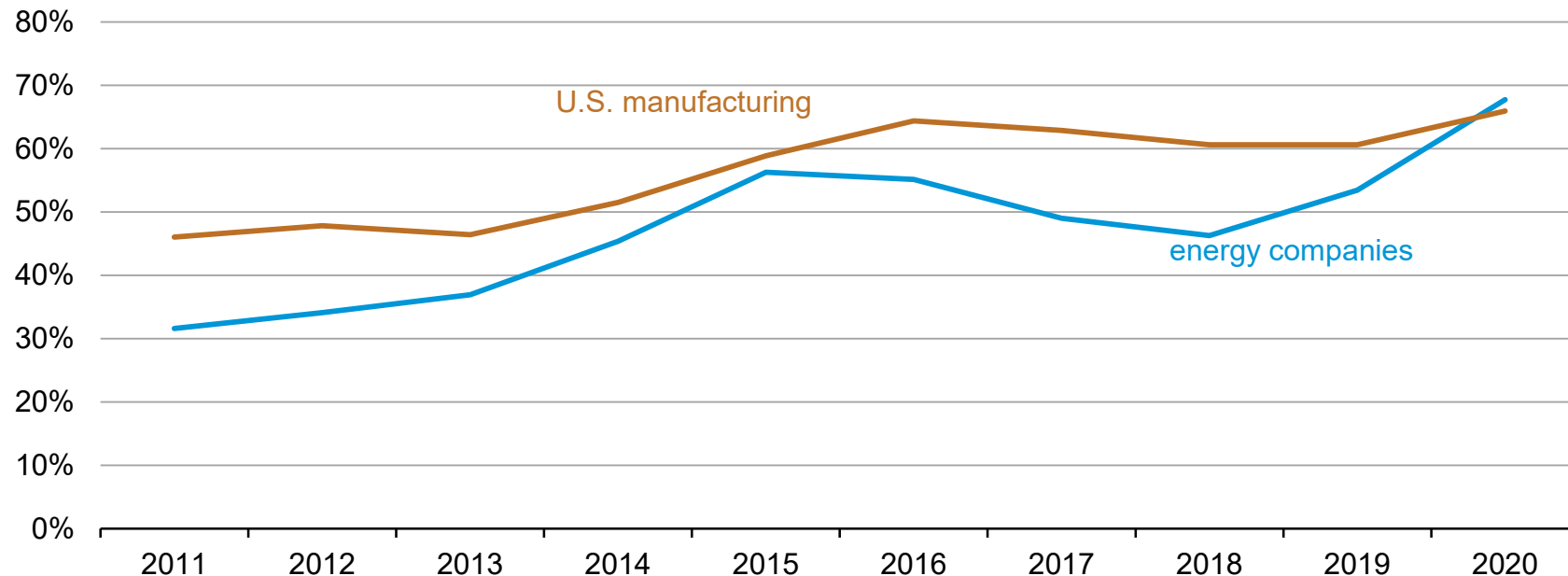
percentage



Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements and U.S. Census Bureau

The long-term debt-to-equity ratio increased to 68% for the energy companies and to 66% for U.S. manufacturing companies

Long-term debt-to-equity ratio, energy companies and U.S. manufacturing companies, 2011–20
percentage



