

Lockheed Martin Corporation
2019 Annual Report



FINANCIAL HIGHLIGHTS

In millions, except per share data	2019	2018	2017
Net Sales	\$ 59,812	\$ 53,762	\$ 49,960
Segment Operating Profit	6,574	5,877	5,092
Consolidated Operating Profit	8,545	7,334	6,744
Net Earnings From Continuing Operations	6,230	5,046	1,890
Net Earnings	6,230	5,046	1,963
Diluted Earnings Per Common Share			
Continuing Operations	21.95	17.59	6.50
Net Earnings	21.95	17.59	6.75
Cash Dividends Per Common Share	9.00	8.20	7.46
Average Diluted Common Shares Outstanding	284	287	291
Cash and Cash Equivalents	\$ 1,514	\$ 772	\$ 2,861
Total Assets	47,528	44,876	46,620
Total Debt, net	12,654	14,104	14,263
Total Equity (Deficit)	3,171	1,449	(776)
Common Shares Outstanding at Year-End	280	281	284
Net Cash Provided by Operating Activities	\$ 7,311	\$ 3,138	\$ 6,476

NOTE: For additional information regarding the amounts presented above, see the Form 10-K portion of this Annual Report. A reconciliation of Segment Operating Profit to Consolidated Operating Profit is included on the page preceding the back cover of this Annual Report.

Dear Fellow Stockholders:

In 2019, Lockheed Martin continued to advance on its trajectory of strong growth and positive momentum, as we helped customers around the world fulfill their most vital missions. Our sustained performance over the past several years has strengthened global security, advanced the frontiers of science and technology, and expanded economic growth and opportunity.

For our stockholders, our strategic, operational, and financial performance has increased value and helped lay the groundwork for future business successes.

Our results in 2019 flowed from contributions from across our corporation, leveraging our broad portfolio and unrivaled experience. Our Lockheed Martin team pressed forward in every domain whether on land or at sea, in the air, in space, or in cyberspace. Our ability to continually invent and innovate is defining the future in areas critical to our nation and our allies – technologies such as hypersonics, laser weapon systems, air and missile defense, satellites, rotary- and fixed-wing aircraft, and autonomy.

As we look out on the challenges of a new decade, it is clear that free nations now face one of the most dynamic and unpredictable threat landscapes in modern history. At Lockheed Martin, we are listening to our customers and anticipating their needs. And our accomplishments over the past year highlight our strength as a global leader in providing the most advanced technologies and capabilities needed to navigate the increasingly complex geopolitical environment.



Marillyn A. Hewson, Chairman, President, and Chief Executive Officer

SUSTAINED PERFORMANCE, STRONG FINANCIAL RESULTS

Our strong performance in 2019 across our diverse portfolio was reflected in our financial results.

Some of those key financial metrics were:

- Orders of \$73 billion leading to a record backlog of \$144 billion
- Sales of \$59.8 billion, up 11% versus 2018
- Segment operating profit* of \$6.6 billion, up 12% versus 2018
- Segment margin* of 11%
- Net earnings of approximately \$6.2 billion
- Diluted earnings per share of \$21.95

We generated \$7.3 billion in cash from operations in 2019 after pension contributions of \$1.0 billion. And we returned \$3.8 billion of our available cash flow to stockholders throughout the year.

We paid cash dividends of \$2.6 billion and increased the quarterly dividend by 9% in the third quarter to \$2.40 per share or \$9.60 per share annually.

Our 3.5 million of share repurchases for 2019 totaled \$1.2 billion. We also increased the share repurchase authority including the use of accelerated share repurchase plans to provide flexibility for future returns.

INNOVATIONS FROM ACROSS THE COMPANY

At the core of our leadership and performance is our unwavering commitment to provide solutions for our customers that are innovative, affordable, and interoperable.

Delivering Revolutionary Aircraft for Customers Around the World

At Aeronautics, our F-35 program continues to set the standard as an integrated technology that is making a positive global impact. Our achievements in 2019 demonstrate a program that is on track and well positioned to grow further.

Early in the year, the U.S. Navy declared Initial Operational Capability, or IOC, for the F-35C. Japan, the United Kingdom, and Norway all declared IOC for their respective F-35s. Both the U.S. Air Force and the Royal Air Force used the F-35 in combat for the first time. And during the year, we celebrated the rollout and then the home-basing of the first Netherlands F-35.

In 2019, we finalized a \$34 billion agreement with the F-35 Joint Program Office for the production and delivery of 478 F-35s over three contract lots. The agreement represented the largest F-35 production contract and the lowest aircraft prices in program history. It will enable an average cost savings of 12.7% across all three variants over Lots 11 to 14. We were particularly pleased to deliver one year early on our long-standing commitment with the Pentagon to reduce the cost of an F-35A to below \$80 million.

In 2019, we also proved our readiness for full-rate production. We produced 134 F-35s – exceeding

the joint government and industry target of 131 aircraft for the year. This represents a 47% increase over 2018 and a nearly 200% production increase over 2016. It is the third consecutive year we have met our annual delivery target. Next year, we plan to maintain this momentum as we advance toward peak production in 2023.

At the end of year, the F-35 Joint Program Office also awarded us a \$1.9 billion contract to support operations and sustainment of the global F-35 fleet, which will enable us to further strengthen mission readiness and reduce costs.

The unmatched capabilities of the fifth-generation fighter continue to impress military leaders around the world, opening up the potential for future sales to other nations. Singapore announced they are seeking to acquire four F-35s, with the option for eight more. And the U.S. State Department approved the proposed sale of 32 F-35A aircraft to Poland for an estimated cost of \$6.5 billion.

The F-35 program wasn't the only international success in 2019. In response to significant and increasing demand for the F-16 – the world's most advanced fourth-generation fighter – the company reshaped our operations and officially began F-16 production in Greenville, South Carolina.

The first F-16 delivered from Greenville will be for the Kingdom of Bahrain. Other F-16 Block 70 customers include Slovakia and Bulgaria – with more production opportunities on the horizon. In March, the U.S. State Department approved the proposed sale of 25 new production F-16 Block 72 aircraft to Morocco. In late October, the head of the Indonesian Air Force said that they had service plans to acquire two squadrons of F-16 Block 72 aircraft.

In addition, in 2019, we were proud to work with the U.S. Air Force as the service began integrating the Automatic Ground Collision Avoidance System (Auto-GCAS) into its F-35 fleet. Since it became operational on the F-16 more than five years ago, Auto-GCAS has already been credited with saving nine lives. The Aeronautics team performed with extraordinary speed and agility to deploy the life-saving technology on the F-35 – seven years ahead of schedule.

Providing Advanced Missile Capabilities and Missile Defense

Our Missiles and Fire Control business area continued to contribute strongly to the company's growth by developing and producing technologies our customers need to protect their citizens.

In March, we received a \$1.1 billion contract for our highly successful Guided Multiple Launch Rocket System, or GMLRS – a system that helps our service members address threats quickly and reduce collateral damage on the battlefield. GMLRS has the ability to reach its targets with precision and accuracy from more than 40 miles away. The Lot 14 contract called for the production of more than 9,500 GMLRS rockets and more than 300 practice rounds. In May, we celebrated the delivery of the 40,000th rocket to our customers.

The U.S. Army also awarded us a contract modification that will increase production of the Patriot Advanced Capability-3 (PAC-3) missile for the U.S. government and Foreign Military Sales customers. In addition, we continued to pursue tremendous global business opportunities for the Terminal High Altitude Area Defense program, booking contracts totaling \$4.8 billion in 2019 alone.

In another contract win, the U.S. Navy and the U.S. Air Force requested a second production lot for the air-launched variant of our Long Range Anti-Ship Missile, or LRASM, system. The U.S. Navy declared LRASM Early Operational Capability on the F/A-18E/F Super Hornet in November. With this next-generation anti-ship missile, we are bringing enhanced capabilities and extended range to the Navy and Air Force to help them maintain open seas.

In December, we drove forward innovation and successfully tested our next-generation, long-range missile designed for the U.S. Army's Precision Strike Missile program. The next-generation missile will deliver enhanced capabilities for attacking, neutralizing, suppressing, and destroying targets at depth on the battlefield using missile-delivered indirect precision fires. Our precision-strike offering also

has an innovative, modular design which will make it adaptable, offering new paths for future growth in the system.

Leading in Rotary-Wing Aircraft and Mission Systems

In 2019, our Rotary and Mission Systems business area continued to drive innovation across its portfolio of rotorcraft technology, sensors, radar systems, command and control, combat simulation and training, advanced cybersecurity and undersea systems.

In March, we celebrated the first flight of the SB>1 DEFIANT helicopter. In 2014, as part of its Future Vertical Lift program, the U.S. Army selected a Sikorsky-Boeing team to develop a demonstrator to support the next-generation vertical lift helicopter and attack aircraft program. DEFIANT is the impressive result of this effort. DEFIANT can fly at almost twice the speed and twice the range of conventional helicopters, while retaining the ability to hover, maneuver, and operate at low speeds. It is a reminder that, once again, the men and women of Lockheed Martin are defining the frontiers of flight.

In 2019, we also continued strong and consistent progress in our naval portfolio with the design contract award for the Canadian Surface Combatant. Over the life of the program, Canada's Combat Ship team will provide 15 globally deployable multi-role warships to the Royal Canadian Navy. We also demonstrated the strength of our naval portfolio when we secured a U.S. government contract for the Ship Self Defense System, or SSDS, which has been protecting U.S. Navy aircraft carriers and amphibious assault ships from aircraft and missile threats for more than two decades. Under this new contract, we will be responsible for upgrading the SSDS combat system with new capabilities.

RMS also received a \$1.3 billion contract from the U.S. Navy to build 12 CH-53K King Stallions. The King Stallion will have heavy-lift capabilities that exceed all other rotary wing-platforms. Sikorsky expects to begin deliveries of these heavy-lift helicopters in 2022 as part of the planned 200 aircraft for the U.S. Marine Corps.

Allies around the world are looking for increased readiness at reduced costs. To tackle that challenge in Australia, we signed a contract for up to 15 years including options to deliver the Core Simulation Capability, or JP9711, providing networked training for soldiers, sailors and aircrew. The system integrates live, virtual and computer-generated forces into one shared training environment to revolutionize how forces prepare for joint and coalition operations.

In addition, we won a \$281 million contract in September from the U.S. Army to develop the Sentinel A4 radar system. The U.S. Army plan of record is to upgrade 199 A3 radars with new Sentinel A4s, with a total potential value of approximately \$3 billion over the life of the contract, from sales to domestic and international customers. This was also a strategic win that underscores Lockheed Martin as a leader in the radar business.

Leadership on the Final Frontier

Our Space business area continues to support our customers' vital missions to protect their citizens, enable global commerce, and expand our ability to explore our universe.

In 2019, we celebrated four successful launches – including the launch of the fifth Advanced Extremely High Frequency, or AEHF, satellite. AEHF-5 completes a geostationary ring of five satellites delivering global coverage for survivable and protected communications for strategic command and tactical warfighters operating on ground, sea, and air platforms.

In March, we unveiled SmartSat™ technology, which enables satellites to change their missions while in orbit. The new satellite computing architecture will let users add capability and assign new missions with a software push in the same way an app is added on a smartphone. SmartSat™ gives our customers tremendous flexibility and resiliency to meet the evolving needs of their missions by opening the door to in-orbit artificial intelligence and cybersecurity. In addition, SmartSat™ provides our customers with an affordable option, allowing them to achieve with one satellite, what used to be the work of many.

In 2019, we achieved three major milestones for the Orion program. Orion is the spacecraft that will support NASA's deep space exploration objectives. In July, we held a successful test flight of the Ascent Abort-2 launch that assessed the fully functional launch abort system. Later in that same month, at the celebration of the 50th anniversary of the Apollo 11 moon landing, the completion of the crew and service modules for the Artemis I mission was announced. NASA's Artemis program, including Orion, will return the United States to the moon – including the first female astronaut to set foot on the lunar landscape. And, in September, we received a \$2.7 billion award to deliver the first three Orion spacecraft, with a second order of three Orion vehicles planned in fiscal year 2022.

THE RELENTLESS DRIVE TO INNOVATE

At Lockheed Martin, we know that our leadership is built on our ability to innovate. It has been our legacy – and we recognize that it is our future.

In 2019, we continued to implement our vision for digital transformation, we invested in promising new technologies, and sought to identify and partner with the companies and people shaping the future. We also invested across our company – making capital expenditures of \$1.5 billion and \$1.3 billion in our independent research and development.

Our investments in the future include groundbreaking efforts in hypersonics, laser weapon systems, multi-domain operations, cybersecurity, and autonomy.

In hypersonics, for instance, we are leveraging capabilities from across our company to take on the challenges of this critical, rapidly evolving frontier. In August, we were awarded a \$347 million contract for the Long-Range Hypersonic Weapon systems integration project. The goal is to field a new class of ultrafast and maneuverable long-range missiles with the ability to launch from ground-based mobile platforms. Our company will also support integration and prototyping on the Common-Hypersonic Glide Body system.

In addition to these new opportunities, we are already delivering on some of our existing hypersonics opportunities. In June, we worked with the U.S. Air Force to successfully test the Air-Launched Rapid Response Weapon, or ARRW, on the service's B-52 Stratofortress. In December, we definitized a \$988 million contract with the U.S. Air Force to take the ARRW program through Critical Design Review, flight testing, and the remainder of contract activities.

To ensure our innovation in all our hypersonic efforts continue to advance strongly, we are expanding our workforce and facilities. In September, we broke ground on a new facility in Courtland, Alabama, where we'll conduct work on several hypersonics programs including the Long-Range Hypersonic Weapon, Intermediate-Range Conventional Prompt Strike, and the Air-Launched Rapid Response Weapon.

In the field of directed energy, we continue to set the pace globally. In 2019, we completed a major design review for the High Energy Laser with Integrated Optical-dazzler and Surveillance, or HELIOS, system. HELIOS will provide the U.S. Navy with game-changing defense against unmanned aerial systems and fast inshore attack craft. In addition, the U.S. Army selected a cross-industry team which included Lockheed Martin to build and test the High Energy Laser Tactical Vehicle Demonstrator, a 100-kilowatt class laser weapon system.

And in the area of autonomy and artificial intelligence, we remain the global leader. In June, our Sikorsky team demonstrated a technology kit to

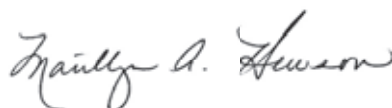
operate a Black Hawk helicopter with full-authority, fly-by-wire flight controls – a major step toward the aircraft's first fully autonomous flight in 2020. The technology brings a new dimension of safety, reliability, and capability that will make optionally piloted aircraft a reality.

THE VALUES BEHIND EVERY SUCCESS

As we look back on 2019, we see a range of impressive achievements and strong performance across our company.

Ultimately, every success is a tribute to the ingenuity, energy, and initiative of the 110,000 men and women of Lockheed Martin. Their commitment to uphold our core values – to do what's right, to respect others, and to perform with excellence – creates a shared team mindset and supports our strong relationships with our customers.

As we look to the future, we see a growing need for Lockheed Martin's products and systems around the world. And we are confident that we are well positioned to develop the technologies and capabilities needed to continue to save lives, drive scientific achievement, and help the world advance in peace.



Marillyn A. Hewson
Chairman, President, and
Chief Executive Officer

**This letter includes references to segment operating profit and segment margin, which are non-GAAP financial measures. For reconciliations between our non-GAAP measures and the nearest GAAP measures, please refer to the page preceding the back cover of this Annual Report. As non-GAAP financial measures are not intended to be considered in isolation or as a substitute for GAAP financial measures, you should carefully read the Form 10-K included in this Annual Report, which includes our consolidated financial statements prepared in accordance with GAAP. Additionally, this letter includes statements that, to the extent they are not recitations of historical fact, constitute forward-looking statements within the meaning of the federal securities laws, and are based on Lockheed Martin's current expectations and assumptions. For a discussion identifying important factors that could cause actual results to differ materially from those anticipated in the forward-looking statements, see the corporation's filings with the Securities and Exchange Commission, including "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors" in the Form 10-K portion of this Annual Report.*

CORPORATE DIRECTORY

[As of February 7, 2020]

BOARD OF DIRECTORS

Daniel F. Akerson
Retired Chairman and
Chief Executive Officer
General Motors Company

David B. Burritt
President and
Chief Executive Officer
United States Steel Corporation

Bruce A. Carlson
Retired General
United States Air Force

James O. Ellis, Jr.
Retired President and
Chief Executive Officer
Institute of Nuclear Power
Operations

Thomas J. Falk
Retired Chairman and
Chief Executive Officer
Kimberly-Clark Corporation

Ilene S. Gordon
Retired Chairman and
Chief Executive Officer
Ingredion Incorporated

Marillyn A. Hewson
Chairman, President and
Chief Executive Officer
Lockheed Martin Corporation

Vicki A. Hollub
President and
Chief Executive Officer
Occidental Petroleum Corporation

Jeh C. Johnson
Partner
Paul, Weiss, Rifkind,
Wharton & Garrison LLP and
Former Secretary of Homeland
Security

Debra L. Reed-Klages
Retired Chairman, President and
Chief Executive Officer
Semptra Energy

James D. Taiclet, Jr.
Chairman, President and
Chief Executive Officer
American Tower Corporation

EXECUTIVE OFFICERS

Richard F. Ambrose
Executive Vice President
Space

Brian P. Colan
Vice President, Controller and
Chief Accounting Officer

Michele A. Evans
Executive Vice President
Aeronautics

Scott T. Greene
Executive Vice President
Missiles and Fire Control

Marillyn A. Hewson
Chairman, President and
Chief Executive Officer

Maryanne R. Lavan
Senior Vice President,
General Counsel and
Corporate Secretary

John W. Mollard
Vice President and Treasurer

Kenneth R. Possenriede
Executive Vice President and
Chief Financial Officer

Frank A. St. John
Executive Vice President
Rotary and Mission Systems

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2019

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____
Commission file number 1-11437

LOCKHEED MARTIN CORPORATION

(Exact name of registrant as specified in its charter)

Maryland

(State or other jurisdiction of
incorporation or organization)

52-1893632

(I.R.S. Employer Identification No.)

6801 Rockledge Drive, Bethesda, Maryland

(Address of principal executive offices)

20817

(Zip Code)

(301) 897-6000

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Trading Symbol</u>	<u>Name of each exchange on which registered</u>
Common Stock, \$1 par value	LMT	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of voting and non-voting common stock held by non-affiliates of the registrant computed by reference to the last sales price of such stock, as of the last business day of the registrant's most recently completed second fiscal quarter, which was June 28, 2019, was approximately \$102.1 billion.

There were 281,937,366 shares of our common stock, \$1 par value per share, outstanding as of January 31, 2020.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Lockheed Martin Corporation's 2020 Definitive Proxy Statement are incorporated by reference into Part III of this Form 10-K. The 2020 Definitive Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year to which this report relates.

Lockheed Martin Corporation
Form 10-K
For the Year Ended December 31, 2019
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PART I

ITEM 1. Business

General

We are a global security and aerospace company principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. We also provide a broad range of management, engineering, technical, scientific, logistics, system integration and cybersecurity services. We serve both U.S. and international customers with products and services that have defense, civil and commercial applications, with our principal customers being agencies of the U.S. Government. In 2019, 71% of our \$59.8 billion in net sales were from the U.S. Government, either as a prime contractor or as a subcontractor (including 61% from the Department of Defense (DoD)), 28% were from international customers (including foreign military sales (FMS) contracted through the U.S. Government) and 1% were from U.S. commercial and other customers. Our main areas of focus are in defense, space, intelligence, homeland security and information technology, including cybersecurity.

We operate in an environment characterized by both complexity in global security and continuing economic pressures in the U.S. and globally. A significant component of our strategy in this environment is to focus on program execution, improving the quality and predictability of the delivery of our products and services, and placing security capability quickly into the hands of our U.S. and international customers at affordable prices. Recognizing that our customers are resource constrained, we are endeavoring to develop and extend our portfolio domestically in a disciplined manner with a focus on adjacent markets close to our core capabilities, as well as growing our international sales. We continue to focus on affordability initiatives. We also expect to continue to innovate and invest in technologies to fulfill new mission requirements for our customers and invest in our people so that we have the technical skills necessary to succeed.

We operate in four business segments: Aeronautics, Missiles and Fire Control (MFC), Rotary and Mission Systems (RMS) and Space. We organize our business segments based on the nature of the products and services offered.

Aeronautics

In 2019, our Aeronautics business segment generated net sales of \$23.7 billion, which represented 40% of our total consolidated net sales. Aeronautics' customers include the military services, principally the U.S. Air Force and U.S. Navy, and various other government agencies of the U.S. and other countries. In 2019, U.S. Government customers accounted for 62%, international customers accounted for 37% and U.S. commercial and other customers accounted for 1% of Aeronautics' net sales. Net sales from Aeronautics' combat aircraft products and services represented 32% of our total consolidated net sales in both 2019 and 2018, and 31% in 2017.

Aeronautics is engaged in the research, design, development, manufacture, integration, sustainment, support and upgrade of advanced military aircraft, including combat and air mobility aircraft, unmanned air vehicles and related technologies. Aeronautics' major programs include:

- F-35 Lightning II Joint Strike Fighter - international multi-role, multi-variant, fifth generation stealth fighter;
- C-130 Hercules - international tactical airlifter;
- F-16 Fighting Falcon - low-cost, combat-proven, international multi-role fighter; and
- F-22 Raptor - air dominance and multi-mission fifth generation stealth fighter.

The F-35 program is our largest program, generating 27% of our total consolidated net sales, as well as 69% of Aeronautics' net sales in 2019. The F-35 program consists of multiple development, production and sustainment contracts. Development is focused on modernization of F-35's capability and addressing emerging threats. Sustainment provides logistics and training support for the aircraft delivered to F-35 customers. The DoD authorized the F-35 Joint Program Office (JPO) to begin the Government-led Initial Operational Test and Evaluation (IOT&E) phase in December 2018. The full-rate production decision, also known formally as Milestone C, is expected to be delayed by the DoD until IOT&E activities are complete in the Naval Air Systems Command (NAVAIR)-led Joint Simulation Environment (JSE). The JSE is used to conduct simulated evaluations of the F-35 in a range of high-threat scenarios. Testing is expected to be completed by the end of 2020. The data will be utilized by the U.S. Government as part of their evaluation to transition the F-35 program from Low Rate Initial Production (LRIP) into full-rate production.