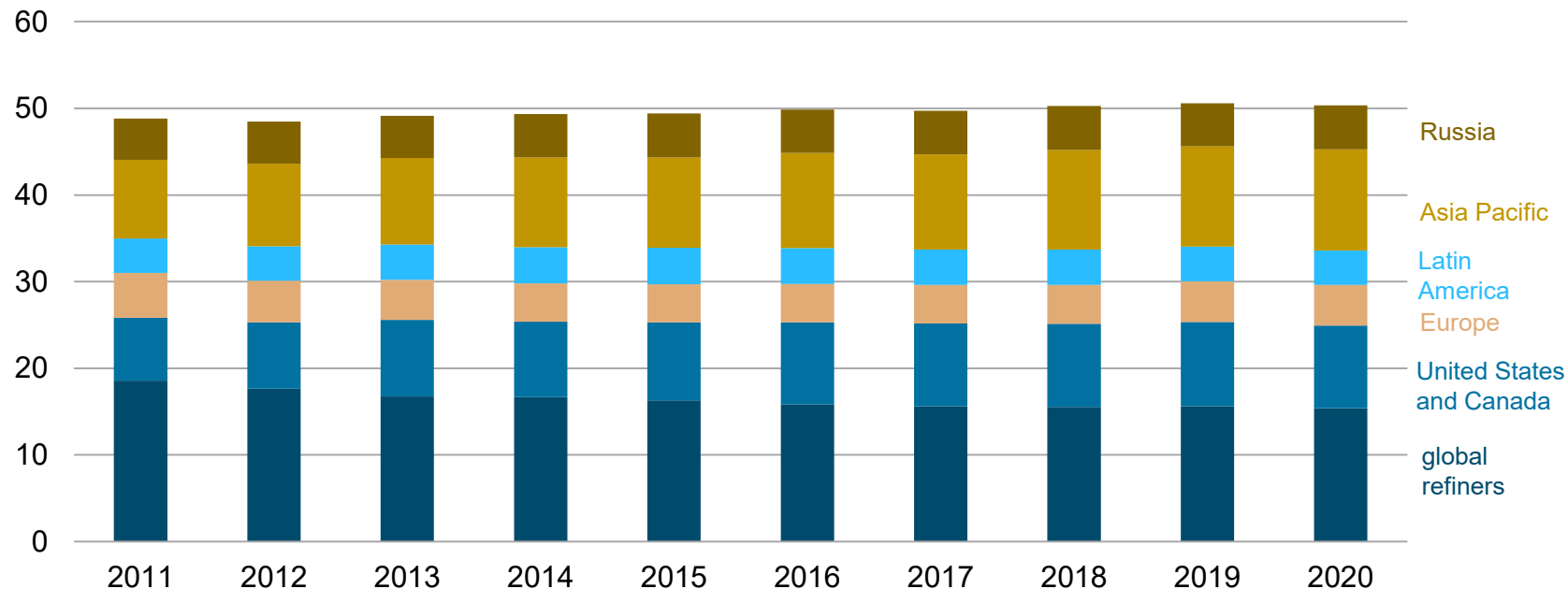
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements and U.S. Census Bureau

Downstream

Global refining distillation capacity decreased slightly from 2019 to 2020

Global refining distillation capacity by region, 2011–20

million barrels per day



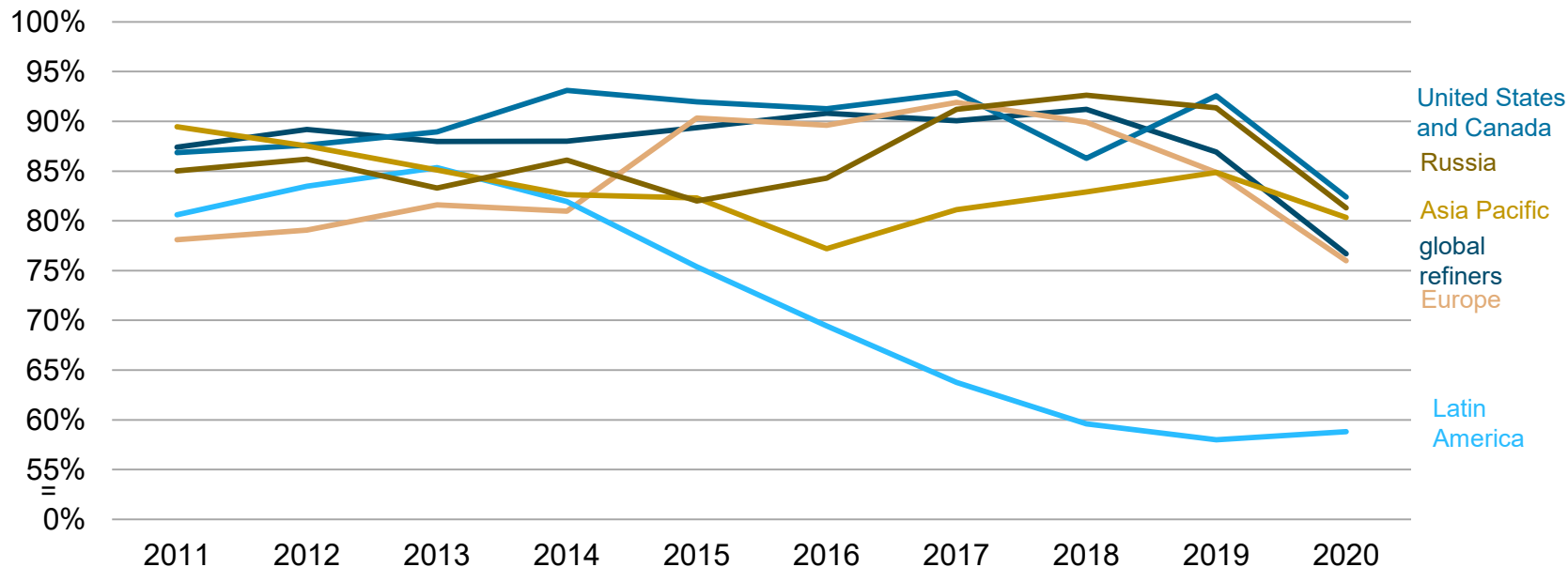
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: A global refiner is a company with refining assets in different regions of the world.