Production of the aircraft is expected to continue for many years given the U.S. Government's current inventory objective of 2,456 aircraft for the U.S. Air Force, U.S. Marine Corps and U.S. Navy; commitments from our eight international partner countries and four international customers; as well as expressions of interest from other countries. In 2019, we delivered 134 aircraft,

including 54 to international customers, resulting in total deliveries of 491 production aircraft since program inception. We have 374 production aircraft in backlog as of December 31, 2019, including orders from our international partner countries. For additional information on the F-35 program, see “Status of the F-35 Program” in Management’s Discussion and Analysis of Financial Condition and Results of Operations. See also Item 1A - Risk Factors for a discussion of risks related to the F-35 program.

Aeronautics produces and provides support and sustainment services for the C-130J Super Hercules, as well as upgrades and support services for the legacy C-130 Hercules worldwide fleet. We delivered 28 C-130J aircraft in 2019, including three to international customers. We have 99 aircraft in our backlog as of December 31, 2019. Our C-130J backlog extends into 2025.

Aeronautics produces F-16 aircraft for international customers and continues to provide service-life extension, modernization and other upgrade programs for our customers’ F-16 aircraft, with existing contracts continuing for several years. In July 2019, the U.S. Government awarded a contract for 14 new production F-16 Block 70/72 aircraft for the Slovak Republic. Additionally, we received a contract in 2018 from the U.S. Government for the sale of 16 new production Block 70 F-16 aircraft for the Royal Bahraini Air Force. As of December 31, 2019, we have 30 F-16 aircraft in backlog. We continue to seek international opportunities to deliver additional aircraft.

Aeronautics continues to provide modernization and sustainment activities for the U.S. Air Force’s F-22 aircraft fleet. The modernization program comprises upgrading existing systems requirements, developing new systems requirements, adding capabilities and enhancing the performance of the weapon systems. The sustainment program consists of sustaining the weapon systems of the F-22 fleet, providing training systems, customer support, integrated support planning, supply chain management, aircraft modifications and heavy maintenance, systems engineering and support products.

In addition to the aircraft programs discussed above, Aeronautics is involved in advanced development programs incorporating innovative design and rapid prototype applications. Our Advanced Development Programs (ADP) organization, also known as Skunk Works[®], is focused on future systems, including unmanned and manned aerial systems and next generation capabilities for advanced strike, intelligence, surveillance, reconnaissance, situational awareness and air mobility. We continue to explore technology advancement and insertion into our existing aircraft. We also are involved in numerous network-enabled activities that allow separate systems to work together to increase effectiveness and we continue to invest in new technologies to maintain and enhance competitiveness in military aircraft design, development and production.

Missiles and Fire Control

In 2019, our MFC business segment generated net sales of \$10.1 billion, which represented 17% of our total consolidated net sales. MFC’s customers include the military services, principally the U.S. Army, and various government agencies of the U.S. and other countries, as well as commercial and other customers. In 2019, U.S. Government customers accounted for 75%, international customers accounted for 24% and U.S. commercial and other customers accounted for 1% of MFC’s net sales.

MFC provides air and missile defense systems; tactical missiles and air-to-ground precision strike weapon systems; logistics; fire control systems; mission operations support, readiness, engineering support and integration services; manned and unmanned ground vehicles; and energy management solutions. MFC also has contracts with the U.S. Government for various classified programs. MFC’s major programs include:

- The Patriot Advanced Capability-3 (PAC-3) and Terminal High Altitude Area Defense (THAAD) air and missile defense programs. PAC-3 is an advanced defensive missile for the U.S. Army and international customers designed to intercept and eliminate incoming airborne threats using kinetic energy. THAAD is a transportable defensive missile system for the U.S. Government and international customers designed to engage targets both within and outside of the Earth’s atmosphere.
- The Multiple Launch Rocket System (MLRS), Hellfire, Joint Air-to-Surface Standoff Missile (JASSM) and Javelin tactical missile programs. MLRS is a highly mobile, automatic system that fires surface-to-surface rockets and missiles from the M270 and High Mobility Artillery Rocket System platforms produced for the U.S. Army and international customers. Hellfire is an air-to-ground missile used on rotary and fixed-wing aircraft, which is produced for the U.S. Army, Navy, Marine Corps and international customers. JASSM is an air-to-ground missile launched from fixed-wing aircraft, which is produced for the U.S. Air Force and international customers. Javelin is a shoulder-fired anti-armor rocket system, which is produced for the U.S. Army, Marine Corps and international customers.
- The Apache, Sniper Advanced Targeting Pod (SNIPER[®]) and Infrared Search and Track (IRST21[®]) fire control systems programs. The Apache fire control system provides weapons targeting capability for the Apache helicopter for the U.S. Army and international customers. SNIPER is a targeting system for several fixed-wing aircraft and is produced for the U.S. Air Force and international customers. IRST21 provides long-range infrared detection and tracking of airborne threats and is used on several fixed-wing aircraft. IRST21 is produced for the U.S. Air Force, the U.S. Navy, the National Guard and international customers.

- The Special Operations Forces Global Logistics Support Services (SOF GLSS) program provides logistics support services to the special operations forces of the U.S. military.
- Hypersonics programs, several programs with the U.S. Air Force and U.S. Army to design, develop and build hypersonic strike weapons.

Rotary and Mission Systems

In 2019, our RMS business segment generated net sales of \$15.1 billion, which represented 25% of our total consolidated net sales. RMS' customers include the military services, principally the U.S. Navy and Army, and various government agencies of the U.S. and other countries, as well as commercial and other customers. In 2019, U.S. Government customers accounted for 72%, international customers accounted for 25% and U.S. commercial and other customers accounted for 3% of RMS' net sales. Net sales from RMS' Sikorsky helicopter programs represented 9%, 10% and 12% of our consolidated net sales in 2019, 2018 and 2017.

RMS provides design, manufacture, service and support for a variety of military and commercial helicopters; ship and submarine mission and combat systems; mission systems and sensors for rotary and fixed-wing aircraft; sea and land-based missile defense systems; radar systems; the Littoral Combat Ship (LCS); simulation and training services; and unmanned systems and technologies. In addition, RMS supports the needs of government customers in cybersecurity and delivers communications and command and control capabilities through complex mission solutions for defense applications. RMS' major programs include:

- The Black Hawk[®] and Seahawk[®] helicopters manufactured for U.S. and foreign governments.
- The Aegis Combat System (Aegis) serves as an air and missile defense system for the U.S. Navy and international customers and is also a sea and land-based element of the U.S. missile defense system.
- The CH-53K King Stallion helicopter delivering the next generation heavy lift helicopter for the U.S. Marine Corps.
- The LCS and the Multi-Mission Surface Combatant (MMSC) programs to provide surface combatant ships for the U.S. Navy and international customers that are designed to operate in shallow waters and the open ocean.
- The VH-92A helicopter manufactured for the U.S. Marine One transport mission.
- The Command, Control, Battle Management and Communications (C2BMC) contract, a program to provide an air operations center for the Ballistic Missile Defense System for the U.S. Government.

Space

In 2019, our Space business segment generated net sales of \$10.9 billion, which represented 18% of our total consolidated net sales. Space's customers include various government agencies of the U.S. and other countries along with commercial customers. In 2019, U.S. Government customers accounted for 86% and international customers accounted for 14% of Space's net sales. Net sales from Space's satellite products and services represented 11% of our total consolidated net sales in 2019 and 2018, and 12% in 2017.

Space is engaged in the research, design, development, engineering and production of satellites, space transportation systems, and strategic, advanced strike, and defensive systems. Space provides network-enabled situational awareness and integrates complex space and ground global systems to help our customers gather, analyze and securely distribute critical intelligence data. Space is also responsible for various classified systems and services in support of vital national security systems. Space's major programs include:

- The United Kingdom's nuclear deterrent program operated by the AWE Management Limited (AWE) joint venture.
- The Trident II D5 Fleet Ballistic Missile (FBM), a program with the U.S. Navy for the only submarine-launched intercontinental ballistic missile currently in production in the U.S.
- The Space Based Infrared System (SBIRS) and Next Generation Overhead Persistent Infrared (Next Gen OPIR) system programs, which provide the U.S. Air Force with enhanced worldwide missile warning capabilities.
- The Orion Multi-Purpose Crew Vehicle (Orion), a spacecraft for the National Aeronautics and Space Administration (NASA) utilizing new technology for human exploration missions beyond low earth orbit.
- Global Positioning System (GPS) III, a program to modernize the GPS satellite system for the U.S. Air Force.
- Hypersonics programs, several programs with the U.S. Air Force, U.S. Army and U.S. Navy to design, develop and build hypersonic strike weapons.
- The Advanced Extremely High Frequency (AEHF) system, the next generation of highly secure communications satellites for the U.S. Air Force.

Competition

Our broad portfolio of products and services competes both domestically and internationally against products and services of other large aerospace and defense companies, as well as numerous smaller competitors. Changes within the industry we operate in, such as vertical integration by our peers, could negatively impact us. We often form teams with our competitors in efforts to provide our customers with the best mix of capabilities to address specific requirements. In some areas of our business, customer requirements are changing to encourage expanded competition. Principal factors of competition include the value of our products and services to the customer; technical and management capability; the ability to develop and implement complex, integrated system architectures; total cost of ownership; our demonstrated ability to execute and perform against contract requirements; and our ability to provide timely solutions. Technological advances in such areas as additive manufacturing, cloud computing, advanced materials, autonomy, robotics, and big data and new business models such as commercial access to space are enabling new factors of competition for both traditional and non-traditional competitors.

The competition for international sales is generally subject to U.S. Government stipulations (e.g., export restrictions, market access, technology transfer, industrial cooperation and contracting practices). We may compete against U.S. and non-U.S. companies (or teams) for contract awards by international governments. International competitions also may be subject to different laws or contracting practices of international governments that may affect how we structure our bid for the procurement. In many international procurements, the purchasing government's relationship with the U.S. and its industrial cooperation programs are also important factors in determining the outcome of a competition. It is common for international customers to require contractors to comply with their industrial cooperation regulations, sometimes referred to as offset requirements, and we have entered into foreign offset agreements as part of securing some international business. For more information concerning offset agreements, see "Contractual Commitments and Off-Balance Sheet Arrangements" in Management's Discussion and Analysis of Financial Condition and Results of Operations.

Intellectual Property

We routinely apply for and own a substantial number of U.S. and foreign patents and trademarks related to the products and services we provide. In addition to owning a large portfolio of patents and trademarks, we develop and own other intellectual property, including copyrights, trade secrets and research, development and engineering know-how, which contribute significantly to our business. We also license intellectual property to and from third parties. The Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS) provide that the U.S. Government obtains certain rights in intellectual property, including patents, developed by us and our subcontractors and suppliers in performance of government contracts or with government funding. The U.S. Government may use or authorize others, including competitors, to use such intellectual property. See the discussion of matters related to our intellectual property within Item 1A - Risk Factors. Non-U.S. governments may also have certain rights in patents and other intellectual property developed in performance of our contracts with these entities. Although our intellectual property rights in the aggregate are important to the operation of our business, we do not believe that any existing patent, license or other intellectual property right is of such importance that its loss or termination would have a material adverse effect on our business taken as a whole.

Raw Materials, Suppliers and Seasonality

Some of our products require relatively scarce raw materials. Historically, we have been successful in obtaining the raw materials and other supplies needed in our manufacturing processes. We seek to manage raw materials supply risk through long-term contracts and by maintaining an acceptable level of the key materials in inventories.

Aluminum and titanium are important raw materials used in certain of our Aeronautics and Space programs. Long-term agreements have helped enable a continued supply of aluminum and titanium. Carbon fiber is an important ingredient in composite materials used in our Aeronautics programs, such as the F-35 aircraft. We have been advised by some suppliers that pricing and the timing of availability of materials in some commodities markets can fluctuate widely. These fluctuations may negatively affect the price and availability of certain materials. While we do not anticipate material problems regarding the supply of our raw materials and believe that we have taken appropriate measures to mitigate these variations, if key materials become unavailable or if pricing fluctuates widely in the future, it could result in delay of one or more of our programs, increased costs or reduced operating profits or cash flows.

We rely on other companies to provide materials, major components and products, and to perform a portion of the services that are provided to our customers under the terms of most of our contracts. A failure by one or more of these suppliers or subcontractors to provide the agreed-upon supplies or perform the agreed-upon services on a timely basis, according to specifications, or at all, may affect our ability to perform our obligations. While we believe we have taken appropriate measures to mitigate these risks, supplier disruptions could result in delays, increased costs, or reduced operating profits or cash flows.

No material portion of our business is considered to be seasonal. Various factors can affect the distribution of our sales between accounting periods, including the timing of government awards, the availability of government funding, product deliveries and customer acceptance.

Government Contracts and Regulations

Our business is heavily regulated. We contract with numerous U.S. Government agencies and entities, principally all branches of the U.S. military and NASA. We also contract with similar government authorities in other countries and they regulate our international efforts. Additionally, our commercial aircraft products are required to comply with U.S. and international regulations governing production and quality systems, airworthiness and installation approvals, repair procedures and continuing operational safety.

We must comply with, and are affected by, laws and regulations relating to the formation, administration and performance of U.S. Government and other governments' contracts, including foreign governments. These laws and regulations, among other things:

- require certification and disclosure of all cost or pricing data in connection with certain types of contract negotiations;
- impose specific and unique cost accounting practices that may differ from U.S. generally accepted accounting principles (GAAP);
- impose acquisition regulations, which may change or be replaced over time, that define which costs can be charged to the U.S. Government, how and when costs can be charged, and otherwise govern our right to reimbursement under certain U.S. Government and foreign contracts;
- require specific security controls to protect U.S. Government controlled unclassified information and restrict the use and dissemination of information classified for national security purposes and the export of certain products, services and technical data; and
- require the review and approval of contractor business systems, defined in the regulations as: (i) Accounting System; (ii) Estimating System; (iii) Earned Value Management System, for managing cost and schedule performance on certain complex programs; (iv) Purchasing System; (v) Material Management and Accounting System, for planning, controlling and accounting for the acquisition, use, issuing and disposition of material; and (vi) Property Management System.

The U.S. Government and other governments may terminate any of our government contracts and subcontracts either at its convenience or for default based on our performance. If a contract is terminated for convenience, we generally are protected by provisions covering reimbursement for costs incurred on the contract and profit on those costs. If a contract is terminated for default, we generally are entitled to payments for our work that has been accepted by the U.S. Government or other governments; however, the U.S. Government and other governments could make claims to reduce the contract value or recover its procurement costs and could assess other special penalties. For more information regarding the U.S. Government's and other governments' right to terminate our contracts, see Item 1A - Risk Factors. For more information regarding government contracting laws and regulations, see Item 1A - Risk Factors as well as "Critical Accounting Policies - Contract Accounting / Sales Recognition" in Management's Discussion and Analysis of Financial Condition and Results of Operations. For more information on the risks of doing work internationally, see Item 1A - Risk Factors.

Additionally, our programs for the U.S. Government often operate for periods of time under undefinitized contract actions (UCAs), which means that we begin performing our obligations before the terms, specifications or price are finally agreed to between the parties. Although in most cases we historically have reached mutual agreement to definitize our UCAs, the U.S. Government has the ability to unilaterally definitize contracts and has done so in the past. Absent a successful appeal of such action, the unilateral definitization of the contract obligates us to perform under terms and conditions imposed by the U.S. Government. The U.S. Government's power to unilaterally definitize a contract can affect our ability to negotiate mutually agreeable contract terms and, if a contract is unilaterally imposed upon us, it may negatively affect our expected profit and cash flows on a program or impose burdensome terms.

A portion of our business is classified by the U.S. Government and cannot be specifically described. The operating results of these classified contracts are included in our consolidated financial statements. The business risks and capital requirements associated with classified contracts historically have not differed materially from those of our other U.S. Government contracts. Our internal controls addressing the financial reporting of classified contracts are consistent with our internal controls for our non-classified contracts.

Our operations are subject to and affected by various federal, state, local and foreign environmental protection laws and regulations regarding the discharge of materials into the environment or otherwise regulating the protection of the environment. While the extent of our financial exposure cannot in all cases be reasonably estimated, the costs of environmental compliance have not had, and we do not expect that these costs will have, a material adverse effect on our earnings, financial position and

cash flow, primarily because substantially all of our environmental costs are allowable in establishing the price of our products and services under our contracts with the U.S. Government. For information regarding these matters, including current estimates of the amounts that we believe are required for remediation or cleanup to the extent that they are probable and estimable, see “Critical Accounting Policies - Environmental Matters” in Management’s Discussion and Analysis of Financial Condition and Results of Operations and “Note 14 – Legal Proceedings, Commitments and Contingencies” included in our Notes to Consolidated Financial Statements. See also the discussion of environmental matters within Item 1A - Risk Factors.

Backlog

At December 31, 2019, our backlog was \$144.0 billion compared with \$130.5 billion at December 31, 2018. Backlog is converted into sales in future periods as work is performed or deliveries are made. We expect to recognize approximately 39% of our backlog over the next 12 months and approximately 65% over the next 24 months as revenue, with the remainder recognized thereafter.

Our backlog includes both funded (firm orders for our products and services for which funding has been both authorized and appropriated by the customer) and unfunded (firm orders for which funding has not been appropriated) amounts. We do not include unexercised options or potential orders under indefinite-delivery, indefinite-quantity agreements in our backlog. If any of our contracts with firm orders were to be terminated, our backlog would be reduced by the expected value of the unfilled orders of such contracts. Funded backlog was \$94.5 billion at December 31, 2019, as compared to \$86.4 billion at December 31, 2018. For backlog related to each of our business segments, see “Business Segment Results of Operations” in Management’s Discussion and Analysis of Financial Condition and Results of Operations.

Research and Development

We conduct research and development (R&D) activities using our own funds (referred to as company-funded R&D or independent research and development (IR&D)) and under contractual arrangements with our customers (referred to as customer-funded R&D) to enhance existing products and services and to develop future technologies. R&D costs include basic research, applied research, concept formulation studies, design, development, and related test activities. See “Note 1 – Significant Accounting Policies” (under the caption “Research and development and similar costs”) included in our Notes to Consolidated Financial Statements.

Employees

At December 31, 2019, we had approximately 110,000 employees, about 93% of whom were located in the U.S. Approximately 20% of our employees are covered by collective bargaining agreements with various unions. A number of our existing collective bargaining agreements expire in any given year. Historically, we have been successful in negotiating renewals to expiring agreements without any material disruption of operating activities. Management considers employee relations to be good.

Available Information

We are a Maryland corporation formed in 1995 by combining the businesses of Lockheed Corporation and Martin Marietta Corporation. Our principal executive offices are located at 6801 Rockledge Drive, Bethesda, Maryland 20817. Our telephone number is (301) 897-6000 and our website address is www.lockheedmartin.com.

We make our website content available for information purposes only. It should not be relied upon for investment purposes, nor is it incorporated by reference into this Annual Report on Form 10-K (Form 10-K).

Throughout this Form 10-K, we incorporate by reference information from parts of other documents filed with the U.S. Securities and Exchange Commission (SEC). The SEC allows us to disclose important information by referring to it in this manner.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements for our annual stockholders’ meetings and amendments to those reports are available free of charge on our website, www.lockheedmartin.com/investor, as soon as reasonably practical after we electronically file the material with, or furnish it to, the SEC. In addition, copies of our annual report will be made available, free of charge, upon written request. The SEC also maintains a website at www.sec.gov that contains reports, proxy statements and other information regarding SEC registrants, including Lockheed Martin Corporation.

Forward-Looking Statements

This Form 10-K contains statements that, to the extent they are not recitations of historical fact, constitute forward-looking statements within the meaning of the federal securities laws and are based on our current expectations and assumptions. The words

“believe,” “estimate,” “anticipate,” “project,” “intend,” “expect,” “plan,” “outlook,” “scheduled,” “forecast” and similar expressions are intended to identify forward-looking statements. These statements are not guarantees of future performance and are subject to risks and uncertainties.

Statements and assumptions with respect to future sales, income and cash flows, program performance, the outcome of litigation, anticipated pension cost and funding, environmental remediation cost estimates, planned acquisitions or dispositions of assets, or the anticipated consequences are examples of forward-looking statements. Numerous factors, including the risk factors described in the following section, could cause our actual results to differ materially from those expressed in our forward-looking statements.

Our actual financial results likely will be different from those projected due to the inherent nature of projections. Given these uncertainties, forward-looking statements should not be relied on in making investment decisions. The forward-looking statements contained in this Form 10-K speak only as of the date of its filing. Except where required by applicable law, we expressly disclaim a duty to provide updates to forward-looking statements after the date of this Form 10-K to reflect subsequent events, changed circumstances, changes in expectations, or the estimates and assumptions associated with them. The forward-looking statements in this Form 10-K are intended to be subject to the safe harbor protection provided by the federal securities laws.

ITEM 1A. Risk Factors

An investment in our common stock or debt securities involves risks and uncertainties. We seek to identify, manage and mitigate risks to our business, but risk and uncertainty cannot be eliminated or necessarily predicted. The outcome of one or more of these risks could have a material effect on our operating results, financial position, or cash flows. You should carefully consider the following factors, in addition to the other information contained in this Annual Report on Form 10-K, before deciding to purchase our common stock or debt securities.

We depend heavily on contracts with the U.S. Government, including contracts related to the F-35 program, for a substantial portion of our business.

We derived 71% of our total net sales from the U.S. Government in 2019, including 61% from the DoD. We expect to continue to derive most of our sales from work performed under U.S. Government contracts. Those contracts are conditioned upon the continuing availability of Congressional appropriations. Congress usually appropriates funds on a fiscal year (FY) basis even though contract performance may extend over many years. Consequently, contracts are often partially funded initially and additional funds are committed only as Congress makes further appropriations. If we incur costs in excess of funds obligated on a contract, we may be at risk for reimbursement of those costs unless and until additional funds are obligated to the contract.

The F-35 program, which consists of multiple development, production and sustainment contracts, is our largest program. It represented 27% of our total net sales in 2019 and is expected to represent a higher percentage of our sales in future years. A decision by the U.S. Government or other governments to cut spending on this program or reduce or delay planned orders would have an adverse impact on our business and results of operations. Given the size and complexity of the F-35 program, we anticipate that there will be continual reviews related to aircraft performance, program schedule, cost, and requirements as part of the DoD, Congressional, and international partners’ oversight and budgeting processes. Current program challenges include, but are not limited to, supplier and partner performance, software development, the availability and receipt of funding for production contracts on a timely basis, execution of future flight tests and findings resulting from testing and operating the aircraft, the level of cost associated with life-cycle operations and sustainment and warranties, continuing to reduce the unit production costs, and achieving cost targets.

Budget uncertainty, the risk of future budget cuts, the potential for U.S. government shutdowns, the use of continuing resolutions, and the federal debt ceiling can adversely affect our industry and the funding for our programs. If a government shutdown were to occur and were to continue for an extended period of time, we could be at risk of program cancellations and other disruptions and nonpayment. If the U.S. Government operates under a continuing resolution, new contract and program starts are restricted and funding for our programs may be unavailable, reduced or delayed. The federal budget debate could also result in reductions in overall defense spending which could adversely impact our business.

We believe our diverse range of defense, homeland security and information technology products and services, generally make it less likely that cuts in any specific contract or program will affect our business on a long-term basis. However, termination of multiple or large programs or contracts could adversely affect our business and future financial performance. Changes in funding priorities may afford new or additional opportunities for our businesses in terms of existing, follow-on or replacement programs, but could also reduce opportunities in existing programs and in planned programs where we intend to compete. While we would expect to compete and be well positioned as the incumbent on existing programs, we may not be successful or, even if successful, the replacement programs may be funded at lower levels.

U.S. Government sanctions on Turkey and Turkey's removal from the F-35 program could adversely impact our results of operations and cash flows.

On July 17, 2019, the U.S. Government suspended Turkey's participation in the F-35 program and initiated the process to formally remove Turkey from the program as a result of Turkey accepting delivery of the Russian S-400 air and missile defense system. To date, the Administration has not imposed sanctions on Turkish entities involved in the S-400 procurement, although sanctions under the Countering America's Adversaries Through Sanctions Act (CAATSA) remain a risk. Additionally, sanctions could be imposed against Turkey as a result of future legislation, including the "Promoting American National Security and Preventing the Resurgence of ISIS Act of 2019" that was passed out of the Senate Foreign Relations Committee on December 11, 2019. The bill includes significant new sanction provisions targeted at Turkey that, if enacted, would directly affect Lockheed Martin programs in Turkey. Turkey could implement retaliatory sanctions if the bill moves forward in Congress in 2020. We are monitoring these developments and the potential impacts of any sanctions and other actions regarding Turkey on the F-35 program and on our other programs involving Turkey. Depending on the scope and applicability of any sanctions or other actions, the impact could be material to our operations, operating results, financial position or cash flows. Turkey is one of eight international partner countries on the F-35 program and previously committed to purchase up to 100 F-35 aircraft, of which six have completed production.

Turkish suppliers also produce component parts for the F-35 program, many of which are single-sourced. To minimize the risks of disruption of our supply chain and ensure continuity of F-35 production, we have been working closely with the DoD and supporting activities to identify and engage alternate suppliers for the component parts produced by Turkish suppliers. We have made significant progress toward this end but due to the procedure to qualify new parts and suppliers, this collaborative process between DoD and Lockheed Martin is ongoing. We are in discussions with the U.S. Government with respect to the timeline for the transition of Turkish sources. While the transition timeline is an important first step, it is equally important that our replacement capacity is re-established so that production is not impacted. Efforts to date have significantly reduced our risk but final resolution on a limited number of remaining components could affect F-35 deliveries, including in 2020, and any accelerated work stoppage would impact cost. International sales of the F-35 are negotiated between the U.S. Government and international governments and the process to formally remove Turkey from the F-35 program is a government-to-government matter. We will continue to follow official U.S. Government guidance as it relates to delivery of F-35 aircraft to Turkey and the export and import of component parts from the Turkish supply chain.

The full effects of potential U.S. Government sanctions on Turkey and Turkey's removal from the F-35 program cannot be determined at this time. However, these actions could impact the timing of orders, disrupt the production of aircraft, delay delivery of aircraft, disrupt delivery of sustainment components produced in Turkey and impact funding on the F-35 program to include the result of any reprogramming of funds that may be necessary to mitigate the impact of alternate sources for component parts made in Turkey. While, in the case of the F-35 program, we expect that these costs ultimately would be recovered from the U.S. Government, the availability or timing of any recovery could adversely affect our cash flows and results of operations.

We have other programs involving sales to Turkey or work with Turkish industry, including Sikorsky Black Hawk helicopter production that is dependent on sole-source components from Turkish suppliers and the Turkish Utility Helicopter Program, which is a program to produce helicopters for the Turkish Armed Forces, that could be adversely affected by the imposition of sanctions on Turkey, and potential reciprocal actions. Depending on the terms and interpretation of any sanctions, certain of these activities could be determined to be prohibited, which could result in restrictions on exports or imports, losses of future sales, reductions in backlog, return of advance payments, costs to develop alternate supply sources, restrictions on payments, force majeure events or contract terminations. Such activity also could result in claims from our suppliers, which may include both the amount established in any settlement agreements, the costs of evaluating supplier settlement proposals and the costs of negotiating settlement agreements. These effects could have a material impact on our operating results, financial position and cash flows.

We are subject to a number of procurement laws and regulations, including the U.S. Government's ability to terminate contracts for convenience. Our business and reputation could be adversely affected if we or those we do business with fail to comply with these laws.

We must comply with and are affected by laws and regulations relating to the award, administration and performance of U.S. Government contracts. Government contract laws and regulations affect how we do business with our customers and impose certain risks and costs on our business. A violation of these laws and regulations by us, our employees, others working on our behalf, a supplier or a joint venture partner could harm our reputation and result in the imposition of fines and penalties, the termination of our contracts, suspension or debarment from bidding on or being awarded contracts, loss of our ability to export products or perform services and civil or criminal investigations or proceedings.

In some instances, these laws and regulations impose terms or obligations that are different than those typically found in commercial transactions. For example, the U.S. Government may terminate any of our government contracts and subcontracts not

only for default based on our performance but also at its convenience. Upon termination for convenience of a fixed-price type contract, typically we are entitled to receive the purchase price for delivered items, reimbursement for allowable costs for work-in-process and an allowance for profit on the contract or adjustment for loss if completion of performance would have resulted in a loss.

Upon termination for convenience of a cost-reimbursable contract, we normally are entitled to reimbursement of allowable costs plus a portion of the fee where allowable costs include our cost to terminate agreements with our suppliers and subcontractors. The amount of the fee recovered, if any, is related to the portion of the work accomplished prior to termination and is determined by negotiation. We attempt to ensure that adequate funds are available by notifying the customer when its estimated costs, including those associated with a possible termination for convenience, approach levels specified as being allotted to its programs. As funds are typically appropriated on a fiscal year basis and as the costs of a termination for convenience may exceed the costs of continuing a program in a given fiscal year; however, programs occasionally do not have sufficient funds appropriated to cover the termination costs if the government were to terminate them for convenience. Under such circumstances, the U.S. Government could assert that it is not required to appropriate additional funding.

A termination arising out of our default may expose us to liability and have a material adverse effect on our ability to compete for future contracts and orders. In addition, on those contracts for which we are teamed with others and are not the prime contractor, the U.S. Government could terminate a prime contract under which we are a subcontractor, notwithstanding the fact that our performance and the quality of the products or services we delivered were consistent with our contractual obligations as a subcontractor. In the case of termination for default, the U.S. Government could make claims to reduce the contract value or recover its procurement costs and could assess other special penalties. Under such circumstances we may have rights and there may be remedial actions available to us under applicable laws and the FAR.

Additionally, our programs for the U.S. Government often operate for periods of time under UCAs, which means that we begin performing our obligations before the terms, specifications or price are finally agreed to between the parties. The U.S. Government has the ability to unilaterally definitize contracts, which, absent a successful appeal, obligates us to perform under terms and conditions imposed by the U.S. Government. The U.S. Government has unilaterally definitized contracts with us in the past, most notably the F-35 LRIP 9 contract in 2016, and may do so in the future. The U.S. Government's power to unilaterally definitize a contract can affect our ability to negotiate mutually agreeable contract terms and, if a contract is unilaterally imposed upon us, it may negatively affect our expected profit and cash flows on a program or impose burdensome terms.

Certain of our U.S. Government contracts span one or more base years and include multiple option years. The U.S. Government generally has the right not to exercise option periods and may not exercise an option period for various reasons. The U.S. Government also may decide to exercise option periods for contracts under which it is expected that our costs may exceed the contract price or ceiling, which could result in losses or unreimbursed costs.

Evolving U.S. Government procurement policies and increased emphasis on cost over performance could adversely affect our business.

The U.S. Government could implement procurement policies that negatively impact our profitability. Changes in procurement policy favoring more incentive-based fee arrangements, different award fee criteria or government contract negotiation offers based upon the customer's view of what our costs should be (as compared to our actual costs) may affect the predictability of our profit rates or make it more difficult to compete on certain types of programs. Our customers also may pursue non-traditional contract provisions or contract type in negotiation of contracts. The U.S. Government's preference for fixed-price contracting has resulted in what we believe to be the inappropriate application of fixed-priced contracting methods to development programs. By their nature, the technical challenges, costs and timing of development programs are difficult to estimate and the use of fixed-price instead of cost-reimbursable contracts for such programs increases the financial risk to the contractor. This increased risk may lead to losses on fixed price development programs or may cause us not to bid on future fixed-price development programs. From time to time, the U.S. Government also has proposed contract terms or taken positions that represent fundamental changes from historical practices or that we believe are inconsistent with the FAR.

As recommended by a June 2019 U.S. Government Accountability Office (GAO) Report on contract financing, the DoD has stated that it will conduct a comprehensive assessment of the effect that DoD contract financing and profit policies have on the defense industry. We have no assurance regarding the full scope and recurrence of any study and what changes will be proposed, if any, and their impact on our working capital, cash flow, profit or results of operation. Earlier changes proposed by the DoD in 2018 and later withdrawn would have had a negative effect on the timing of our cash flows.

We are routinely subject to audit by our customers on government contracts and the results of those audits could have an adverse effect on our business, reputation and results of operations.

U.S. Government agencies, including the Defense Contract Audit Agency, the Defense Contract Management Agency and various agency Inspectors General, routinely audit and investigate government contractors. These agencies review a contractor's performance under its contracts, its cost structure, its business systems and compliance with applicable laws, regulations and standards. The U.S. Government has the ability to decrease or withhold certain payments when it deems systems subject to its review to be inadequate. Additionally, any costs found to be misclassified may be subject to repayment and from time to time we have had substantial disagreements with government auditors regarding the allowability of costs incurred by us under government contracts, which further delays payments even if we are correct in our positions. We have unaudited or unsettled incurred cost claims related to past years, which limits our ability to issue final billings on contracts for which authorized and appropriated funds may be expiring or can result in substantial delays in final billings and our ability to close out a contract.

If an audit or investigation uncovers improper or illegal activities, we may be subject to civil or criminal penalties and administrative sanctions, including reductions of the value of contracts, contract modifications or terminations, forfeiture of profits, suspension of payments, penalties, fines, suspension, or prohibition from doing business with the U.S. Government. In addition, we could suffer serious reputational harm if allegations of impropriety were made against us. Similar government oversight exists in most other countries where we conduct business.

Our profitability and cash flow may vary based on the mix of our contracts and programs, our performance, and our ability to control costs.

Our profitability and cash flow may vary materially depending on the types of government contracts undertaken, the nature of products produced or services performed under those contracts, the costs incurred in performing the work, the achievement of other performance objectives and the stage of performance at which the right to receive fees is determined, particularly under award and incentive-fee contracts. Failure to perform to customer expectations and contract requirements may result in reduced fees or losses and may adversely affect our financial performance. Our backlog includes a variety of contract types and represents the sales we expect to recognize for our products and services in the future.

Contract types primarily include fixed-price and cost-reimbursable contracts. Under each type of contract, if we are unable to control costs, our operating results could be adversely affected, particularly if we are unable to justify an increase in contract value to our customers. Cost overruns or the failure to perform on existing programs also may adversely affect our ability to retain existing programs and win future contract awards.

Under fixed-price contracts, we agree to perform specified work for a pre-determined price. To the extent our actual costs vary from the estimates upon which the price was negotiated, we will generate more or less profit or could incur a loss. Some fixed-price contracts have a performance-based component under which we may earn incentive payments or incur financial penalties based on our performance.

Cost-reimbursable contracts provide for the payment of allowable costs incurred during performance of the contract plus a fee up to a ceiling based on the amount that has been funded. Typically, we enter into three types of cost-reimbursable contracts: cost-plus-award-fee, cost-plus-incentive-fee, and cost-plus-fixed-fee. Cost-plus-award-fee contracts provide for an award fee that varies within specified limits based on the customer's assessment of our performance against a predetermined set of criteria, such as targets based on cost, quality, technical and schedule criteria. Cost-plus-incentive-fee contracts provide for reimbursement of costs plus a fee that is adjusted by a formula based on the relationship of total allowable costs to total target costs (i.e., incentive based on cost) or reimbursement of costs plus an incentive to exceed stated performance targets (i.e., incentive based on performance). The fixed-fee in a cost-plus-fixed-fee contract is negotiated at the inception of the contract and that fixed-fee does not vary with actual costs.

Contracts for development programs with complex design and technical challenges are often cost-reimbursable. In these cases, the associated financial risks primarily relate to a reduction in fees and the program could be canceled if cost, schedule or technical performance issues arise. Other contracts included in our backlog are for the transition from development to production (e.g., LRIP contracts), which includes the challenge of starting and stabilizing a manufacturing production and test line while the final design is being validated and managing change in requirements or capabilities. These contracts frequently are cost-reimbursable or fixed-price incentive-fee contracts. Generally, if our costs exceed the contract target cost or are not allowable under the applicable regulations, we may not be able to obtain reimbursement for all costs and may have our fees reduced or eliminated. There are also contracts for production, as well as operations and maintenance of the delivered products, that have the challenge of achieving a stable production and delivery rate, while maintaining operability of the product after delivery. These contracts are mainly fixed-price. In addition, certain contracts, primarily those associated with our Space business segment, contain provisions that require

us to forfeit fees, pay penalties, or provide replacement systems in the event of performance failure, which could negatively affect our earnings and cash flows.

Increased competition and bid protests in a budget-constrained environment may make it more difficult to maintain our financial performance and customer relationships.

A substantial portion of our business is awarded through competitive bidding. The U.S. Government increasingly has relied on competitive contract award types, including indefinite-delivery, indefinite-quantity and other multi-award contracts, which have the potential to create pricing pressure and to increase our costs by requiring us to submit multiple bids and proposals. Multi-award contracts require us to make sustained efforts to obtain task orders under the contract. Additionally, recent competitive bids have not contained cost-realism evaluation criteria which has led to competitors taking aggressive pricing positions. The competitive bidding process entails substantial costs and managerial time to prepare bids and proposals for contracts that may not be awarded to us or may be split among competitors. Additionally, the U.S. Government may fail to award us large competitive contracts in an effort to maintain a broader industrial base.

Even if we are successful in obtaining an award, we may encounter bid protests from unsuccessful bidders on new program awards. Unsuccessful bidders may protest in the hope of being awarded a subcontract for a portion of the work in return for withdrawing the protest. Bid protests could result in significant expenses to us, contract modifications or even loss of the contract award. Even where a bid protest does not result in the loss of a contract award, the resolution can extend the time until contract activity can begin and, as a result, delay the recognition of sales. We also may not be successful in our efforts to protest or challenge any bids for contracts that were not awarded to us and we could incur significant time and expense in such efforts.

We are experiencing increased competition while, at the same time, many of our customers are facing budget pressures, trying to do more with less by cutting costs, identifying more affordable solutions, performing certain work internally rather than hiring contractors, and reducing product development cycles. Recent acquisitions in our industry, particularly vertical integration by tier-1 prime contractors, could also result in increased competition or limit our access to certain suppliers. To remain competitive, we must maintain consistently strong customer relationships, seek to understand customer priorities and provide superior performance, advanced technology solutions and service at an affordable cost with the agility that our customers require to satisfy their mission objectives in an increasingly price competitive environment.

We are the prime contractor on most of our contracts and if our subcontractors, suppliers or teaming agreement or joint venture partners fail to perform their obligations, our performance and our ability to win future business could be harmed.

We rely on other companies to provide materials, major components and products, and to perform a portion of the services that are provided to our customers under the terms of most of our contracts. These arrangements may involve subcontracts, teaming arrangements, joint ventures or supply agreements with other companies upon which we rely (contracting parties). There is a risk that the contracting party does not perform at all or to our expectations or meet affordability targets and we may have disputes with our contracting parties, including disputes regarding the quality and timeliness of work performed, the workshare provided to that party, customer concerns about the other party's performance, our failure to extend existing task orders or issue new task orders, or our hiring the personnel of a subcontractor, teammate or joint venture partner or vice versa. We could also be adversely affected by actions by or issues experienced by our contracting parties that are outside of our control, such as misconduct and reputational issues involving our contracting parties, which could subject us to liability or adversely affect our ability to compete for contract awards.

Changes in the economic environment, including geopolitical events, defense budgets, trade sanctions and constraints on available financing, and the highly competitive and budget constrained environment in which we operate, may adversely affect the financial stability of our contracting parties or their ability to meet their performance requirements or to provide needed supplies or services on a timely basis. Some scarce raw materials required for our products are largely controlled by a single country and therefore can be adversely impacted by potential trade actions involving that country. Additionally, our efforts to increase the efficiency of our operations and improve the affordability of our products and services could negatively impact our ability to attract and retain suppliers. We must comply with specific procurement requirements which can limit the available suppliers and we do not have secondary suppliers for some supplies and the qualification of new or additional suppliers can under some circumstances take an extended period of time.

A failure, for whatever reason, by one or more of our contracting parties to provide the agreed-upon supplies or perform the agreed-upon services on a timely basis, according to specifications, or at all, may affect our ability to perform our obligations and require that we transition the work to other companies. Contracting party performance deficiencies may result in additional costs or delays in product deliveries and affect our operating results and could result in a customer terminating our contract for default or convenience. A default termination could expose us to liability and affect our ability to compete for future contracts and orders.

Our success depends, in part, on our ability to develop new technologies, products and services and efficiently produce and deliver existing products.

Many of the products and services we provide are highly engineered and involve sophisticated technologies with related complex manufacturing and system integration processes. Our customers' requirements change and evolve regularly. Accordingly, our future performance depends, in part, on our ability to adapt to changing customer needs rapidly, identify emerging technological trends, develop and manufacture innovative products and services efficiently and bring those offerings to market quickly at cost-effective prices. This includes efforts to implement emerging digital technologies and capabilities. Due to the complex nature of the products and services we offer, we may experience technical difficulties during the development of new products or technologies. These technical difficulties could result in delays and higher costs, which may negatively impact our financial results, and could divert resources from other projects, until such products or technologies are fully developed. See "Note 1 – Significant Accounting Policies" included in our Notes to Consolidated Financial Statements for further details about losses incurred on certain development programs. Additionally, there can be no assurance that our development projects will be successful or meet the needs of our customers.

Our competitors may also develop new technology, or offerings, or more efficient ways to produce existing products that could cause our existing offerings to become obsolete or that could gain market acceptance before our own competitive offerings. If we fail in our development projects or if our new products or technologies fail to achieve customer acceptance, our ability to procure new contracts could be unsuccessful and this could negatively impact our financial results.

We may be unable to benefit fully from or adequately protect our intellectual property rights or use third-party intellectual property, which could negatively affect our business.

We routinely apply for and own a substantial number of U.S. and foreign patents and trademarks related to the products and services we provide. In addition to owning a large portfolio of patents and trademarks, we develop and own other intellectual property, including copyrights, trade secrets and research, development and engineering know-how, which contribute significantly to our business. We also license intellectual property to and from third parties. The FAR and DFARS provide that the U.S. government obtains certain rights in intellectual property, including patents, developed by us and our subcontractors and suppliers in performance of government contracts or with government funding. The U.S. government may use or authorize others, including competitors, to use such intellectual property. Non-U.S. governments may also have certain rights in patents and other intellectual property developed in performance of our contracts with these entities. The U.S. government is taking increasingly aggressive positions regarding the types of intellectual property to which government use rights apply and when it is appropriate for the government to insist on broad use rights. The DoD is also developing an overarching intellectual property acquisition policy that will require a greater focus and planning as to intellectual property rights for its programs, and we have no assurance as to the potential impacts of this policy or any associated regulatory changes on future acquisitions. The DoD's efforts could affect our ability to protect and exploit our intellectual property and to leverage supplier intellectual property, for example, if we are unable to obtain necessary licenses from our suppliers to meet government requirements. Additionally, while we take measures to protect and enforce our intellectual property rights and to respect the intellectual property rights of others, our intellectual property and intellectual property licensed or obtained from third parties is subject to challenges (such as infringement and misappropriation claims) by third parties, which could adversely affect our ability to compete and perform on contracts.

International sales may pose different political, economic, regulatory, competition and other risks.

In 2019, 28% of our total net sales were from international customers. We have a strategy to continue to grow international sales, inclusive of sales of F-35 aircraft to our international partner countries and other countries. International sales are subject to numerous political and economic factors, regulatory requirements, significant competition, taxation, and other risks associated with doing business in foreign countries. Our exposure to such risks may further increase if our international sales grow as we anticipate.

In international sales, we face substantial competition from both U.S. manufacturers and international manufacturers whose governments sometimes provide research and development assistance, marketing subsidies and other assistance for their products and services. Additionally, many of our competitors are also focusing on increasing international sales.

Our international business is conducted through foreign military sales (FMS) contracted through the U.S. Government to international customers and by direct commercial sales (DCS) to such customers. In 2019, approximately 67% of our sales to international customers were FMS and about 33% were DCS. These transaction types differ as FMS transactions entail agreements between the U.S. Government and our international customers through which the U.S. Government purchases products or services from us on behalf of the foreign customer with our contract with the U.S. Government being subject to the FAR and the DFARS. In contrast, DCS transactions represent sales by us directly to international customers and are not subject to the FAR or the DFARS.

All sales to international customers are subject to U.S. and foreign laws and regulations, including import-export control, technology transfer restrictions, investments, taxation, repatriation of earnings, exchange controls, the Foreign Corrupt Practices Act and other anti-corruption laws and regulations, and the anti-boycott provisions of the U.S. Export Administration Act. While we have extensive policies in place to comply with such laws and regulations, failure by us, our employees or others working on our behalf to comply with these laws and regulations could result in administrative, civil, or criminal liabilities, including suspension, debarment from bidding for or performing government contracts, or suspension of our export privileges, which could have a material adverse effect on us. We frequently team with international subcontractors and suppliers who also are exposed to similar risks.