Capacity utilization for all companies averaged 78% in 2020 and declined in most regions

Refining capacity utilization by region, 2011–20

percentage



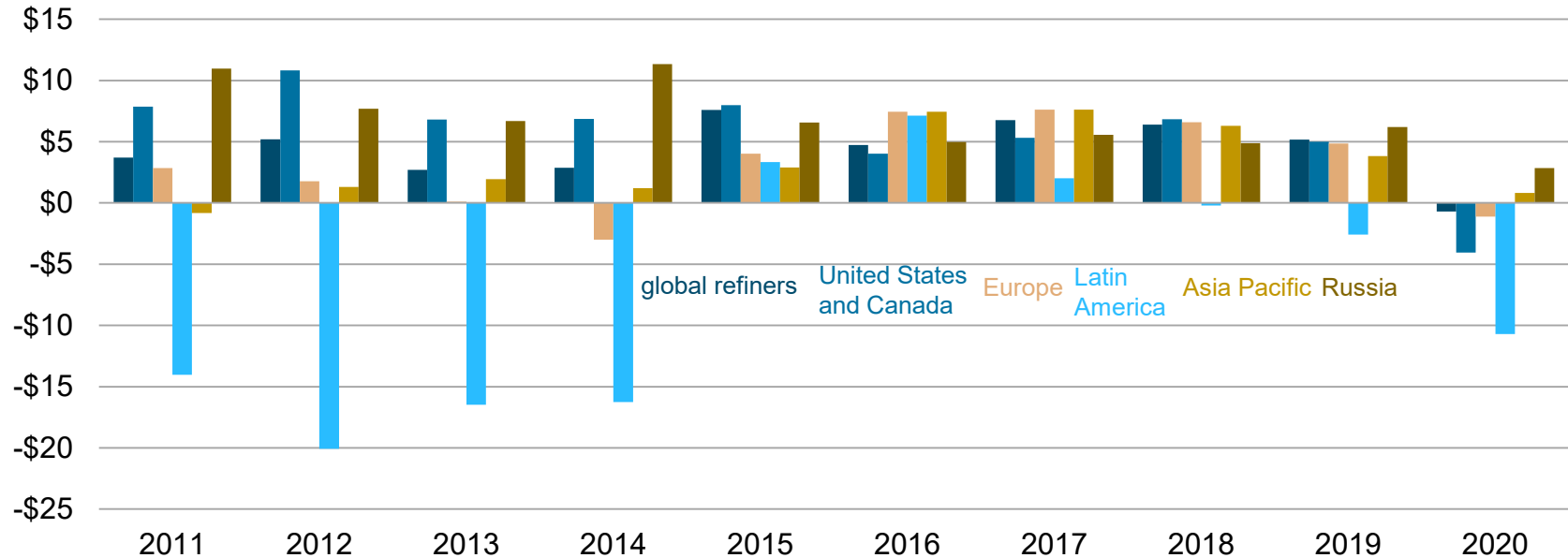
Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: A global refiner is a company with refining assets in different regions of the world.