While international sales, whether contracted as FMS or DCS, present risks that are different and potentially greater than those encountered in our U.S. business; DCS with international customers may impose even greater risks. DCS transactions involve direct commercial relationships with parties with whom we have less familiarity and where there may be significant cultural differences. Additionally, international procurement and local country rules and regulations, contract laws, judicial systems, and contractual terms differ from those in the U.S. and are less familiar to us and may treat as criminal matters issues that would be considered civil matters in the U.S. International regulations may be interpreted by foreign courts less bound by precedent and with more discretion; these interpretations frequently have terms less favorable to us than the FAR. Export and import and currency risk also may be increased for DCS with international customers. While these risks are potentially greater than those encountered in our U.S. business, we seek to price our products and services commensurate with the risk profile on DCS with international customers.

In conjunction with defense procurements, some international customers require contractors to comply with industrial cooperation regulations, including entering into industrial cooperation agreements, sometimes referred to as offset agreements. Recently, certain customers have increased their demands for offset commitment levels and higher-value content, including the transfer of technologies and local production and economic development. Expectations as to offset commitments may exceed existing local technical capability. Offset agreements may require in-country purchases, technology transfers, local manufacturing support, investments in foreign joint ventures and financial support projects as an incentive or as a condition to a contract award. In some countries, these offset agreements may require the establishment of a joint venture with a local company, which must control the joint venture. The costs to satisfy our offset obligations are included in the estimates of our total costs to complete the contract and may impact our profitability and cash flows. The ability to recover investments that we make is generally dependent upon the successful operation of joint ventures that we do not control and may involve products and services that are dissimilar to our business activities. In these and other situations, we could be liable for violations of law for actions taken by these entities such as laws related to anti-corruption, import and export, taxation and anti-boycott restrictions. Offset agreements generally extend over several years and may provide for penalties in the event we fail to perform in accordance with the offset requirements, which are typically subjective and can be outside of our control.

Political issues and considerations, both in the U.S. and internationally, could have a significant effect on our business.

Our international business is highly sensitive to changes in regulations (including tariffs, sanctions, embargoes, export and import controls and other trade restrictions), political environments or security risks that may affect our ability to conduct business outside of the U.S., including those regarding investment, procurement, taxation and repatriation of earnings.

We continue to evaluate the potential effect of the United Kingdom's (UK) departure from the European Union (EU) (commonly referred to as Brexit) on our business operations and financial results. We anticipate that the most probable near-term effects are likely to reflect the pressure Brexit is placing on the UK government, which may influence the government's ability to make decisions on large complex programs of the type we perform. Brexit also may have adverse implications on the movement of products or sustainment activities between the UK and EU. Additionally, Brexit may impact the value of the pound sterling. If the pound sterling were to remain depressed against the U.S. dollar, this could negatively impact the ability of the UK government to afford our products and services. While we have operations in the UK and these operations have activity between the UK and the EU (e.g., sales, supply chain, or reliance on personnel), we currently do not anticipate that Brexit will have a material impact on our operations or our financial results. Additionally, our practice is to substantially hedge all of our currency exposure. Therefore, we do not have material currency exposure to the pound sterling or the euro.

International sales also may be affected by actions taken by the U.S. Government in the exercise of foreign policy, Congressional oversight or the financing of particular programs. For example, Congress may act to prevent or impose conditions upon the sale or delivery of our products, such as delays in obtaining Congressional approvals for exports requiring Congressional notification to the Kingdom of Saudi Arabia and Turkey and the suspension of sales of F-35 aircraft to Turkey and potential sanctions. In addition, discussions in Congress may result in sanctions on the Kingdom of Saudi Arabia. Our international business also may be impacted by changes in foreign national priorities, foreign government budgets, global economic conditions, and fluctuations in foreign currency exchange rates. Sales of military products are also affected by defense budgets and U.S. foreign policy, including

trade restrictions and disputes, and there could be significant delays or other issues in reaching definitive agreements for announced programs and international customer priorities could change. Additionally, the timing of orders from our international customers can be less predictable than for our U.S. customers and may lead to fluctuations in the amount reported each year for our international sales.

Our efforts to minimize the likelihood and impact of adverse cybersecurity incidents and to protect data and intellectual property may not be successful and our business could be negatively affected by cyber or other security threats or other disruptions.

We routinely experience various cybersecurity threats, threats to our information technology infrastructure, unauthorized attempts to gain access to our company, employee- and customer-sensitive information, insider threats and denial-of-service attacks as do our customers, suppliers, subcontractors and joint venture partners. We experience similar security threats at customer sites that we operate and manage.

The threats we face vary from attacks common to most industries, to more advanced and persistent, highly organized adversaries, including nation states. These nation state actors target us and other defense contractors for several reasons, including because we protect national security information and develop advanced technology systems. If we are unable to protect sensitive information, including complying with evolving information security and data protection/privacy regulations, our customers or governmental authorities could question the adequacy of our threat mitigation and detection processes and procedures. Moreover, depending on the severity of an incident, our customers' data, our employees' data, our intellectual property (including trade secrets and research, development and engineering know-how), and other third-party data (such as teammates, joint venture partners, subcontractors, suppliers and vendors) could be compromised. Products and services we provide to customers also carry cybersecurity risks, including risks that they could be breached or fail to detect, prevent or combat attacks, which could result in losses to our customers and claims against us, and could harm our relationships with our customers.

We take a variety of precautions to protect our systems and data, including a Computer Incident Response Team (CIRT) to defend against cyber attacks and regular periodic training of our employees on protection of sensitive information, including training intended to prevent the success of "phishing" attacks. However, as a consequence of the persistence, sophistication and volume of cyber attacks, we may not be successful in defending against all such attacks. We also have a corporate-wide counterintelligence and insider threat detection program to proactively identify external and internal threats, and mitigate those threats in a timely manner. Nevertheless, due to the evolving nature of these security threats and the national security aspects of much of the data we protect, the impact of any future incident cannot be predicted.

In addition to cyber threats, we experience threats to the security of our facilities and employees and threats from terrorist acts. We also typically work cooperatively with our customers, suppliers, subcontractors, joint venture partners and entities we acquire, whom are subject to similar threats, to seek to minimize the impact of cyber threats, other security threats or business disruptions. However, we must rely on the safeguards put in place by these entities, and other entities, none of which we control, who have access to our information, and thus may affect the security of our information or the information we are obligated to protect. These entities have varying levels of cybersecurity expertise and safeguards, and their relationships with government contractors, including us, may increase the likelihood that they are targeted by the same cyber threats we face. We have thousands of direct suppliers and even more indirect suppliers with a wide variety of systems and cybersecurity capabilities and adversaries actively seek to exploit security and cybersecurity weaknesses in our supply chain. A breach in our multi-tiered supply chain could impact our data or customer deliverables. We also must rely on this supply chain for detecting and reporting cyber incidents, which could affect our ability to report or respond to cybersecurity incidents effectively or in a timely manner.

The costs related to cyber or other security threats or disruptions may not be fully insured or indemnified by other means. Additionally, some cyber technologies we develop under contract for our customers, particularly those related to homeland security, may raise potential liabilities related to intellectual property and civil liberties, including privacy concerns, which may not be fully insured or indemnified by other means or involve reputational risk. Our enterprise risk management program includes threat detection and cybersecurity mitigation plans, and our disclosure controls and procedures address cybersecurity and include elements intended to ensure that there is an analysis of potential disclosure obligations arising from security breaches. We also maintain compliance programs to address the potential applicability of restrictions on trading while in possession of material, nonpublic information generally and in connection with a cybersecurity breach.

If we fail to manage acquisitions, divestitures, equity investments and other transactions successfully or if acquired entities or equity investments fail to perform as expected, our financial results, business and future prospects could be harmed.

In pursuing our business strategy, we routinely conduct discussions, evaluate companies, and enter into agreements regarding possible acquisitions, joint ventures, other investments and divestitures. We seek to identify acquisition or investment opportunities that will expand or complement our existing products and services or customer base, at attractive valuations. We often compete

with other companies for the same opportunities. To be successful, we must conduct due diligence to identify valuation issues and potential loss contingencies; negotiate transaction terms; complete and close complex transactions; integrate acquired companies and employees; and realize anticipated operating synergies efficiently and effectively. Acquisition, divestiture, joint venture and investment transactions often require substantial management resources and have the potential to divert our attention from our existing business. Unidentified or identified but un-indemnified pre-closing liabilities could affect our future financial results, particularly through successor liability under procurement laws and regulations such as the False Claims Act or Truth in Negotiations Act, anti-corruption, environmental, tax, import-export and technology transfer laws which provide for civil and criminal penalties and the potential for debarment. We also may incur unanticipated costs or expenses, including post-closing asset impairment charges, expenses associated with eliminating duplicate facilities, employee retention, transaction-related or other litigation, and other liabilities. Any of the foregoing could adversely affect our business and results of operations.

Joint ventures and other noncontrolling investments operate under shared control with other parties. Depending on our rights and percentage of ownership, we may consolidate the financial results of such entities or account for our interests under the equity method. Under the equity method of accounting for nonconsolidated ventures and investments, we recognize our share of the operating profit or loss of these joint ventures in our results of operations. Our operating results may be affected by the performance of businesses over which we do not exercise control, which includes the inability to prevent strategic decisions that may adversely affect our business, financial condition and results of operations. As a result, we may not be successful in achieving the growth or other intended benefits of strategic investments. Our joint ventures face many of the same risks and uncertainties as we do. The most significant impact of our equity investments is in our Space business segment where approximately 12% of its 2019 operating profit was derived from its share of earnings from equity method investees, particularly that in United Launch Alliance (ULA).

During 2018, we recognized a non-cash asset impairment charge of \$110 million related to our equity method investee, Advanced Military Maintenance, Repair and Overhaul Center LLC (AMMROC). As of December 31, 2019, the carrying value of our investment in AMMROC is \$435 million. We are continuing to monitor this investment, in light of ongoing performance, business base and economic issues and we may have to record our portion of additional charges, or an impairment of our investment, or both, should the carrying value of our investment exceed its fair value. Substantially all of AMMROC's current business is dependent on one contract that is currently up for re-competition and if AMMROC is not successful in securing such business on terms consistent with prior contracts, or at all, the carrying value of our investment would be adversely affected. These charges could adversely affect our results of operations. See "Note 1 – Significant Accounting Policies" included in our Notes to Consolidated Financial Statements.

Through our Lockheed Martin Ventures Fund, we make investments in companies (both within the U.S. and in other countries) that we believe are developing disruptive technologies applicable to our core businesses and new initiatives important to Lockheed Martin. These investments may be in the forms of common or preferred stock, convertible debt securities or investments in funds. Typically, we hold a non-controlling interest and, therefore, are unable to influence strategic decisions by these companies and may have limited visibility into their activities, which may result in our not realizing the intended benefits of the investments. We have also begun investing in funds that invest in other companies. We have less influence and visibility as a non-controlling investor in a fund.

There can be no assurance that we will continue to increase our dividend or to repurchase shares of our common stock at current levels.

Cash dividend payments and share repurchases are subject to limitations under applicable laws and the discretion of our Board of Directors and are determined after considering then-existing conditions, including earnings, other operating results and capital requirements. Our payment of dividends and share repurchases could vary from historical practices or our stated expectations. Decreases in asset values or increases in liabilities, including liabilities associated with benefit plans and assets and liabilities associated with taxes, can reduce net earnings and stockholders' equity. A deficit in stockholders' equity could limit our ability to pay dividends and make share repurchases under Maryland state law in the future. In addition, the timing and amount of share repurchases under board approved share repurchase plans is within the discretion of management and will depend on many factors, including results of operations, capital requirements and applicable law.

Our business involves significant risks and uncertainties that may not be covered by indemnity or insurance.

A significant portion of our business relates to designing, developing and manufacturing advanced defense and technology products and systems. New technologies may be untested or unproven. Failure of some of these products and services could result in extensive loss of life or property damage. Accordingly, we may incur liabilities that are unique to our products and services. In some but not all circumstances, we may be entitled to certain legal protections or indemnifications from our customers, either through U.S. Government indemnifications under Public Law 85-804 or the Price-Anderson Act, qualification of our products and services by the Department of Homeland Security under the SAFETY Act provisions of the Homeland Security Act of 2002, contractual provisions or otherwise. We endeavor to obtain insurance coverage from established insurance carriers to cover these

risks and liabilities. The amount of insurance coverage that we maintain may not be adequate to cover all claims or liabilities. Existing coverage may be canceled while we remain exposed to the risk and it is not possible to obtain insurance to protect against all operational risks, natural hazards and liabilities. For example, we are limited in the amount of insurance we can obtain to cover certain natural hazards such as earthquakes, fires or extreme weather conditions. We have significant operations in geographic areas prone to these risks, such as in California, Florida and Texas. Even if insurance coverage is available, we may not be able to obtain it in an amount, at a price or on terms acceptable to us. Some insurance providers may be unable or unwilling to provide us insurance given the nature of our business or products. Additionally, disputes with insurance carriers over coverage terms or the insolvency of one or more of our insurance carriers may significantly affect the amount or timing of our cash flows.

Substantial costs resulting from an accident; failure of or defect in our products or services; natural catastrophe or other incident; or liability arising from our products and services in excess of any legal protection, indemnity, and our insurance coverage (or for which indemnity or insurance is not available or not obtained) could adversely impact our financial condition, cash flows, and operating results. Any accident, failure of, or defect in our products or services, even if fully indemnified or insured, could negatively affect our reputation among our customers and the public and make it more difficult for us to compete effectively. It also could affect the cost and availability of adequate insurance in the future.

Pension funding and costs are dependent on several economic assumptions which if changed may cause our future earnings and cash flow to fluctuate significantly as well as affect the affordability of our products and services.

Many of our employees are covered by defined benefit pension plans, retiree medical and life insurance plans, and other postemployment plans (collectively, postretirement benefit plans). The impact of these plans on our earnings may be volatile in that the amount of expense we record for our postretirement benefit plans may materially change from year to year because the calculations are sensitive to changes in several key economic assumptions including interest rates and rates of return on plan assets, other actuarial assumptions including participant longevity (also known as mortality) and employee turnover, as well as the timing of cash funding. Changes in these factors, including actual returns on plan assets, may also affect our plan funding, cash flow and stockholders' equity. In addition, the funding of our plans and recovery of costs on our contracts, as described below, may also be subject to changes caused by legislative or regulatory actions.

With regard to cash flow, we make substantial cash contributions to our plans as required by the Employee Retirement Income Security Act of 1974 (ERISA), as amended by the Pension Protection Act of 2006 (PPA). We generally are able to recover these contributions related to our plans as allowable costs on our U.S. Government contracts, including FMS. However, there is a lag between the time when we contribute cash to our plans under pension funding rules and when we recover pension costs under U.S. Government Cost Accounting Standards (CAS). We also may not be successful in our efforts to reduce the volatility of our outstanding pension obligations and to accelerate CAS recovery and recover associated costs from the U.S. Government.

For more information on how these factors could impact earnings, financial position, cash flow and stockholders' equity, see "Critical Accounting Policies - Postretirement Benefit Plans" in Management's Discussion and Analysis of Financial Condition and Results of Operations and "Note 11 - Postretirement Benefit Plans" included in our Notes to Consolidated Financial Statements.

Environmental costs could adversely affect our future earnings as well as the affordability of our products and services.

Our operations are subject to and affected by a variety of federal, state, local and foreign environmental protection laws and regulations. We are involved in environmental remediation at some of our current and former facilities and at third-party-owned sites where we have been designated a potentially responsible party as a result of our prior activities and those of our predecessor companies. In addition, we could be affected by future regulations imposed or claims asserted in response to concerns over climate change, other aspects of the environment or natural resources. We have an ongoing, comprehensive sustainability program to reduce the effects of our operations on the environment.

We manage and have managed various U.S. Government-owned facilities on behalf of the U.S. Government. At such facilities, environmental compliance and remediation costs historically have been the responsibility of the U.S. Government. We have relied, and continue to rely with respect to past practices, on U.S. Government funding to pay such costs, notwithstanding efforts by some U.S. Government representatives to limit this responsibility. Although the U.S. Government remains responsible for capital and operating costs associated with environmental compliance, responsibility for fines and penalties associated with environmental noncompliance typically is borne by either the U.S. Government or the contractor, depending on the contract and the relevant facts. Some environmental laws include criminal provisions. A conviction under environmental law could affect our ability to be awarded future or perform under existing U.S. Government contracts.

We have incurred and will continue to incur liabilities under various federal, state, local and foreign statutes for environmental protection and remediation. The extent of our financial exposure cannot in all cases be reasonably estimated at this time. Among the variables management must assess in evaluating costs associated with these cases and remediation sites generally are the status

of site assessment, extent of the contamination, impacts on natural resources, changing cost estimates, evolution of technologies used to remediate the site, continually evolving environmental standards and cost allowability issues, including varying efforts by the U.S. Government to limit allowability of our costs in resolving liability at third-party-owned sites. For information regarding these matters, including current estimates of the amounts that we believe are required for environmental remediation to the extent probable and estimable, see “Critical Accounting Policies - Environmental Matters” in Management’s Discussion and Analysis of Financial Condition and Results of Operations and “Note 14 – Legal Proceedings, Commitments and Contingencies” included in our Notes to Consolidated Financial Statements.

We are involved in a number of legal proceedings. We cannot predict the outcome of litigation and other contingencies with certainty.

Our business may be adversely affected by the outcome of legal proceedings and other contingencies that cannot be predicted with certainty. As required by U.S. GAAP, we estimate loss contingencies and establish reserves based on our assessment of contingencies where liability is deemed probable and reasonably estimable in light of the facts and circumstances known to us at a particular point in time. Subsequent developments in legal proceedings may affect our assessment and estimates of the loss contingency recorded as a liability or as a reserve against assets in our financial statements. For a description of our current legal proceedings, see Item 3 - Legal Proceedings along with “Note 14 – Legal Proceedings, Commitments and Contingencies” included in our Notes to Consolidated Financial Statements.

Our business and financial performance depends, in part, on our ability to identify, attract and retain a highly skilled workforce.

Due to the specialized nature of our business, our future performance is highly dependent upon our ability to identify, attract and retain a workforce with the requisite skills in multiple areas including: engineering, science, manufacturing, information technology, cybersecurity, business development and strategy and management. Our operating performance is also dependent upon personnel who hold security clearances and receive substantial training in order to work on certain programs or tasks. Additionally, as we expand our operations internationally, it is increasingly important to hire and retain personnel with relevant experience in local laws, regulations, customs, traditions and business practices.

We face a number of challenges that may affect personnel retention such as our endeavors to increase the efficiency of our operations and improve the affordability of our products and services such as workforce reductions and consolidating and relocating certain operations. Additionally, a substantial portion of our workforce (including personnel in leadership positions) are retirement-eligible or nearing retirement.

To the extent that we lose experienced personnel, it is critical that we develop other employees, hire new qualified personnel, and successfully manage the short and long-term transfer of critical knowledge and skills. Competition for personnel is intense, and we may not be successful in attracting or retaining personnel with the requisite skills or clearances. We increasingly compete with commercial technology companies outside of the aerospace and defense industry for qualified technical, cyber and scientific positions as the number of qualified domestic engineers is decreasing and the number of cyber professionals is not keeping up with demand. To the extent that these companies grow at a faster rate or face fewer cost and product pricing constraints, they may be able to offer more attractive compensation and other benefits to candidates or our existing employees. If the demand for skilled personnel exceeds supply, we could experience higher labor, recruiting or training costs in order to attract and retain such employees. We could experience difficulty in performing our contracts and executing on new or growing programs if we have a shortage of skilled employees or if our recruiting is delayed. We also must manage leadership development and succession planning throughout our business. While we have processes in place for management transition and the transfer of knowledge and skills, the loss of key personnel, coupled with an inability to adequately train other personnel, hire new personnel or transfer knowledge and skills, could significantly impact our ability to perform under our contracts and execute on new or growing programs.

Approximately 20% of our employees are covered by collective bargaining agreements with various unions. If we encounter difficulties with renegotiations or renewals of collective bargaining arrangements or are unsuccessful in those efforts, we could incur additional costs and experience work stoppages. Union actions at suppliers can also affect us. Any delays or work stoppages could adversely affect our ability to perform under our contracts, which could negatively impact our results of operations, cash flows, and financial condition.

Our estimates and projections may prove to be inaccurate and certain of our assets may be at risk of future impairment.

The accounting for some of our most significant activities is based on judgments and estimates, which are complex and subject to many variables. For example, accounting for sales using the percentage-of-completion method requires that we assess risks and make assumptions regarding schedule, cost, technical and performance issues for thousands of contracts, many of which are long-term in nature. Additionally, we initially allocate the purchase price of acquired businesses based on a preliminary assessment of the fair value of identifiable assets acquired and liabilities assumed. For significant acquisitions we may use a one-year measurement period to analyze and assess a number of factors used in establishing the asset and liability fair values as of the acquisition date which could result in adjustments to asset and liability balances.

We have \$10.6 billion of goodwill assets recorded on our consolidated balance sheet as of December 31, 2019 from previous acquisitions, which represents approximately 22% of our total assets. These goodwill assets are subject to annual impairment testing and more frequent testing upon the occurrence of certain events or significant changes in circumstances that indicate goodwill may be impaired. If we experience changes or factors arise that negatively affect the expected cash flows of a reporting unit, we may be required to write off all or a portion of the reporting unit's related goodwill assets. The carrying value and fair value of our Sikorsky reporting unit are closely aligned. Therefore, any business deterioration, contract cancellations or terminations, or market pressures could cause our sales, earnings and cash flows to decline below current projections and could cause goodwill and intangible assets to be impaired. Additionally, Sikorsky may not perform as expected, or demand for its products may be adversely affected by global economic conditions, including oil and gas trends that are outside of our control.

Changes in U.S. (federal or state) or foreign tax laws and regulations, or their interpretation and application, including those with retroactive effect, including the amortization for research or experimental expenditures, could result in increases in our tax expense and affect profitability and cash flows. The amount of net deferred tax assets will change periodically based on several factors, including the measurement of our postretirement benefit plan obligations, actual cash contributions to our postretirement benefit plans, and future changes in tax laws. In addition, we are regularly under audit or examination by tax authorities, including foreign tax authorities. The final determination of tax audits and any related litigation could similarly result in unanticipated increases in our tax expense and affect profitability and cash flows.