Earnings per barrel processed declined for most refiners from 2019 to 2020

Refiner earnings per barrel of oil processed by region, 2011–20

dollars per barrel



Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: A global refiner is a company with refining assets in different regions of the world.

Appendix: List of companies in the upstream analysis

Abraxas Petroleum Corporation	Cenovus Energy Inc.	EPL Oil & Gas Inc	Linn Energy	Penn Virginia Corporation	Sonde Resources Corp.
Aker BP ASA	Centennial Resource Development, Inc.	Equinor ASA	Lonestar Resources US, Inc.	Petrobras (IFRS US\$ Current)	SRC Energy Inc
Amplify Energy Corp.	Chesapeake Energy Corp.	Erin Energy Corporation	Lukoil PJSC	PetroChina	Stone Energy Corporation
Anadarko Petroleum Corp.	Chevron Corporation	Extraction Oil & Gas, Inc.	Magnolia Oil & Gas Corporation	Petrominerales Ltd.	Suncor Energy Inc.
Antero Resources Corporation	Cimarex Energy Co.	ExxonMobil	Marathon Oil Corp.	PetroQuest Energy, Inc	T-Rex Oil, Inc.
APA Corporation	Clayton Williams Energy, Inc.	FieldPoint Petroleum Corporation	Matador Resources Company	Pioneer Natural Resources Company	Talos Energy Inc.
Apco Oil and Gas International Inc	CNOOC Ltd	Forest Oil Corporation	Maverick Natural Resources, LLC	PTT	TNK-BP International Ltd
Approach Resources Inc	Concho Resources Inc	Frontera Energy Corporation	Mid-Con Energy Partners, LP	QEP Resources Inc	Total
Athlon Energy Inc.	ConocoPhillips	Galp Energia	Montage Resources Corporation	Range Resources Corporation	TransAtlantic Petroleum Ltd.
ATP Oil & Gas Corp.	Contango Oil and Gas Company	Gastar Exploration Inc.	Murphy Oil Corporation	Repsol	TransGlobe Energy Corporation
Bankers Petroleum Ltd	Continental Resources, Inc.	Gazprom Neft PJSC	Newfield Exploration Company	Ring Energy Inc	Triangle Petroleum Corporation
Battalion Oil Corporation	Crescent Point Energy Corp	GeoPark Limited	Nexen Inc.	Roan Resources Inc.	Unit Corporation
Baytex Energy Corp.	Denbury Inc.	Gran Tierra Energy Inc.	Noble Energy Inc.	Rosehill Operating Company, LLC	Vaalco Energy Inc
Berry Corporation	Devon Energy Corporation	Harvest Natural Resources Inc.	Northern Oil & Gas, Inc	Rosetta Resources Inc.	Grizzly Energy LLC
BG Group	Diamondback Energy Inc.	Hess Corporation	Oasis Petroleum Inc.	Rosneft	W & T Offshore
Black Stone Minerals LP	Earthstone Energy Inc.	HighPoint Resources Corporation	Occidental Petroleum Corporation	Royal Dutch Shell	Whitecap Resources Inc.
Blue Ridge Mountain Resources, Inc.	Ecopetrol	Houston American Energy Corp	OMV Group	Royale Energy Inc.	Whiting Petroleum Corporation
Bonanza Creek Energy Inc	Ovintiv Inc.	Husky Energy Inc.	PHX Minerals Inc.	RSP Permian Inc	WPX Energy, Inc.
BP Plc.	Endeavour International Corporation	International Petroleum Corporation	Paramount Resources Ltd.	Sabine Oil & Gas Corporation	YPF Sociedad Anonima
Brazos Valley Longhorn, L.L.C.	Energen Corp	Jagged Peak Energy Inc.	Parex Resources Inc.	Mesquite Energy, Inc.	Yuma Energy, Inc.
California Resources Corporation	Energy XXI Gulf Coast, Inc.	Kodiak Oil & Gas Corp.	Parsley Energy Inc.	SandRidge Energy, Inc.	Yuma Energy, Inc. (Pre Davis)
Callon Petroleum	Enerplus Corporation	Kosmos Energy Ltd	PDC Energy, Inc.	Seven Generations Energy Ltd.	
Camber Energy, Inc.	ENI	Laredo Petroleum Inc.	PEDEVCO Corp.	Sherritt International Corp	
Canadian Natural Resources Limited	EOG Resources	Legacy Reserves Inc.	Pemex	Sinopec	
Carrizo Oil & Gas, Inc	EP Energy Corporation	Lilis Energy Inc.	Pengrowth Energy Corporation	SM Energy Company	