Actual financial results could differ from our judgments and estimates. See "Critical Accounting Policies" in Management's Discussion and Analysis of Financial Condition and Results of Operations and "Note 1 – Significant Accounting Policies" included in our Notes to Consolidated Financial Statements for a complete discussion of our significant accounting policies and use of estimates.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

At December 31, 2019, we owned or leased building space (including offices, manufacturing plants, warehouses, service centers, laboratories and other facilities) at approximately 375 locations primarily in the U.S. Additionally, we managed or occupied approximately 15 government-owned facilities under lease and other arrangements. At December 31, 2019, we had significant operations in the following locations:

- **Aeronautics** - Palmdale, California; Marietta, Georgia; Greenville, South Carolina; and Fort Worth, Texas.
- **Missiles and Fire Control** - Camden, Arkansas; Ocala and Orlando, Florida; Lexington, Kentucky; and Grand Prairie, Texas.
- **Rotary and Mission Systems** - Shelton and Stratford, Connecticut; Orlando, Florida; Moorestown/Mt. Laurel, New Jersey; Owego and Syracuse, New York; Manassas, Virginia; and Mielec, Poland.
- **Space** - Huntsville, Alabama; Sunnyvale, California; Colorado Springs and Denver, Colorado; Cape Canaveral, Florida; Valley Forge, Pennsylvania; and Reading, England.
- **Corporate activities** - Bethesda, Maryland.

The following is a summary of our square feet of floor space owned, leased, or utilized by business segment at December 31, 2019 (in millions):

	Owned	Leased	Government-Owned	Total
Aeronautics	5.0	2.7	14.5	22.2
Missiles and Fire Control	6.7	3.0	1.8	11.5
Rotary and Mission Systems	11.2	6.1	0.5	17.8
Space	8.8	2.1	5.4	16.3
Corporate activities	2.6	1.0	—	3.6
Total	34.3	14.9	22.2	71.4

We believe our facilities are in good condition and adequate for their current use. We may improve, replace or reduce facilities as considered appropriate to meet the needs of our operations.

ITEM 3. Legal Proceedings

We are a party to or have property subject to litigation and other proceedings that arise in the ordinary course of our business, including matters arising under provisions relating to the protection of the environment, and are subject to contingencies related to certain businesses we previously owned. These types of matters could result in fines, penalties, cost reimbursements or contributions, compensatory or treble damages or non-monetary sanctions or relief. We believe the probability is remote that the outcome of each of these matters will have a material adverse effect on the corporation as a whole, notwithstanding that the unfavorable resolution of any matter may have a material effect on our net earnings in any particular interim reporting period. We cannot predict the outcome of legal or other proceedings with certainty.

We are subject to federal, state, local and foreign requirements for the protection of the environment, including those for discharge of hazardous materials and remediation of contaminated sites. Due in part to the complexity and pervasiveness of these requirements, we are a party to or have property subject to various lawsuits, proceedings and remediation obligations. The extent of our financial exposure cannot in all cases be reasonably estimated at this time.

For information regarding the matters discussed above, including current estimates of the amounts that we believe are required for remediation or clean-up to the extent estimable, see “Critical Accounting Policies - Environmental Matters” in Management’s Discussion and Analysis of Financial Condition and Results of Operations and “Note 14 – Legal Proceedings, Commitments and Contingencies” included in our Notes to Consolidated Financial Statements.

As a U.S. Government contractor, we are subject to various audits and investigations by the U.S. Government to determine whether our operations are being conducted in accordance with applicable regulatory requirements. U.S. Government investigations of us, whether relating to government contracts or conducted for other reasons, could result in administrative, civil, or criminal liabilities, including repayments, fines or penalties being imposed upon us, suspension, proposed debarment, debarment from eligibility for future U.S. Government contracting, or suspension of export privileges. Suspension or debarment could have a material adverse effect on us because of our dependence on contracts with the U.S. Government. U.S. Government investigations often take years to complete and many result in no adverse action against us. We also provide products and services to customers outside of the U.S., which are subject to U.S. and foreign laws and regulations and foreign procurement policies and practices. Our compliance with local regulations or applicable U.S. Government regulations also may be audited or investigated.

ITEM 4. Mine Safety Disclosures

Not applicable.

ITEM 4(a). Information about our Executive Officers

Our executive officers as of February 7, 2020 are listed below, with their ages on that date, positions and offices currently held, and principal occupation and business experience during at least the last five years. There were no family relationships among any of our executive officers and directors. All officers serve at the discretion of the Board of Directors.

Richard F. Ambrose (age 61), Executive Vice President - Space

Mr. Ambrose has served as Executive Vice President of Space since April 2013.

Brian P. Colan (age 59), Vice President, Controller, and Chief Accounting Officer

Mr. Colan has served as Vice President, Controller, and Chief Accounting Officer since August 2014.

Michele A. Evans (age 54), Executive Vice President - Aeronautics

Ms. Evans has served as Executive Vice President of Aeronautics since October 2018. She previously served as Deputy Executive Vice President of Aeronautics from June 2018 to September 2018. Prior to that, she served as Vice President and General Manager, Integrated Warfare Systems and Sensors business in our Rotary and Missions Systems (RMS) segment from November 2016 to June 2018; and Vice President and General Manager, Undersea Systems business in our RMS segment from 2013 to November 2016.

Scott T. Greene (age 62), Executive Vice President - Missiles and Fire Control

Mr. Greene has served as Executive Vice President of Missiles and Fire Control (MFC) since August 2019. He previously served as Vice President, Tactical and Strike Missiles in our MFC segment from August 2017 to August 2019; Vice President, Precision Fires and Combat Maneuver Systems in our MFC segment from January 2016 to August 2017; and Vice President, Program Management in our MFC segment from 2011 to January 2016.

Marillyn A. Hewson (age 66), Chairman, President and Chief Executive Officer

Ms. Hewson has served as Chairman, President and Chief Executive Officer of Lockheed Martin since January 2014.

Maryanne R. Lavan (age 60), Senior Vice President, General Counsel and Corporate Secretary

Ms. Lavan has served as Senior Vice President, General Counsel and Corporate Secretary since September 2010.

John W. Mollard (age 62), Vice President and Treasurer

Mr. Mollard has served as Vice President and Treasurer since April 2016. He previously served as Vice President, Corporate Financial Planning and Analysis from 2003 to April 2016.

Kenneth R. Possenriede (age 60), Executive Vice President and Chief Financial Officer

Mr. Possenriede has served as Executive Vice President and Chief Financial Officer since February 2019. He previously served as Vice President of Finance and Program Management in our Aeronautics segment from April 2016 to February 2019. Prior to that, he served as Vice President and Treasurer from 2011 through April 2016.

Frank A. St. John (age 53), Executive Vice President - Rotary and Mission Systems

Mr. St. John has served as Executive Vice President of RMS since August 2019. He previously served as Executive Vice President of MFC from January 2018 to August 2019. Prior to that, he served as Executive Vice President and Deputy, Programs in our MFC segment from June 2017 to January 2018; and Vice President, Orlando Operations and Tactical Missiles/Combat Maneuver Systems business in our MFC segment from 2011 to May 2017.

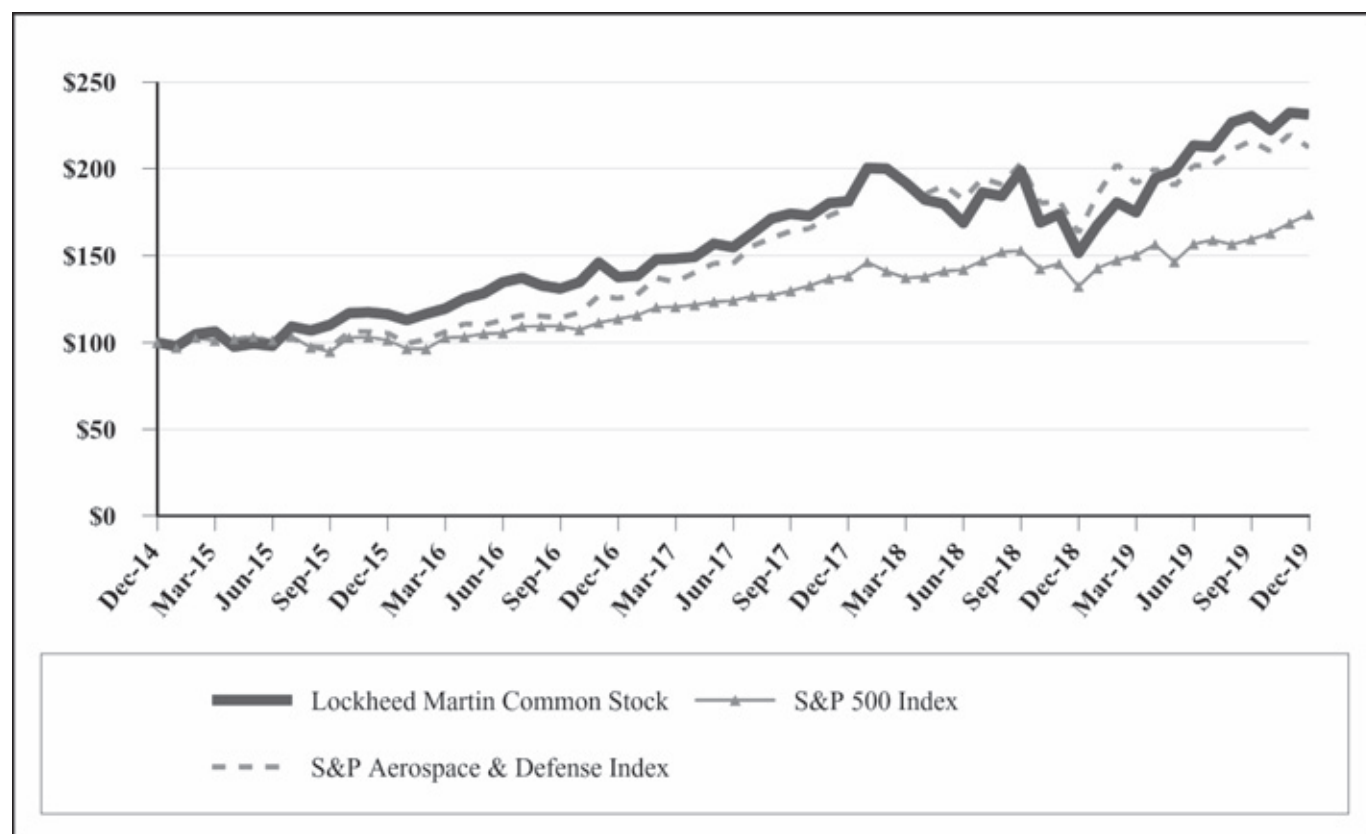
PART II

ITEM 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

At January 31, 2020, we had 25,683 holders of record of our common stock, par value \$1 per share. Our common stock is traded on the New York Stock Exchange (NYSE) under the symbol LMT.

Stockholder Return Performance Graph

The following graph compares the total return on a cumulative basis of \$100 invested in Lockheed Martin common stock on December 31, 2014 to the Standard and Poor's (S&P) 500 Index and the S&P Aerospace & Defense Index.



The S&P Aerospace & Defense Index comprises Arconic Inc., General Dynamics Corporation, Huntington Ingalls Industries, L3Harris Technologies, Inc., Lockheed Martin Corporation, Northrop Grumman Corporation, Raytheon Company, Textron Inc., The Boeing Company, Transdigm Group Inc., and United Technologies Corporation. The stockholder return performance indicated on the graph is not a guarantee of future performance.

This graph is not deemed to be “soliciting material” or to be “filed” with the U.S. Securities and Exchange Commission or subject to the liabilities of Section 18 of the Securities Exchange Act of 1934 (the Exchange Act), and should not be deemed to be incorporated by reference into any of our prior or subsequent filings under the Securities Act of 1933 or the Exchange Act.

Purchases of Equity Securities

There were no sales of unregistered equity securities during the quarter ended December 31, 2019.

The following table provides information about our repurchases of our common stock registered pursuant to Section 12 of the Exchange Act of 1934 during the quarter ended December 31, 2019.

Period ^(a)	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs ^(b)	Approximate Dollar Value of Shares That May Yet be Purchased Under the Plans or Programs ^(b)
<i>(in millions)</i>				
September 30, 2019 – October 27, 2019	349,909	\$ 375.53	349,909	\$ 3,161
October 28, 2019 – November 24, 2019 ^(c)	658,886	\$ 381.99	658,886	\$ 2,811
November 25, 2019 – December 31, 2019 ^{(c)(d)}	268,914	\$ 382.20	257,363	\$ 2,811
Total ^(c)	1,277,709	\$ 380.27	1,266,158	

^(a) We close our books and records on the last Sunday of each month to align our financial closing with our business processes, except for the month of December, as our fiscal year ends on December 31. As a result, our fiscal months often differ from the calendar months. For example, October 28, 2019 was the first day of our November 2019 fiscal month.

^(b) In October 2010, our Board of Directors approved a share repurchase program pursuant to which we are authorized to repurchase our common stock in privately negotiated transactions or in the open market at prices per share not exceeding the then-current market prices. From time to time, our Board of Directors authorizes increases to our share repurchase program. The total remaining authorization for future common share repurchases under our share repurchase program was \$2.8 billion as of December 31, 2019. Under the program, management has discretion to determine the dollar amount of shares to be repurchased and the timing of any repurchases in compliance with applicable law and regulation. This includes purchases pursuant to Rule 10b5-1 plans, including accelerated share repurchases. The program does not have an expiration date.

^(c) During the fourth quarter of 2019, we entered into an accelerated share repurchase (ASR) agreement to repurchase \$350 million of our common stock. We paid \$350 million and received an initial delivery of 658,886 shares on October 30, 2019. Upon final settlement of the ASR agreement on December 20, 2019, we received an additional delivery of 257,363 shares of our common stock based on the average price paid per share of \$381.99, calculated with reference to the volume weighted average price per share of our common stock over the term of the agreement, less a negotiated discount. See “Note 12 – Stockholders’ Equity” included in our Notes to Consolidated Financial Statements.

^(d) During the quarter ended December 31, 2019, the total number of shares purchased included 11,551 shares that were transferred to us by employees in satisfaction of tax withholding obligations associated with the vesting of restricted stock units. These purchases were made pursuant to a separate authorization by our Board of Directors and are not included within the program.

ITEM 6. Selected Financial Data

<i>(In millions, except per share data)</i>	2019	2018	2017	2016	2015
Operating results ^(a)					
Net sales	\$ 59,812	\$ 53,762	\$ 49,960	\$ 47,290	\$ 40,536
Operating profit ^{(b)(c)(d)(e)(f)}	8,545	7,334	6,744	5,888	5,233
Net earnings from continuing operations ^{(b)(c)(d)(e)(f)(g)(h)}	6,230	5,046	1,890	3,661	3,126
Net earnings from discontinued operations ⁽ⁱ⁾	—	—	73	1,512	479
Net earnings ^{(c)(d)(e)(f)(g)(h)}	6,230	5,046	1,963	5,173	3,605
Earnings from continuing operations per common share					
Basic ^{(b)(c)(d)(e)(f)(g)(h)}	22.09	17.74	6.56	12.23	10.07
Diluted ^{(b)(c)(d)(e)(f)(g)(h)}	21.95	17.59	6.50	12.08	9.93
Earnings from discontinued operations per common share					
Basic	—	—	0.26	5.05	1.55
Diluted	—	—	0.25	4.99	1.53
Earnings per common share					
Basic ^{(b)(c)(d)(e)(f)(g)(h)}	22.09	17.74	6.82	17.28	11.62
Diluted ^{(b)(c)(d)(e)(f)(g)(h)}	21.95	17.59	6.75	17.07	11.46
Cash dividends declared per common share	\$ 9.00	\$ 8.20	\$ 7.46	\$ 6.77	\$ 6.15
Balance sheet ^(a)					
Cash, cash equivalents and short-term investments ^(c)	\$ 1,514	\$ 772	\$ 2,861	\$ 1,837	\$ 1,090
Total current assets ⁽ⁱ⁾	17,095	16,103	17,505	14,780	14,573
Goodwill	10,604	10,769	10,807	10,764	10,695
Total assets ^{(c)(j)(k)}	47,528	44,876	46,620	47,560	49,304
Total current liabilities ⁽ⁱ⁾	13,972	14,398	12,913	12,456	13,918
Total debt, net	12,654	14,104	14,263	14,282	15,261
Total liabilities ^{(c)(j)(k)}	44,357	43,427	47,396	46,083	46,207
Total equity (deficit) ^{(c)(g)}	3,171	1,449	(776)	1,477	3,097
Common shares in stockholders' equity at year-end	280	281	284	289	303
Cash flow information					
Net cash provided by operating activities ^(c)	\$ 7,311	\$ 3,138	\$ 6,476	\$ 5,189	\$ 5,101
Net cash used for investing activities ^(l)	(1,241)	(1,075)	(1,147)	(985)	(9,734)
Net cash (used for) provided by financing activities ^(m)	(5,328)	(4,152)	(4,305)	(3,457)	4,277
Backlog ^{(a)(n)}	\$ 143,981	\$ 130,468	\$ 105,493	\$ 103,458	\$ 94,756

(a) Amounts for 2015 do not reflect the impact of the adoption of Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*, as amended, in the first quarter of 2018.

(b) Our operating profit and net earnings from continuing operations and earnings per share from continuing operations were affected by severance and restructuring charges of \$96 million (\$76 million, or \$0.26 per share, after-tax) in 2018, severance charges of \$80 million (\$52 million, or \$0.17 per share, after-tax) in 2016, and severance charges of \$82 million (\$53 million, or \$0.17 per share, after-tax) in 2015. See “Note 15 – Severance and Restructuring Charges” included in our Notes to Consolidated Financial Statements for a discussion of 2018 severance and restructuring charges.

(c) The impact of our postretirement benefit plans can cause our operating profit, net earnings, cash flows and certain amounts recorded on our consolidated balance sheets to fluctuate. Accordingly, our net earnings were affected by a net FAS/CAS pension adjustment of \$1.5 billion in 2019, \$1.0 billion in 2018, \$876 million in 2017, \$902 million in 2016, and \$400 million in 2015. We made pension contributions of \$1.0 billion in 2019, \$5.0 billion in 2018, \$46 million in 2017, \$23 million in 2016, and \$5 million in 2015, and these contributions caused fluctuations in our operating cash flows and cash balance between each of those years. See “Critical Accounting Policies - Postretirement Benefit Plans” in Management’s Discussion and Analysis of Financial Condition and Results of Operations for more information.

(d) In 2019 and 2017, we recorded a previously deferred non-cash gain of \$51 million (\$38 million, or \$0.13 per share, after-tax) and \$198 million (\$122 million, or \$0.42 per share, after-tax) related to properties sold in 2015 as a result of completing our remaining obligations.

(e) For the year ended December 31, 2019, net earnings include a gain of \$34 million (approximately \$0 after-tax) for the sale of our Distributed Energy Solutions business.

(f) For the year ended December 31, 2018, operating profit includes a non-cash asset impairment charge of \$110 million (\$83 million, or \$0.29 per share, after-tax) related to our equity method investee, Advanced Military Maintenance, Repair and Overhaul Center LLC (AMMROC). For the year ended December 31, 2017, operating profit includes a \$64 million (\$40 million, or \$0.14 per share, after-tax)

charge, which represents our portion of a non-cash asset impairment charge recorded by AMMROC. See “Note 1 – Significant Accounting Policies” included in our Notes to Consolidated Financial Statements for more information.

- (g) In 2017, we recorded a net one-time tax charge of \$2.0 billion (\$6.77 per share), substantially all of which was non-cash, primarily related to the estimated impact of the Tax Cuts and Jobs Act (see “Note 9 – Income Taxes” included in our Notes to Consolidated Financial Statements). This charge along with our annual re-measurement adjustment related to our postretirement benefit plans of \$1.4 billion resulted in a deficit in our total equity as of December 31, 2017.
- (h) Net earnings for the year ended December 31, 2019 include benefits of \$127 million (\$0.45 per share) for additional tax deductions for the prior year, primarily attributable to foreign derived intangible income treatment based on proposed tax regulations released on March 4, 2019 and our change in tax accounting method. Net earnings for the year ended December 31, 2018 include benefits of \$146 million (\$0.51 per share) for additional tax deductions for the prior year, primarily attributable to true-ups to the net one-time charges related to the Tax Cuts and Jobs Act enacted on December 22, 2017 and our change in tax accounting method (see “Note 9 – Income Taxes” included in our Notes to Consolidated Financial Statements).
- (i) Our net earnings from discontinued operations in 2016 includes a \$1.2 billion net gain related to the divestiture of our IS&GS business in 2016.
- (j) Included in total current assets are assets of discontinued operations of \$1.0 billion in 2015. Included in total current liabilities are liabilities of discontinued operations of \$900 million in 2015. Included in total assets are assets of discontinued operations of \$4.1 billion in 2015. Included in total liabilities are liabilities of discontinued operations of \$1.2 billion in 2015.
- (k) Effective January 1, 2019, we adopted Accounting Standards Update (ASU) 2016-02, Leases (Topic 842). As of December 31, 2019, right-of-use operating lease assets were \$1.0 billion and operating lease liabilities were \$1.1 billion. Approximately \$855 million of operating lease liabilities were classified as noncurrent. There was no impact to our consolidated statements of earnings or cash flows as a result of adopting this standard. Prior periods were not restated for the adoption of ASU 2016-02. See “Note 8 – Leases” included in our Notes to Consolidated Financial Statements.
- (l) The increase in our cash used for investing activities in 2015 was attributable to acquisitions of businesses, including the \$9.0 billion acquisition of Sikorsky in 2015, net of cash acquired.
- (m) The increase in our cash provided by financing activities in 2015 was primarily a result of the debt incurred to fund the Sikorsky acquisition.
- (n) Backlog at December 31, 2015 includes approximately \$15.6 billion related to Sikorsky, but excludes \$4.8 billion related to our IS&GS business.

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Business Overview

The following Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is intended to help the reader understand our results of operations and financial condition. The MD&A is provided as a supplement to, and should be read in conjunction with, our consolidated financial statements and notes thereto included in Item 8 - Financial Statements and Supplementary Data.

The MD&A generally discusses 2019 and 2018 items and year-to-year comparisons between 2019 and 2018. Discussions of 2017 items and year-to-year comparisons between 2018 and 2017 that are not included in this Form 10-K can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2018 filed with the SEC on February 8, 2019.

We are a global security and aerospace company principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. We also provide a broad range of management, engineering, technical, scientific, logistics, system integration and cybersecurity services. We serve both U.S. and international customers with products and services that have defense, civil and commercial applications, with our principal customers being agencies of the U.S. Government. In 2019, 71% of our \$59.8 billion in net sales were from the U.S. Government, either as a prime contractor or as a subcontractor (including 61% from the Department of Defense (DoD)), 28% were from international customers (including foreign military sales (FMS) contracted through the U.S. Government) and 1% were from U.S. commercial and other customers. Our main areas of focus are in defense, space, intelligence, homeland security and information technology, including cybersecurity.

We operate in four business segments: Aeronautics, Missiles and Fire Control (MFC), Rotary and Mission Systems (RMS) and Space. We organize our business segments based on the nature of the products and services offered.

We operate in an environment characterized by both complexity in global security and continuing economic pressures in the U.S. and globally. A significant component of our strategy in this environment is to focus on program execution, improving the quality and predictability of the delivery of our products and services, and placing security capability quickly into the hands of our U.S. and international customers at affordable prices. Recognizing that our customers are resource constrained, we are endeavoring to develop and extend our portfolio domestically in a disciplined manner with a focus on adjacent markets close to our core capabilities, as well as growing our international sales. We continue to focus on affordability initiatives. We also expect to continue to innovate and invest in technologies to fulfill new mission requirements for our customers and invest in our people so that we have the technical skills necessary to succeed without limiting our ability to return a substantial portion of our free cash flow to our investors in the form of dividends and share repurchases. We define free cash flow as cash from operations as determined under U.S. generally accepted accounting principles (GAAP), less capital expenditures as presented on our consolidated statements of cash flows.

2020 Financial Trends

We expect our 2020 net sales to increase in the mid-single digit range from 2019 levels. The projected growth is driven by increased volume at all four business areas. Specifically, the increased growth is driven by the F-35 program at Aeronautics, increased volume in the tactical and strike missiles and air and missile defense businesses at MFC, Sikorsky volume at RMS, and hypersonics volume at Space. Total business segment operating profit margin in 2020 is expected to be approximately 10.8%; and cash from operations is expected to be greater than or equal to \$7.6 billion. The preliminary outlook for 2020 assumes the U.S. Government continues to support and fund our key programs. Changes in circumstances may require us to revise our assumptions, which could materially change our current estimate of 2020 net sales, operating margin and cash flows.

We expect a net FAS/CAS pension benefit of approximately \$2.1 billion in 2020 based on a 3.25% discount rate (a 100 basis point decrease from the end of 2018), an approximate 21% return on plan assets in 2019, a 7.00% expected long-term rate of return on plan assets in future years, and the revised longevity assumptions released during the fourth quarter of 2019 by the Society of Actuaries. We do not expect to make any contributions to our qualified defined benefit pension plans in 2020 and anticipate recovering approximately \$2.0 billion of CAS pension cost.

As previously announced on July 1, 2014, we completed the final step of the planned freeze of our qualified and nonqualified defined benefit pension plans for salaried employees effective January 1, 2020. The service-based component of the formula used to determine retirement benefits is frozen such that participants are no longer earning further credited service for any period after December 31, 2019. As a result of these changes, the plans are fully frozen effective January 1, 2020. Retirees already collecting

benefits and former employees with a vested benefit were not affected by the change. Current employees also will retain all benefits already earned in their pension plan to date.

Portfolio Shaping Activities

We continuously strive to strengthen our portfolio of products and services to meet the current and future needs of our customers. We accomplish this in part by our independent research and development activities and through acquisition, divestiture and internal realignment activities.

We selectively pursue the acquisition of businesses and investments at attractive valuations that will expand or complement our current portfolio and allow access to new customers or technologies. We also may explore the divestiture of businesses that no longer meet our needs or strategy or that could perform better outside of our organization. In pursuing our business strategy, we routinely conduct discussions, evaluate targets and enter into agreements regarding possible acquisitions, divestitures, joint ventures and equity investments.

Divestiture of Distributed Energy Solutions

On November 18, 2019, we completed the sale of our Distributed Energy Solutions (DES) business, a commercial energy service provider that was part of our MFC business segment. We received \$225 million in cash from the sale and recognized a gain of \$34 million (approximately \$0 after-tax) for the sale. Amounts related to this divestiture were not significant to the corporation and the sale did not represent a strategic shift, and accordingly, the operating results, financial position and cash flows for the DES business have not been reclassified to discontinued operations.

Industry Considerations

U.S. Government Funding

On December 20, 2019, the President signed the annual fiscal year (FY) 2020 appropriations, funding the DoD and other government agencies (a U.S. Government fiscal year starts on October 1 and ends on September 30). The appropriations provide \$738 billion in discretionary funding for national defense, including \$667 billion in base funding and \$71 billion in Overseas Contingency Operations (OCO)/emergency funding (OCO and emergency supplemental funding do not count toward discretionary spending caps). Of the \$738 billion, the DoD is allocated \$709 billion; composed of \$637 billion in base funding and \$72 billion in OCO and emergency funding.

The approved funding is in accordance with the Bipartisan Budget Act of 2019 (BBA-19), which was enacted on August 2, 2019. The BBA-19 increased the spending limits for both defense and non-defense discretionary funding for the U.S. Government FY 2020 and 2021 set under the Budget Control Act of 2011 (BCA). The defense spending limits were increased by \$90 billion to \$667 billion for FY 2020 and by \$81 billion to \$672 billion for FY 2021. When combined with approved OCO/emergency funding, the agreement raised top-line spending for national defense to the \$738 billion enacted in FY 2020 and \$741 billion in FY 2021. By raising the spending limits, the BBA-19 essentially ended the budgetary constraints implemented by the 2011 BCA. Additionally, the BBA-19 also suspended the debt ceiling through July 31, 2021, at which time the debt limit will be increased to the amount of U.S. Government debt outstanding on that date.

International Business

A key component of our strategic plan is to grow our international sales. To accomplish this growth, we continue to focus on strengthening our relationships internationally through partnerships and joint technology efforts. We conduct business with international customers through each of our business segments through either FMS or direct sales to international customers. See Item 1A - Risk Factors for a discussion of risks related to international sales.

International customers accounted for 37% of Aeronautics' 2019 net sales. There continues to be strong international interest in the F-35 program, which includes commitments from the U.S. Government and eight international partner countries and four international customers, as well as expressions of interest from other countries. The U.S. Government and the partner countries continue to work together on the design, testing, production, and sustainment of the F-35 program. While, in July 2019, the DoD announced plans to remove Turkey, who had previously committed to purchase up to 100 F-35 aircraft, from the F-35 program, we received congressional notification of approval of the proposed sale of 32 F-35A aircraft to Poland in the third quarter of 2019. Additionally, in January 2019, Singapore announced its selection of the F-35 as their next generation fighter. Singapore's initial request is for four F-35s, with the option of eight additional aircraft. Other areas of international expansion at our Aeronautics business segment include the F-16 program. In August 2019, the Bulgarian government and the U.S. Government signed a letter of offer and acceptance worth \$1.26 billion regarding Bulgaria's planned procurement of eight new production F-16 Block 70 aircraft for the Bulgarian Air Force.

In 2019, international customers accounted for 24% of MFC's net sales. Our MFC business segment continues to generate significant international interest, most notably in the air and missile defense product line, which produces the Patriot Advanced Capability-3 (PAC-3) and Terminal High Altitude Area Defense (THAAD) systems. The PAC-3 is an advanced missile defense system designed to intercept incoming airborne threats. We have ongoing PAC-3 programs for production and sustainment activities in Qatar, the Kingdom of Saudi Arabia, UAE, Japan, the Republic of Korea, Poland and Taiwan. THAAD is an integrated system designed to protect against high altitude ballistic missile threats. UAE and the Kingdom of Saudi Arabia are international customers for THAAD, and other countries in the Middle East, Europe and the Asia-Pacific region have also expressed interest in our air and missile defense systems. Additionally, we continue to see international demand for our tactical missile and fire control products, where we received orders for Apache and Low Altitude Navigation and Targeting Infrared for Night (LANTIRN®) systems for Qatar, and precision fires systems from Poland and Romania. Other MFC international customers include the United Kingdom, Germany, India, Kuwait and Bahrain.

In 2019, international customers accounted for 25% of RMS' net sales. Our RMS business segment continues to experience international interest in the Aegis Ballistic Missile Defense System (Aegis). We perform activities in the development, production, modernization, ship integration, test and lifetime support for ships of international customers such as Japan, Spain, Republic of Korea, and Australia. We have ongoing programs in Canada and Chile for combat systems equipment upgrades on Halifax-class and Type 23 frigates. Our Multi-Mission Surface Combatant (MMSC) program provides surface combatant ships for international customers, such as the Kingdom of Saudi Arabia, designed to operate in shallow waters and the open ocean. In our training and logistics solutions portfolio, we have active programs and pursuits in the United Kingdom, the Kingdom of Saudi Arabia, Canada, Egypt, Singapore, and Australia. We have active development, production, and sustainment support of the S-70i Black Hawk® and MH-60 Seahawk® aircraft to foreign military customers, including Chile, Australia, Denmark, Taiwan, the Kingdom of Saudi Arabia and Colombia. Commercial aircraft are sold to customers in the oil and gas industry, emergency medical evacuation, search and rescue fleets, and VIP customers in over 30 countries.

International customers accounted for 14% of Space's 2019 net sales. Our Space business segment includes the operations of AWE Management Limited (AWE), which operates the United Kingdom's nuclear deterrent program. The work at AWE covers the entire life cycle, from initial concept, assessment and design, through component manufacture and assembly, in-service support and decommissioning, and disposal. In addition, Space has an international contract with Japan to design and manufacture geostationary communication satellites using the LM2100 satellite platform.

Status of the F-35 Program

The F-35 program primarily consists of production contracts, sustainment activities, and new development efforts. Production of the aircraft is expected to continue for many years given the U.S. Government's current inventory objective of 2,456 aircraft for the U.S. Air Force, U.S. Marine Corps, and U.S. Navy; commitments from our eight international partner countries and four international customers; as well as expressions of interest from other countries.

During 2019, the F-35 program completed several milestones both domestically and internationally. The U.S. Government continued testing the aircraft, including ship trials, mission and weapons systems evaluations, and the F-35 fleet recently surpassed 240,000 flight hours. During 2019, multiple customers declared Initial Operating Capability including the U.S. Navy for its F-35C variant, the United Kingdom for its F-35B variant, Japan for its F-35A variant, and Norway for its F-35A variant. Since program inception, we have delivered 491 production F-35 aircraft, demonstrating the F-35 program's continued progress and longevity. The first 491 F-35 aircraft delivered to U.S. and international customers include 347 F-35A variants, 108 F-35B variants, and 36 F-35C variants. The full-rate production decision, also known formally as Milestone C, is expected to be delayed by the DoD until Initial Operational Test and Evaluation (IOT&E) activities are complete in the Naval Air Systems Command (NAVAIR)-led Joint Simulation Environment (JSE). The JSE is used to conduct simulated evaluations of the F-35 in a range of high-threat scenarios. Testing is expected to be completed by the end of 2020. The data will be utilized by the U.S. Government as part of their evaluation to transition the F-35 program from Low Rate Initial Production (LRIP) into full-rate production.

During the fourth quarter of 2019, the U.S. Government and Lockheed Martin finalized a Block Buy agreement for the production and delivery of F-35s in Lots 12, 13 and 14 at the lowest aircraft price in the history of the program. This includes amounts previously awarded by the U.S. Government in November 2018 for the production of 252 Block Buy F-35 aircraft. As part of the fourth quarter 2019 agreement, the U.S. Government awarded the production of an additional 112 F-35 Block Buy Aircraft. We delivered 134 production aircraft in 2019 to our U.S. and international partner countries, and we have 374 production aircraft in backlog, including orders from our international partner countries.

On July 17, 2019, the U.S. Government suspended Turkey's participation in the F-35 program and initiated the process to formally remove Turkey from the program as a result of Turkey accepting delivery of the Russian S-400 air and missile defense system. To date, the Administration has not imposed sanctions on Turkish entities involved in the S-400 procurement, although sanctions under the Countering America's Adversaries Through Sanctions Act (CAATSA) remain a risk. Additionally, sanctions

could be imposed against Turkey as a result of future legislation, including the “Promoting American National Security and Preventing the Resurgence of ISIS Act of 2019” that was passed out of the Senate Foreign Relations Committee on December 11, 2019. The bill includes significant new sanction provisions targeted at Turkey that, if enacted, would directly affect Lockheed Martin programs in Turkey. Turkey could implement retaliatory sanctions if the bill moves forward in Congress in 2020. We are monitoring these developments and the potential impacts of any sanctions and other actions regarding Turkey on the F-35 program and on our other programs involving Turkey. Depending on the scope and applicability of any sanctions or other actions, the impact could be material to our operations, operating results, financial position or cash flows. Turkey is one of eight international partner countries on the F-35 program and previously committed to purchase up to 100 F-35 aircraft, of which six have completed production.

Turkish suppliers also produce component parts for the F-35 program, many of which are single-sourced. To minimize the risks of disruption of our supply chain and ensure continuity of F-35 production, we have been working closely with the DoD and supporting activities to identify and engage alternate suppliers for the component parts produced by Turkish suppliers. We have made significant progress toward this end but due to the procedure to qualify new parts and suppliers, this collaborative process between DoD and Lockheed Martin is ongoing. We are in discussions with the U.S. Government with respect to the timeline for the transition of Turkish sources. While the transition timeline is an important first step, it is equally important that our replacement capacity is re-established so that production is not impacted. Efforts to date have significantly reduced our risk but final resolution on a limited number of remaining components could affect F-35 deliveries, including in 2020, and any accelerated work stoppage would impact cost. International sales of the F-35 are negotiated between the U.S. Government and international governments and the process to formally remove Turkey from the F-35 program is a government-to-government matter. We will continue to follow official U.S. Government guidance as it relates to delivery of F-35 aircraft to Turkey and the export and import of component parts from the Turkish supply chain.

The full effects of potential U.S. Government sanctions on Turkey and Turkey’s removal from the F-35 program cannot be determined at this time. However, these actions could impact the timing of orders, disrupt the production of aircraft, delay delivery of aircraft, disrupt delivery of sustainment components produced in Turkey and impact funding on the F-35 program to include the result of any reprogramming of funds that may be necessary to mitigate the impact of alternate sources for component parts made in Turkey. While, in the case of the F-35 program, we expect that these costs ultimately would be recovered from the U.S. Government, the availability or timing of any recovery could adversely affect our cash flows and results of operations. For additional discussion, including the risk of sanctions on other programs involving sales to Turkey or work with Turkish industry, see Item 1A - Risk Factors.

Given the size and complexity of the F-35 program, we anticipate that there will be continual reviews related to aircraft performance, program schedule, cost, and requirements as part of the DoD, Congressional, and international partner countries’ oversight and budgeting processes. Current program challenges include, but are not limited to, supplier and partner performance, software development, level of cost associated with life cycle operations and sustainment and warranties, receiving funding for production contracts on a timely basis, executing future flight tests, findings resulting from testing and operating the aircraft.

Consolidated Results of Operations

Our operating cycle is primarily long term and involves many types of contracts for the design, development and manufacture of products and related activities with varying delivery schedules. Consequently, the results of operations of a particular year, or year-to-year comparisons of sales and profits, may not be indicative of future operating results. The following discussions of comparative results among years should be reviewed in this context. All per share amounts cited in these discussions are presented on a “per diluted share” basis, unless otherwise noted. Our consolidated results of operations were as follows (in millions, except per share data):

	2019	2018	2017
Net sales	\$ 59,812	\$ 53,762	\$ 49,960
Cost of sales	(51,445)	(46,488)	(43,589)
Gross profit	8,367	7,274	6,371
Other income, net	178	60	373
Operating profit ^{(a)(b)(c)(d)}	8,545	7,334	6,744
Interest expense	(653)	(668)	(651)
Other non-operating expense, net	(651)	(828)	(847)
Earnings from continuing operations before income taxes	7,241	5,838	5,246
Income tax expense ^{(e)(f)}	(1,011)	(792)	(3,356)
Net earnings from continuing operations	6,230	5,046	1,890
Net earnings from discontinued operations	—	—	73
Net earnings	\$ 6,230	\$ 5,046	\$ 1,963
Diluted earnings per common share			
Continuing operations	\$ 21.95	\$ 17.59	\$ 6.50
Discontinued operations	—	—	0.25
Total diluted earnings per common share	\$ 21.95	\$ 17.59	\$ 6.75

- (a) For the year ended December 31, 2018, operating profit includes a non-cash asset impairment charge of \$110 million related to our equity method investee, Advanced Military Maintenance, Repair and Overhaul Center LLC (AMMROC). For the year ended December 31, 2017, operating profit includes a \$64 million charge, which represents our portion of a non-cash asset impairment charge recorded by AMMROC. See “Note 1 – Significant Accounting Policies” included in our Notes to Consolidated Financial Statements for more information.
- (b) For the year ended December 31, 2018, operating profit includes \$96 million of severance and restructuring charges. See “Note 15 – Severance and Restructuring Charges” included in our Notes to Consolidated Financial Statements for a discussion of 2018 severance and restructuring charges.
- (c) For the years ended December 31, 2019 and December 31, 2017, operating profit includes a previously deferred non-cash gain of approximately \$51 million and \$198 million related to properties sold in 2015.
- (d) For the year ended December 31, 2019, operating profit includes a gain of \$34 million for the sale of our Distributed Energy Solutions business.
- (e) In 2017, we recorded a net one-time tax charge of \$2.0 billion (\$6.77 per share), substantially all of which was non-cash, primarily related to the estimated impact of the Tax Cuts and Jobs Act. See “Income Tax Expense” section below and “Note 9 – Income Taxes” included in our Notes to Consolidated Financial Statements for additional information.
- (f) Net earnings for the year ended December 31, 2019 include benefits of \$127 million (\$0.45 per share) for additional tax deductions for the prior year, primarily attributable to foreign derived intangible income treatment based on proposed tax regulations released on March 4, 2019 and our change in tax accounting method. Net earnings for the year ended December 31, 2018 include benefits of \$146 million (\$0.51 per share) for additional tax deductions for the prior year, primarily attributable to true-ups to the net one-time charges related to the Tax Cuts and Jobs Act enacted on December 22, 2017 and our change in tax accounting method. See “Income Tax Expense” section below and “Note 9 – Income Taxes” included in our Notes to Consolidated Financial Statements for additional information.

Certain amounts reported in other income, net, primarily our share of earnings or losses from equity method investees, are included in the operating profit of our business segments. Accordingly, such amounts are included in our discussion of our business segment results of operations.

Net Sales

We generate sales from the delivery of products and services to our customers. Our consolidated net sales were as follows (in millions):

	2019	2018	2017
Products	\$ 50,053	\$ 45,005	\$ 42,502
% of total net sales	83.7 %	83.7 %	85.1 %
Services	9,759	8,757	7,458
% of total net sales	16.3 %	16.3 %	14.9 %
Total net sales	\$ 59,812	\$ 53,762	\$ 49,960

Substantially all of our contracts are accounted for using the percentage-of-completion cost-to-cost method. Under the percentage-of-completion cost-to-cost method, we record net sales on contracts over time based upon our progress towards completion on a particular contract, as well as our estimate of the profit to be earned at completion. The following discussion of material changes in our consolidated net sales should be read in tandem with the subsequent discussion of changes in our consolidated cost of sales and our business segment results of operations because changes in our sales are typically accompanied by a corresponding change in our cost of sales due to the nature of the percentage-of-completion cost-to-cost method.

Product Sales

Product sales increased \$5.0 billion, or 11%, in 2019 as compared to 2018, primarily due to higher product sales of \$2.1 billion at Aeronautics, \$1.5 billion at MFC and \$965 million at Space. The increase in product sales at Aeronautics was primarily due to higher production volume for the F-35 program and higher volume on classified programs. The increase in product sales at MFC was primarily due to increased volume for tactical and strike missile programs (primarily precision fires, new hypersonic development programs, and classified programs), increased volume for integrated air and missile defense programs (primarily PAC-3 and THAAD), and increased volume for sensors and global sustainment programs (primarily Apache). The increase in product sales at Space was primarily due to higher volume for government satellite programs (primarily Next Generation Overhead Persistent Infrared (Next Gen OPIR) and Global Positioning System (GPS III)) and higher volume for strategic and missile defense programs (primarily new hypersonic development programs).

Service Sales

Service sales increased \$1.0 billion, or 11%, in 2019 as compared to 2018, primarily due to an increase in service sales of about \$385 million at RMS, \$340 million at Aeronautics and \$190 million at MFC. The increase in service sales at RMS was primarily due to higher volume of various training and logistics solutions programs (primarily an army sustainment program), and integrated warfare systems and sensors (IWSS) programs (primarily Aegis Combat System (Aegis)). Higher service sales at Aeronautics were primarily due to higher sustainment volume for the F-35 and F-22 programs. The increase in service sales at MFC was primarily attributable to increased volume for sensors and global sustainment programs (primarily Special Operations Forces Global Logistics Support Services (SOF GLSS)) and higher sustainment volume for the PAC-3 program.

Cost of Sales

Cost of sales, for both products and services, consist of materials, labor, subcontracting costs, an allocation of indirect costs (overhead and general and administrative), as well as the costs to fulfill our industrial cooperation agreements, sometimes referred to as offset agreements, required under certain contracts with international customers. For each of our contracts, we monitor the nature and amount of costs at the contract level, which form the basis for estimating our total costs to complete the contract. Our consolidated cost of sales were as follows (in millions):

	2019	2018	2017
Cost of sales – products	\$ (44,589)	\$ (40,293)	\$ (38,417)
% of product sales	89.1 %	89.5 %	90.4 %
Cost of sales – services	(8,731)	(7,738)	(6,673)
% of service sales	89.5 %	88.4 %	89.5 %
Severance and restructuring charges	—	(96)	—
Other unallocated, net	1,875	1,639	1,501
Total cost of sales	\$ (51,445)	\$ (46,488)	\$ (43,589)

The following discussion of material changes in our consolidated cost of sales for products and services should be read in tandem with the preceding discussion of changes in our consolidated net sales and our business segment results of operations. We have not identified any developing trends in cost of sales for products and services that would have a material impact on our future operations.