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Some companies merged, split, or delisted before 2020. A total of 92 companies existed in 2020.

Appendix: List of companies in the downstream analysis

Alon USA Energy	Gazprom Neft PJSC	OMV Group	Sinopec
Andeavor	Grupa Lotos	Par Pacific Holdings, Inc.	Suncor Energy Inc.
Blue Dolphin Energy Co	HollyFrontier Corporation	PBF Energy Inc	TNK-BP International Ltd
BP Plc.	Husky Energy Inc.	Pemex	Total
Cenovus Energy Inc.	Imperial Oil Limited	Petrobras (IFRS US\$ Current)	TUPRAS
Chevron Corporation	INA Group	PetroChina	Valero Energy Corporation
CVR Energy, Inc.	Indian Oil Corporation Limited	Phillips 66	Western Refining Inc.
Delek US Holdings	Lukoil PJSC	PKN Orlen	
ENI	Marathon Petroleum Corporation	Repsol	
ExxonMobil	MOL Group	Rosneft	
Galp Energia	Neste Corporation	Royal Dutch Shell	

Source: U.S. Energy Information Administration, based on Evaluate Energy data of companies with publicly available financial statements

Note: Some companies merged, split, or delisted before 2020. A total of 36 companies existed in 2020.

Background

- The upstream analysis focuses on the financial and operating trends of 92 global oil and natural gas companies (called *the companies* or *the energy companies*), and the downstream analysis focuses on 36 companies.
- The data come from the public financial statements each company publishes, which a data service (Evaluate Energy) aggregates for ease of data analysis.
- For consistency, we kept an energy company's assets that were acquired by another company in the group in 2011 or later were kept in the data for the previous years.
- Several charts show comparisons between energy companies and the U.S. manufacturing industry. We collected the data from the U.S. Census Bureau's *Quarterly Financial Report*.

Brief description of terms

- *Cash from operations* is a measure of income from the company's regular business activities.
- *Capital expenditure* is cash used to purchase property, plant, and equipment.
- *Financing activities* measure inflows and outflows in debt or equity markets, including dividends, share issuance or repurchases, and debt issuance or repayments.
- *Return on equity* is a measure of the profit a company earns on money that shareholders have invested.
- *Market capitalization* is the total value of a company's outstanding, publicly traded shares.

Brief description of terms

- *Net income* represents profits after taxes and depreciation.
- *Asset impairments* occur when a company lowers the estimated value of a property to reflect current market value, which may result from the loss of production potential or a decline in oil prices.
- *Reserve revisions* are changes to prior year-end proved reserve estimates, either positive or negative, resulting from new information other than an increase in proved acreage (extension). Revisions include increases of proved reserves associated with the installation of improved recovery techniques or equipment. They also include correction of prior year arithmetical or clerical errors and adjustments to prior year-end production volumes to the extent that these alter reserves estimates.

Brief description of terms

- *Upstream activities* refers to crude oil exploration, production, and other operations that occur before refining.
- *Downstream activities* refers to refinery operations, product sales, and marketing at the wholesale and retail levels.