Product Costs

Product costs increased approximately \$4.3 billion, or 11%, in 2019 as compared to 2018, primarily due to higher product costs of approximately \$1.9 billion at Aeronautics, \$1.3 billion at MFC and \$750 million at Space. The increase in product costs at Aeronautics was primarily due to higher production volume for the F-35 program and higher volume on classified programs. The increase in product costs at MFC was primarily due to increased volume for tactical and strike missile programs (primarily precision fires, classified programs and new hypersonic missile programs), contract mix and increased volume for integrated air and missile defense programs (primarily PAC-3 and THAAD) and increased volume for sensors and global sustainment programs (primarily Apache). The increase in product costs at Space was primarily attributable to higher volume for government satellite programs (primarily Next Gen OPIR and GPS III) and strategic and missile defense programs (primarily new hypersonic development programs).

Service Costs

Service costs increased approximately \$1.0 billion, or 13%, in 2019 compared to 2018, primarily due to higher service costs of approximately \$385 million at RMS, \$315 million at Aeronautics and \$195 million at MFC. The increase in service costs at RMS was primarily due to increased volume for various training and logistics solutions programs and IWSS programs (primarily Aegis). Higher service costs at Aeronautics were primarily due to higher sustainment volume for the F-35 and F-22 programs. The increase in service costs at MFC was primarily attributable to increased volume for sensors and global sustainment programs (primarily SOF GLSS) and higher sustainment volume for the PAC-3 program.

Restructuring Charges

During 2018, we recorded charges totaling \$96 million (\$76 million, or \$0.26 per share, after-tax) related to certain severance and restructuring actions at our RMS business segment. As of December 31, 2019, we have paid substantially all of the severance payments associated with these actions. In addition, we have recovered a significant portion of these payments through the pricing of our products and services to the U.S. Government and other customers, which are included in RMS' operating results.

Other Unallocated, Net

Other unallocated, net primarily includes the FAS/CAS operating adjustment as described in the "Business Segment Results of Operations" section below, stock-based compensation and other corporate costs. These items are not allocated to the business segments and, therefore, are excluded from the cost of sales for products and services. Other unallocated, net was a net reduction to expense of \$1.9 billion in 2019 and \$1.6 billion in 2018.

The increase in net reduction in expense from 2019 to 2018 was primarily attributable to fluctuations in the FAS/CAS operating adjustment of \$2.0 billion in 2019 and \$1.8 billion in 2018, and fluctuations in other costs associated with various corporate items,

none of which were individually significant. See “Business Segment Results of Operations” and “Critical Accounting Policies - Postretirement Benefit Plans” discussion below for more information on our pension cost.

Other Income, Net

Other income, net primarily includes our share of earnings or losses from equity method investees and gains or losses for acquisitions and divestitures. Other income, net in 2019 was \$178 million, compared to \$60 million in 2018. The increase in 2019 compared to 2018 was primarily attributable to the recognition in 2019 of a previously deferred non-cash gain of approximately \$51 million (\$38 million, or \$0.13 per share, after-tax) related to properties sold in 2015 as a result of completing our remaining obligations, the recognition in 2019 of a \$34 million gain (approximately \$0 after-tax) for the sale of our Distributed Energy Solutions business, and the recognition in 2018 of a non-cash asset impairment charge of \$110 million (\$83 million, or \$0.29 per share, after-tax) related to our equity method investee, Advanced Military Maintenance, Repair and Overhaul Center LLC (AMMROC). These increases were partially offset by lower earnings generated by equity method investees.

As of December 31, 2019, our equity method investment in AMMROC totaled approximately \$435 million. We are continuing to monitor this investment in light of ongoing performance, business base and economic issues, and we may have to record our portion of additional charges, or an impairment of our investment, or both, should the carrying value of our investment exceed its fair value. Substantially all of AMMROC’s current business is dependent on one contract that is currently up for re-competition and if AMMROC is not successful in securing such business on favorable terms or at all, the carrying value of our investment would be adversely affected. These charges could adversely affect our results of operations.

Interest Expense

Interest expense in 2019 was \$653 million, compared to \$668 million in 2018. The decrease in interest expense in 2019 resulted primarily from our scheduled repayment of \$750 million of debt during 2018. See “Capital Structure, Resources and Other” included within “Liquidity and Cash Flows” discussion below and “Note 10 – Debt” included in our Notes to Consolidated Financial Statements for a discussion of our debt.

Other Non-Operating Expense, Net

Other non-operating expense, net primarily includes the non-service cost components of FAS pension and other postretirement benefit plan expense (i.e., interest cost, expected return on plan assets, net actuarial gains or losses, and amortization of prior service cost or credits). Other non-operating expense, net in 2019 decreased compared to 2018 primarily due to a reduction in non-service FAS pension expense for our qualified defined benefit pension plans.

Income Tax Expense

Our effective income tax rate from continuing operations was 14.0% for 2019 and 13.6% for 2018. On December 22, 2017, the President signed the Tax Cuts and Jobs Act (the “Tax Act”). The Tax Act, among other things, lowered the U.S. corporate income tax rate from 35% to 21% effective January 1, 2018.

We recognized a tax benefit of \$220 million in 2019 and \$61 million in 2018 related to the deduction for foreign derived intangible income enacted by the Tax Act, which reduced our effective income tax rate by 3.0 percentage points and 1.0 percentage points, respectively. The rate for 2019 benefited from \$98 million in additional tax deductions for the prior year, primarily due to proposed tax regulations released on March 4, 2019. We also recognized a tax benefit of \$15 million in 2019 and \$61 million in 2018, which reduced our effective income tax rate by 0.2 and 1.0 percentage points respectively, from our change in a tax accounting method reflecting a 2012 Court of Federal Claims decision, which held that the tax basis in certain assets should be increased and realized upon the assets’ disposition.

The rates for 2019 and 2018 benefited from tax deductions for dividends paid to our defined contribution plans with an employee stock ownership plan feature, and the U.S. research and development (R&D) tax credit. The R&D tax credit reduced our effective tax rate by 2.0 percentage points in 2019 and 2.4 percentage points in 2018.

In addition, the rates for 2019 and 2018 benefited from tax benefits related to employee share-based payment awards, which are recorded in earnings as income tax benefit or expense. Accordingly, we recognized additional income tax benefits of \$63 million, and \$55 million during the years ended December 31, 2019 and 2018, which reduced our effective income tax rate by 0.9 percentage points for both 2019 and 2018.

Changes in U.S. federal or foreign tax laws and regulations, or their interpretation and application, including those with retroactive effect, including the amortization for research or experimental expenditures, could significantly impact our provision for income taxes, the amount of taxes payable, our deferred tax asset and liability balances, and stockholders’ equity. The amount

of net deferred tax assets will change periodically based on several factors, including the measurement of our postretirement benefit plan obligations, actual cash contributions to our postretirement benefit plans, and future changes in tax laws. In addition, we are regularly under audit or examination by tax authorities, including foreign tax authorities. The final determination of tax audits and any related litigation could similarly result in unanticipated increases in our tax expense and affect profitability and cash flows.

Net Earnings

We reported net earnings of \$6.2 billion (\$21.95 per share) in 2019 and \$5.0 billion (\$17.59 per share) in 2018. Both net earnings and earnings per share were affected by the factors mentioned above. Earnings per share also benefited from a net decrease of approximately 1 million common shares outstanding from December 31, 2018 to December 31, 2019 as a result of share repurchases, partially offset by share issuances under our stock-based awards and certain defined contribution plans.

Business Segment Results of Operations

We operate in four business segments: Aeronautics, MFC, RMS and Space. We organize our business segments based on the nature of products and services offered.

Net sales and operating profit of our business segments exclude intersegment sales, cost of sales, and profit as these activities are eliminated in consolidation. Business segment operating profit includes our share of earnings or losses from equity method investees as the operating activities of the equity method investees are closely aligned with the operations of our business segments. United Launch Alliance (ULA), results of which are included in our Space business segment, is one of our largest equity method investees.

Business segment operating profit also excludes the FAS/CAS operating adjustment described below, a portion of corporate costs not considered allowable or allocable to contracts under CAS or federal acquisition regulations (FAR), and other items not considered part of management's evaluation of segment operating performance such as a portion of management and administration costs, legal fees and settlements, environmental costs, stock-based compensation expense, retiree benefits, significant severance and restructuring actions (see "Note 15 – Severance and Restructuring Charges" included in our Notes to Consolidated Financial Statements), gains or losses from significant divestitures, and other miscellaneous corporate activities.

Excluded items are included in the reconciling item "Unallocated items" between operating profit from our business segments and our consolidated operating profit. See "Note 1 – Significant Accounting Policies" included in our Notes to Consolidated Financial Statements for a discussion related to certain factors that may impact the comparability of net sales and operating profit of our business segments.

Our business segments' results of operations include pension expense only as calculated under CAS pension cost. We recover CAS pension and other postretirement benefit plan cost through the pricing of our products and services on U.S. Government contracts and, therefore, recognize CAS cost in each of our business segment's net sales and cost of sales. Our consolidated financial statements must present FAS pension and other postretirement benefit plan expense calculated in accordance with FAS requirements under U.S. GAAP. The operating portion of the net FAS/CAS pension adjustment represents the difference between the service cost component of FAS pension expense and total CAS pension cost. The non-service FAS pension cost component is included in other non-operating expense, net in our consolidated statements of earnings. As a result, to the extent that CAS pension cost exceeds the service cost component of FAS pension expense, which occurred for 2019 and 2018, we have a favorable FAS/CAS operating adjustment.

Summary operating results for each of our business segments were as follows (in millions):

	2019	2018	2017
Net sales			
Aeronautics	\$ 23,693	\$ 21,242	\$ 19,410
Missiles and Fire Control	10,131	8,462	7,282
Rotary and Mission Systems	15,128	14,250	13,663
Space	10,860	9,808	9,605
Total net sales	\$ 59,812	\$ 53,762	\$ 49,960
Operating profit			
Aeronautics	\$ 2,521	\$ 2,272	\$ 2,176
Missiles and Fire Control	1,441	1,248	1,034
Rotary and Mission Systems	1,421	1,302	902
Space	1,191	1,055	980
Total business segment operating profit	6,574	5,877	5,092
Unallocated items			
FAS/CAS operating adjustment ^(a)	2,049	1,803	1,613
Stock-based compensation	(189)	(173)	(158)
Severance and restructuring charges ^(b)	—	(96)	—
Other, net ^(c)	111	(77)	197
Total unallocated, net	1,971	1,457	1,652
Total consolidated operating profit	\$ 8,545	\$ 7,334	\$ 6,744

^(a) The FAS/CAS operating adjustment represents the difference between the service cost component of FAS pension expense and total pension costs recoverable on U.S. Government contracts as determined in accordance with CAS. For a detail of the FAS/CAS operating adjustment and the total net FAS/CAS pension adjustment, see the table below.

^(b) See “Consolidated Results of Operations – Restructuring Charges” discussion above for information on charges related to certain severance actions at our business segments. Severance and restructuring charges for initiatives that are not significant are included in business segment operating profit.

^(c) Other, net in 2019 includes a previously deferred non-cash gain of \$51 million related to properties sold in 2015 as a result of completing our remaining obligations and a gain of \$34 million for the sale of our Distributed Energy Solutions business. Other, net in 2018 includes a non-cash asset impairment charge of \$110 million related to our equity method investee, AMMROC (see “Note 1 – Significant Accounting Policies” included in our Notes to Consolidated Financial Statements for more information). Other, net in 2017 includes a previously deferred non-cash gain of \$198 million related to properties sold in 2015 as a result of completing our remaining obligations and a \$64 million charge, which represents our portion of a non-cash asset impairment charge recorded by AMMROC (see “Note 1 – Significant Accounting Policies” included in our Notes to Consolidated Financial Statements for more information).

Total net FAS/CAS pension adjustments, including the service and non-service cost components of FAS pension expense, were as follows (in millions):

	2019	2018	2017
Total FAS expense and CAS costs			
FAS pension expense	\$ (1,093)	\$ (1,431)	\$ (1,372)
Less: CAS pension cost	2,565	2,433	2,248
Net FAS/CAS pension adjustment	\$ 1,472	\$ 1,002	\$ 876
Service and non-service cost reconciliation			
FAS pension service cost	(516)	(630)	(635)
Less: CAS pension cost	2,565	2,433	2,248
FAS/CAS operating adjustment	2,049	1,803	1,613
Non-operating FAS pension expense ^(a)	(577)	(801)	(737)
Net FAS/CAS pension adjustment	\$ 1,472	\$ 1,002	\$ 876

^(a) We record the non-service cost components of net periodic benefit cost as part of other non-operating expense, net in the consolidated statement of earnings. The non-service cost components in the table above relate only to our qualified defined benefit pension plans. We incurred total non-service costs for our qualified defined benefit pension plans in the table above, along with similar costs for our other postretirement benefit plans of \$116 million, \$67 million, and \$109 million for the years ended 2019, 2018 and 2017.

We recover CAS pension and other postretirement benefit plan cost through the pricing of our products and services on U.S. Government contracts and, therefore, recognize CAS cost in each of our business segment's net sales and cost of sales. Our consolidated financial statements must present FAS pension and other postretirement benefit plan expense calculated in accordance with FAS requirements under U.S. GAAP. The operating portion of the net FAS/CAS pension adjustment represents the difference between the service cost component of FAS pension expense and total CAS pension cost. The non-service FAS pension cost component is included in other non-operating expense, net in our consolidated statements of earnings. The net FAS/CAS pension adjustment increases or decreases CAS pension cost to equal total FAS pension expense (both service and non-service).

The following segment discussions also include information relating to backlog for each segment. Backlog was approximately \$144.0 billion and \$130.5 billion at December 31, 2019 and 2018. These amounts included both funded backlog (firm orders for which funding has been both authorized and appropriated by the customer) and unfunded backlog (firm orders for which funding has not yet been appropriated). Backlog does not include unexercised options or task orders to be issued under indefinite-delivery, indefinite-quantity contracts. Funded backlog was approximately \$94.5 billion at December 31, 2019.

Management evaluates performance on our contracts by focusing on net sales and operating profit and not by type or amount of operating expense. Consequently, our discussion of business segment performance focuses on net sales and operating profit, consistent with our approach for managing the business. This approach is consistent throughout the life cycle of our contracts, as management assesses the bidding of each contract by focusing on net sales and operating profit and monitors performance on our contracts in a similar manner through their completion.

We regularly provide customers with reports of our costs as the contract progresses. The cost information in the reports is accumulated in a manner specified by the requirements of each contract. For example, cost data provided to a customer for a product would typically align to the subcomponents of that product (such as a wing-box on an aircraft) and for services would align to the type of work being performed (such as aircraft sustainment). Our contracts generally allow for the recovery of costs in the pricing of our products and services. Most of our contracts are bid and negotiated with our customers under circumstances in which we are required to disclose our estimated total costs to provide the product or service. This approach for negotiating contracts with our U.S. Government customers generally allows for recovery of our actual costs plus a reasonable profit margin. We also may enter into long-term supply contracts for certain materials or components to coincide with the production schedule of certain products and to ensure their availability at known unit prices.

Many of our contracts span several years and include highly complex technical requirements. At the outset of a contract, we identify and monitor risks to the achievement of the technical, schedule and cost aspects of the contract and assess the effects of those risks on our estimates of total costs to complete the contract. The estimates consider the technical requirements (e.g., a newly-developed product versus a mature product), the schedule and associated tasks (e.g., the number and type of milestone events) and costs (e.g., material, labor, subcontractor, overhead and the estimated costs to fulfill our industrial cooperation agreements, sometimes referred to as offset agreements, required under certain contracts with international customers). The initial profit booking rate of each contract considers risks surrounding the ability to achieve the technical requirements, schedule and costs in the initial estimated total costs to complete the contract. Profit booking rates may increase during the performance of the contract if we successfully retire risks surrounding the technical, schedule and cost aspects of the contract, which decreases the estimated total costs to complete the contract. Conversely, our profit booking rates may decrease if the estimated total costs to complete the contract increase. All of the estimates are subject to change during the performance of the contract and may affect the profit booking rate.

We have a number of programs that are designated as classified by the U.S. Government which cannot be specifically described. The operating results of these classified programs are included in our consolidated and business segment results and are subjected to the same oversight and internal controls as our other programs.

Our net sales are primarily derived from long-term contracts for products and services provided to the U.S. Government as well as FMS contracted through the U.S. Government. We recognize revenue as performance obligations are satisfied and the customer obtains control of the products and services. For performance obligations to deliver products with continuous transfer of control to the customer, revenue is recognized based on the extent of progress towards completion of the performance obligation, generally using the percentage-of-completion cost-to-cost measure of progress for our contracts because it best depicts the transfer of control to the customer as we incur costs on our contracts. For performance obligations in which control does not continuously transfer to the customer, we recognize revenue at the point in time in which each performance obligation is fully satisfied.

Changes in net sales and operating profit generally are expressed in terms of volume. Changes in volume refer to increases or decreases in sales or operating profit resulting from varying production activity levels, deliveries or service levels on individual contracts. Volume changes in segment operating profit are typically based on the current profit booking rate for a particular contract.

In addition, comparability of our segment sales, operating profit and operating margin may be impacted favorably or unfavorably by changes in profit booking rates on our contracts for which we recognize revenue over time using the percentage-of-completion cost-to-cost method to measure progress towards completion. Increases in the profit booking rates, typically referred to as risk retirements, usually relate to revisions in the estimated total costs to fulfill the performance obligations that reflect improved conditions on a particular contract. Conversely, conditions on a particular contract may deteriorate, resulting in an increase in the estimated total costs to fulfill the performance obligations and a reduction in the profit booking rate. Increases or decreases in profit booking rates are recognized in the current period and reflect the inception-to-date effect of such changes. Segment operating profit and margin may also be impacted favorably or unfavorably by other items, which may or may not impact sales. Favorable items may include the positive resolution of contractual matters, cost recoveries on severance and restructuring charges, insurance recoveries and gains on sales of assets. Unfavorable items may include the adverse resolution of contractual matters; restructuring charges, except for significant severance actions, which are excluded from segment operating results; reserves for disputes; certain asset impairments; and losses on sales of certain assets. Segment operating profit and items such as risk retirements, reductions of profit booking rates or other matters are presented net of state income taxes.

As previously disclosed, we are responsible for a program to design, develop and construct a ground-based radar at our RMS business segment. The program has experienced performance issues for which we have periodically accrued reserves. In 2019, we revised our estimated costs to complete the program and recorded a charge of approximately \$60 million (\$47 million, or \$0.17 per share, after-tax) at our RMS business segment, which resulted in cumulative losses of approximately \$205 million on this program as of December 31, 2019. We may continue to experience issues related to customer requirements and our performance under this contract and have to record additional charges. However, based on the losses previously recorded and our current estimate of the sales and costs to complete the program, at this time we do not anticipate that additional losses, if any, would be material to our operating results or financial condition.

As previously disclosed, we have a program, EADGE-T, to design, integrate, and install an air missile defense command, control, communications, computers – intelligence (C4I) system for an international customer that has experienced performance issues and for which we have periodically accrued reserves. In 2017, we revised our estimated costs to complete the EADGE-T contract as a consequence of ongoing performance matters and recorded an additional charge of \$120 million (\$74 million, or \$0.25 per share, after-tax) at our Rotary and Mission Systems (RMS) business segment, which resulted in cumulative losses of approximately \$260 million on this program. As of December 31, 2019, cumulative losses remained at approximately \$260 million. We continue to monitor program requirements and our performance. At this time, we do not anticipate additional charges that would be material to our operating results or financial condition.

As previously disclosed, we have two commercial satellite programs at our Space business segment for which we have experienced performance issues related to the development and integration of a modernized LM 2100 satellite platform. These programs are for the delivery of three satellites in total, including one that launched in February 2019 and one that launched in April 2019. We have periodically revised our estimated costs to complete these developmental commercial programs. As of December 31, 2019, cumulative losses remained at approximately \$410 million for these programs. While these losses reflect our estimated total losses on the programs, we will continue to incur unrecoverable general and administrative costs each period until we complete the contract for the third satellite. We have launched two satellites from one program, and the third satellite has completed development and has been shipped to the launch site for a planned launch in the first quarter of 2020. Any new satellite anomalies discovered during launch preparation requiring repair or rework, or prolonged on orbit testing prior to customer handover, could require that we record additional loss reserves, which could be material to our operating results.

As previously disclosed, we are responsible for designing, developing and installing an upgraded turret for the Warrior Capability Sustainment Program. In 2018, we revised our estimated costs to complete the program as a consequence of performance issues, and recorded a charge of approximately \$85 million (\$64 million, or \$0.22 per share, after-tax) at our MFC business segment, which resulted in cumulative losses of approximately \$140 million on this program at December 31, 2019. We may continue to experience issues related to customer requirements and our performance under this contract and have to record additional reserves. However, based on the losses already recorded and our current estimate of the sales and costs to complete the program, at this time we do not anticipate that additional losses, if any, would be material to our operating results or financial condition.

Our consolidated net adjustments not related to volume, including net profit booking rate adjustments and other items, net of state income taxes, increased segment operating profit by approximately \$1.9 billion in both 2019 and 2018. The consolidated net adjustments in 2019 compared to 2018 were comparable primarily due to an increase in profit booking rate adjustments at Space offset by decreases in the other three business segments. The consolidated net adjustments for 2019 are inclusive of approximately \$930 million in unfavorable items, which include reserves for various programs at RMS, the F-16 program at Aeronautics, performance matters on a sensors and global sustainment international military program at MFC and government satellite programs at Space. The consolidated net adjustments for 2018 are inclusive of approximately \$900 million in unfavorable items, which

include reserves for performance matters on the Warrior Capability Sustainment Program at MFC, various programs at RMS, and commercial satellite programs at Space.

Aeronautics

Our Aeronautics business segment is engaged in the research, design, development, manufacture, integration, sustainment, support and upgrade of advanced military aircraft, including combat and air mobility aircraft, unmanned air vehicles and related technologies. Aeronautics' major programs include the F-35 Lightning II Joint Strike Fighter, C-130 Hercules, F-16 Fighting Falcon and F-22 Raptor. Aeronautics' operating results included the following (in millions):

	2019	2018	2017
Net sales	\$ 23,693	\$ 21,242	\$ 19,410
Operating profit	2,521	2,272	2,176
Operating margin	10.6 %	10.7 %	11.2 %
Backlog at year-end	\$ 55,636	\$ 55,601	\$ 35,692

Aeronautics' net sales in 2019 increased \$2.5 billion, or 12%, compared to 2018. The increase was primarily attributable to higher net sales of approximately \$2.0 billion for the F-35 program due to increased volume on production, sustainment and development contracts; and about \$350 million for higher volume on classified programs.

Aeronautics' operating profit in 2019 increased \$249 million, or 11%, compared to 2018. Operating profit increased approximately \$210 million for the F-35 program due to increased volume on production, sustainment and development contracts; and about \$50 million for the F-16 program due to higher risk retirements on sustainment contracts. These increases were partially offset by a decrease of \$20 million on the F-22 program due to lower risk retirements. Adjustments not related to volume, including net profit booking rate adjustments, were \$25 million lower in 2019 compared to 2018.

Backlog

Backlog in 2019 was comparable to 2018.

Trends

We expect Aeronautics' 2020 net sales to increase in the high-single digit percentage range from 2019 levels driven by increased volume on the F-35 program. Operating profit is also expected to increase in the high-single digit percentage range above 2019 levels. Operating profit margin for 2020 is expected to be slightly higher than 2019 levels.

Missiles and Fire Control

Our MFC business segment provides air and missile defense systems; tactical missiles and air-to-ground precision strike weapon systems; logistics; fire control systems; mission operations support, readiness, engineering support and integration services; manned and unmanned ground vehicles; and energy management solutions. MFC's major programs include PAC-3, THAAD, Multiple Launch Rocket System (MLRS), Hellfire, Joint Air-to-Surface Standoff Missile (JASSM), Javelin, Apache, SNIPER[®], LANTIRN and SOF GLSS. MFC's operating results included the following (in millions):

	2019	2018	2017
Net sales	\$ 10,131	\$ 8,462	\$ 7,282
Operating profit	1,441	1,248	1,034
Operating margin	14.2 %	14.7 %	14.2 %
Backlog at year-end	\$ 25,796	\$ 21,363	\$ 17,729

MFC's net sales in 2019 increased \$1.7 billion, or 20%, compared to the same period in 2018. The increase was primarily attributable to higher net sales of approximately \$940 million for tactical and strike missile programs due to increased volume (primarily precision fires, new hypersonic development programs, and classified development programs); about \$465 million for integrated air and missile defense programs due to increased volume (primarily PAC-3 and THAAD); and about \$300 million for sensors and global sustainment programs due to increased volume (primarily SOF GLSS and Apache).

MFC's operating profit in 2019 increased \$193 million, or 15%, compared to 2018. Operating profit increased approximately \$100 million for integrated air and missile defense programs due to higher volume and higher risk retirements (primarily PAC-3 and THAAD); and about \$60 million for tactical and strike missile programs due to higher volume (primarily precision fires),

partially offset by lower risk retirements (primarily Hellfire and Javelin). Operating profit on sensors and global sustainment programs was comparable as higher volume (primarily Apache and SOF GLSS) was offset by lower risk retirements (primarily LANTIRN and SNIPER), after a net decrease in charges of \$55 million on international military programs. Adjustments not related to volume, including net profit booking rate adjustments, were \$30 million lower in 2019 compared to 2018.

Backlog

Backlog increased in 2019 compared to 2018 primarily due to higher orders on THAAD, PAC-3 and precision fires programs.

Trends

We expect MFC's 2020 net sales to increase in the low-double digit percentage range in 2020 as compared to 2019 driven by higher volume in the tactical and strike missiles and air and missile defense businesses, partially offset by a decrease in sales as a result of the divestiture of our Distributed Energy Solutions business. Operating profit is expected to increase in the mid-single digit percentage range in 2020 as compared to 2019 driven by the increase in sales volume. Operating profit margin for 2020 is expected to be slightly lower than 2019 levels.

Rotary and Mission Systems

Our RMS business segment provides design, manufacture, service and support for a variety of military and commercial helicopters; ship and submarine mission and combat systems; mission systems and sensors for rotary and fixed-wing aircraft; sea and land-based missile defense systems; radar systems; the Littoral Combat Ship (LCS); simulation and training services; and unmanned systems and technologies. In addition, RMS supports the needs of government customers in cybersecurity and delivers communication and command and control capabilities through complex mission solutions for defense applications. RMS' major programs include Black Hawk and Seahawk helicopters, Aegis, CH-53K King Stallion helicopter, LCS, VH-92A helicopter program, and the C2BMC contract. RMS' operating results included the following (in millions):

	2019	2018	2017
Net sales	\$ 15,128	\$ 14,250	\$ 13,663
Operating profit	1,421	1,302	902
Operating margin	9.4 %	9.1 %	6.6 %
Backlog at year-end	\$ 34,296	\$ 31,320	\$ 30,030

RMS' net sales in 2019 increased \$878 million, or 6%, compared to 2018. The increase was primarily attributable to higher net sales of approximately \$535 million for IWSS programs due to higher volume (primarily LCS, radar surveillance systems programs, Multi Mission Surface Combatant (MMSC), and Aegis); about \$290 million for various training and logistics (TLS) programs due to higher volume (primarily an army sustainment program); and about \$200 million for various C6ISR (command, control, communications, computers, cyber, combat systems, intelligence, surveillance, and reconnaissance) programs due to higher volume (primarily undersea combat systems and cyber solutions programs). These increases were partially offset by a decrease of approximately \$145 million for Sikorsky helicopter programs due to lower volume (primarily Black Hawk production, mission systems programs, and commercial aircraft).

RMS' operating profit in 2019 increased \$119 million, or 9%, compared to 2018. Operating profit increased approximately \$105 million for Sikorsky helicopter programs primarily due to better cost performance across the portfolio, customer mix, and higher risk retirements; and about \$55 million for IWSS programs due to higher volume (primarily radar surveillance systems programs, LCS, and Aegis), after \$50 million in charges in the first quarter of 2019 for a ground-based radar program. These increases were partially offset by a decrease of \$50 million for TLS programs due to \$80 million in charges primarily recorded in the second quarter of 2019 for an army sustainment program partially offset by lower charges on various other programs. Adjustments not related to volume, including net profit booking rate adjustments, were \$65 million lower in 2019 compared to 2018.

Backlog

Backlog increased in 2019 compared to 2018 primarily due to higher orders on IWSS programs.

Trends

We expect RMS' 2020 net sales to increase in the mid-single digit range above 2019 levels driven primarily by Sikorsky. Operating profit is also expected to increase in the mid-single digit range above 2019 levels driven by the increase in sales

volume. Operating profit margin for 2020 is expected to be slightly higher than 2019 levels.

Space

Our Space business segment is engaged in the research and development, design, engineering and production of satellites, strategic and defensive missile systems and space transportation systems. Space provides network-enabled situational awareness and integrates complex space and ground-based global systems to help our customers gather, analyze, and securely distribute critical intelligence data. Space is also responsible for various classified systems and services in support of vital national security systems. Space's major programs include the Trident II D5 Fleet Ballistic Missile (FBM), AWE, Orion Multi-Purpose Crew Vehicle (Orion), Space Based Infrared System (SBIRS) and Next Generation Overhead Persistent Infrared (Next Gen OPIR) system, Global Positioning System (GPS) III, Advanced Extremely High Frequency (AEHF), and hypersonics. Operating profit for our Space business segment includes our share of earnings for our investment in ULA, which provides expendable launch services to the U.S. Government. Space's operating results included the following (in millions):

	2019	2018	2017
Net sales	\$ 10,860	\$ 9,808	\$ 9,605
Operating profit	1,191	1,055	980
Operating margin	11.0 %	10.8 %	10.2 %
Backlog at year-end	\$ 28,253	\$ 22,184	\$ 22,042

Space's net sales in 2019 increased \$1.1 billion, or 11%, compared to 2018. The increase was primarily attributable to higher net sales of approximately \$690 million for government satellite programs due to higher volume (primarily Next Gen OPIR, GPS III and government satellite services); and about \$355 million for strategic and missile defense programs due to higher volume (primarily new hypersonic development programs).

Space's operating profit in 2019 increased \$136 million, or 13%, compared to 2018. Operating profit increased approximately \$125 million for government satellite programs due to higher risk retirements (primarily AEHF) and higher volume (primarily GPS III and government satellite services); and about \$45 million for commercial satellite programs, which reflect a lower amount of charges recorded for performance matters. These increases were partially offset by a decrease of approximately \$65 million due to lower equity earnings for ULA. Operating profit on strategic and missile defense programs was comparable as higher volume (primarily hypersonic development programs) was offset by lower risk retirements (primarily missile defense programs). Adjustments not related to volume, including net profit booking rate adjustments, were \$120 million higher in 2019 compared to 2018.

Equity earnings

Total equity earnings recognized by Space (primarily ULA) represented approximately \$145 million and \$210 million, or 12% and 20% of this business segment's operating profit during 2019 and 2018.

Backlog

Backlog increased in 2019 compared to 2018 primarily due to new orders in strategic and missile defense (hypersonic development programs and AWE) and space transportation (Orion).

Trends

We expect Space's 2020 net sales to increase in the mid-single digit percentage range from 2019 levels largely driven by hypersonics. Operating profit in 2020 is expected to decrease in the mid-single digit percentage range as compared to 2019 driven by lower profit rate adjustments in government satellites and lower equity earnings in 2020 compared to 2019. As a result, operating profit margin in 2020 is expected to decrease from 2019 levels.

Liquidity and Cash Flows

We have a balanced cash deployment strategy to enhance stockholder value and position ourselves to take advantage of new business opportunities when they arise. Consistent with that strategy, we have continued to invest in our business, including capital expenditures, independent research and development, and selective business acquisitions and investments; returned cash to stockholders through dividends and share repurchases; and actively managed our debt levels and maturities, interest rates, and pension obligations.

We have generated strong operating cash flows, which have been the primary source of funding for our operations, capital expenditures, debt service and repayments, dividends, share repurchases and postretirement benefit plan contributions. Our strong operating cash flows enabled our Board of Directors to approve two key cash deployment initiatives in September 2019. First, we increased our dividend rate in the fourth quarter by \$0.20 to \$2.40 per share. Second, the Board of Directors approved a \$1.0 billion increase to our share repurchase program. Inclusive of this increase, the total remaining authorization for future common share repurchases under our program was \$2.8 billion as of December 31, 2019.

We expect our cash from operations will continue to be sufficient to support our operations and anticipated capital expenditures for the foreseeable future. We also have access to credit markets, if needed, for liquidity or general corporate purposes, and letters of credit to support customer advance payments and for other trade finance purposes such as guaranteeing our performance on particular contracts. See our “Capital Structure, Resources and Other” section below for a discussion on financial resources available to us, including the issuance of commercial paper.

We made discretionary contributions of \$1.0 billion to our qualified defined benefit pension plans in 2019 using cash on hand. We made contributions of \$5.0 billion to our qualified defined benefit pension plans in 2018, including required and discretionary contributions. We do not expect to make contributions to our qualified defined benefit pension plans in 2020.

Cash received from customers, either from the payment of invoices for work performed or for advances from non-U.S. Government customers in excess of costs incurred, is our primary source of cash. We generally do not begin work on contracts until funding is appropriated by the customer. However, we may determine to fund customer programs ourselves pending government appropriations. If we incur costs in excess of funds obligated on the contract, we may be at risk for reimbursement of the excess costs.

Billing timetables and payment terms on our contracts vary based on a number of factors, including the contract type. We generally bill and collect cash more frequently under cost-reimbursable contracts, which represented approximately 39% of the sales we recorded in 2019, as we are authorized to bill as the costs are incurred. A number of our fixed-price contracts may provide for performance-based payments, which allow us to bill and collect cash as we perform on the contract. The amount of performance-based payments and the related milestones are encompassed in the negotiation of each contract. The timing of such payments may differ from our incurrence of costs related to our contract performance, thereby affecting our cash flows.

The U.S. Government has indicated that it would consider progress payments as the baseline for negotiating payment terms on fixed-price contracts, rather than performance-based payments. In contrast to negotiated performance-based payment terms, progress payment provisions correspond to a percentage of the amount of costs incurred during the performance of the contract. Our cash flows may be affected if the U.S. Government decides to withhold payments on our billings. While the impact of withholding payments delays the receipt of cash, the cumulative amount of cash collected during the life of the contract will not vary.

The majority of our capital expenditures for 2019 and those planned for 2020 are for equipment, facilities infrastructure and information technology. Expenditures for equipment and facilities infrastructure are generally incurred to support new and existing programs across all of our business segments. For example, we have projects underway in our Aeronautics business segment for facilities and equipment to support higher production of the F-35 combat aircraft, and we have projects underway to modernize certain of our facilities. We also incur capital expenditures for information technology to support programs and general enterprise information technology infrastructure, inclusive of costs for the development or purchase of internal-use software.

The following table provides a summary of our cash flow information followed by a discussion of the key elements (in millions):

	2019	2018	2017
Cash and cash equivalents at beginning of year	\$ 772	\$ 2,861	\$ 1,837
Operating activities			
Net earnings	6,230	5,046	1,963
Non-cash adjustments	1,549	1,186	4,530
Changes in working capital	(672)	(1,401)	(427)
Other, net	204	(1,693)	410
Net cash provided by operating activities	7,311	3,138	6,476
Net cash used for investing activities	(1,241)	(1,075)	(1,147)
Net cash used for financing activities	(5,328)	(4,152)	(4,305)
Net change in cash and cash equivalents	742	(2,089)	1,024
Cash and cash equivalents at end of year	\$ 1,514	\$ 772	\$ 2,861

Operating Activities

Net cash provided by operating activities increased \$4.2 billion in 2019 compared to 2018 primarily due to a reduction in cash contributions made to our qualified defined benefit pension plans and an improvement in cash used for working capital, partially offset by an increase in cash paid for income taxes. During 2019, we made cash contributions to our qualified defined benefit pension plans of \$1.0 billion compared to \$5.0 billion in 2018. The \$729 million improvement in cash flows used for working capital (defined as receivables, contract assets, and inventories less accounts payable and contract liabilities) was primarily attributable to timing of production and billing cycles affecting contract assets (primarily the F-35 program) and contract liabilities (primarily C-130 program at Aeronautics and IWSS programs at RMS), partially offset by the timing of cash payments for accounts payable (primarily Aeronautics) and growth in inventories (primarily classified programs at Aeronautics and Sikorsky at RMS). We made net cash tax payments of approximately \$940 million in 2019 compared to receiving net tax refunds of approximately \$41 million in 2018.

Investing Activities

Net cash used for investing activities increased \$166 million in 2019 compared to 2018, primarily due to an increase in capital expenditures, partially offset by net cash proceeds from various divestitures and acquisitions, and cash received for various other items, none of which were individually significant. Capital expenditures totaled \$1.5 billion in 2019 and \$1.3 billion in 2018. The majority of our capital expenditures were for equipment and facilities infrastructure that generally are incurred to support new and existing programs across all of our business segments. We also incur capital expenditures for information technology to support programs and general enterprise information technology infrastructure, inclusive of costs for the development or purchase of internal-use software.

Financing Activities

Net cash used for financing activities increased \$1.2 billion in 2019 compared to 2018, primarily driven by net repayments of \$600 million for commercial paper in 2019 compared to net proceeds received of \$600 million of commercial paper in 2018.

In November 2019, we repaid \$900 million of long-term notes with a fixed interest rate of 4.25% according to their scheduled maturities. In November 2018, we repaid \$750 million of long-term notes with a fixed interest rate of 1.85% according to their scheduled maturities.

For additional information about our debt financing activities see the “Capital Structure, Resources and Other” discussion below and “Note 10 – Debt” included in our Notes to Consolidated Financial Statements.

We paid dividends totaling \$2.6 billion (\$9.00 per share) in 2019 and \$2.3 billion (\$8.20 per share) in 2018. We paid quarterly dividends of \$2.20 per share during each of the first three quarters of 2019 and \$2.40 per share during the fourth quarter of 2019. We paid quarterly dividends of \$2.00 per share during each of the first three quarters of 2018 and \$2.20 per share during the fourth quarter of 2018.

We paid \$1.2 billion to repurchase 3.5 million shares of our common stock during 2019, which includes the \$350 million paid to repurchase 916,249 shares pursuant to the accelerated share repurchase (ASR) agreement entered into during the fourth quarter. We paid \$1.5 billion to repurchase 4.7 million shares of our common stock during 2018. See “Note 12 – Stockholders’ Equity” included in our Notes to Consolidated Financial Statements for additional information about our repurchases of common stock.

Capital Structure, Resources and Other

At December 31, 2019, we held cash and cash equivalents of \$1.5 billion that was generally available to fund ordinary business operations without significant legal, regulatory, or other restrictions.

Our outstanding debt, net of unamortized discounts and issuance costs, amounted to \$12.7 billion at December 31, 2019 and mainly is in the form of publicly-issued notes that bear interest at fixed rates. As of December 31, 2019, we had \$1.3 billion of short-term borrowings due within one year, which are scheduled to mature in November 2020. As of December 31, 2018, we had \$1.5 billion of short-term borrowings due within one year, of which \$900 million was composed of a scheduled debt maturity due in November 2019 and \$600 million was composed of commercial paper with a weighted-average rate of 2.89% outstanding, all of which were repaid during 2019. As of December 31, 2019, we were in compliance with all covenants contained in our debt and credit agreements.

We actively seek to finance our business in a manner that preserves financial flexibility while minimizing borrowing costs to the extent practicable. We review changes in financial market and economic conditions to manage the types, amounts and maturities

of our indebtedness. We may at times refinance existing indebtedness, vary our mix of variable-rate and fixed-rate debt or seek alternative financing sources for our cash and operational needs.

On occasion, our customers may seek deferred payment terms to purchase our products. In connection with these transactions, we may, at our customer's request, enter into arrangements for the non-recourse sale of customer receivables to unrelated third-party financial institutions. For accounting purposes, these transactions are not discounted and are treated as a sale of receivables as we have no continuing involvement. The sale proceeds from the financial institutions are reflected in our operating cash flows on the statement of cash flows. We sold approximately \$387 million in 2019 and \$532 million in 2018 of customer receivables. There were no gains or losses related to sales of these receivables.

Revolving Credit Facilities

At December 31, 2019, we had a \$2.5 billion revolving credit facility (the 5-year Facility) with various banks that is available for general corporate purposes. Effective August 24, 2019, we extended the expiration date of the 5-year Facility from August 24, 2023 to August 24, 2024. The undrawn portion of the 5-year Facility also serves as a backup facility for the issuance of commercial paper. The total amount outstanding at any point in time under the combination of our commercial paper program and the credit facility cannot exceed the amount of the 5-year Facility. We may request and the banks may grant, at their discretion, an increase in the borrowing capacity under the 5-year Facility of up to an additional \$500 million. There were no borrowings outstanding under the 5-year Facility as of December 31, 2019 and 2018.

Borrowings under the 5-year Facility are unsecured and bear interest at rates based, at our option, on a Eurodollar Rate or a Base Rate, as defined in the 5-year Facility's agreement. Each bank's obligation to make loans under the 5-year Facility is subject to, among other things, our compliance with various representations, warranties and covenants, including covenants limiting our ability and certain of our subsidiaries' ability to encumber assets and a covenant not to exceed a maximum leverage ratio, as defined in the 5-year Facility agreement.

Long-Term Debt

In November 2019, we repaid \$900 million of long-term notes with a fixed interest rate of 4.25% according to their scheduled maturities. In November 2018, we repaid \$750 million of long-term notes with a fixed interest rate of 1.85% according to their scheduled maturities.

In September 2017, we issued notes totaling approximately \$1.6 billion with a fixed interest rate of 4.09% maturing in September 2052 (the New Notes) in exchange for outstanding notes totaling approximately \$1.4 billion with fixed interest rates ranging from 4.70% to 8.50% maturing 2029 to 2046 (the Old Notes). In connection with the exchange of principal, we paid a premium of \$237 million, substantially all of which was in the form of New Notes. This premium will be amortized as additional interest expense over the term of the New Notes using the effective interest method. We may, at our option, redeem some or all of the New Notes at any time by paying the principal amount of notes being redeemed plus a make-whole premium and accrued and unpaid interest. Interest on the New Notes is payable on March 15 and September 15 of each year and began on March 15, 2018. The New Notes are unsecured senior obligations and rank equally in right of payment with all of our existing and future unsecured and unsubordinated indebtedness.

We have an effective shelf registration statement on Form S-3 on file with the U.S. Securities and Exchange Commission to provide for the issuance of an indeterminate amount of debt securities.

Total Equity

Our total equity was \$3.2 billion at December 31, 2019, an increase of \$1.7 billion from December 31, 2018. The increase was primarily attributable to net earnings of \$6.2 billion, recognition of previously deferred postretirement benefit plan amounts of \$908 million, and employee stock activity of \$486 million (including the impacts of stock option exercises, issuances of shares under the employee stock ownership plan and stock-based compensation), partially offset by the annual December 31 re-measurement adjustment related to our postretirement benefit plans of \$2.2 billion, the repurchase of 3.5 million common shares for \$1.2 billion; and dividends declared of \$2.6 billion during the year.

As we repurchase our common shares, we reduce common stock for the \$1 of par value of the shares repurchased, with the excess purchase price over par value recorded as a reduction of additional paid-in capital. If additional paid-in capital is reduced to zero, we record the remainder of the excess purchase price over par value as a reduction of retained earnings. Due to the volume of repurchases made under our share repurchase program, additional paid-in capital was reduced to zero, with the remainder of the excess purchase price over par value of \$713 million recorded as a reduction of retained earnings in 2019.

Contractual Commitments and Off-Balance Sheet Arrangements

At December 31, 2019, we had contractual commitments to repay debt, make payments under operating leases, settle obligations related to agreements to purchase goods and services and settle tax and other liabilities. Financing lease obligations were not material. Payments due under these obligations and commitments are as follows (in millions):

	Payments Due By Period				
	Total	Less Than 1 Year	Years 2 and 3	Years 4 and 5	After 5 Years
Total debt ^(a)	\$ 13,799	\$ 1,250	\$ 906	\$ 786	\$ 10,857
Interest payments	9,277	571	1,048	979	6,679
Other liabilities	2,914	252	567	400	1,695
Operating lease obligations	1,287	280	344	217	446
Purchase obligations:					
Operating activities	55,491	28,564	22,528	3,483	916
Capital expenditures	839	446	309	84	—
Total contractual cash obligations	\$ 83,607	\$ 31,363	\$ 25,702	\$ 5,949	\$ 20,593

^(a) Total debt excludes approximately \$15 million of debt issued by a consolidated joint venture as we do not guarantee the debt.

The table above excludes estimated minimum funding requirements for our qualified defined benefit pension plans. For additional information about our future minimum contributions for these plans, see “Note 11 – Postretirement Benefit Plans” included in our Notes to Consolidated Financial Statements. Amounts related to other liabilities represent the contractual obligations for certain long-term liabilities recorded as of December 31, 2019. Such amounts mainly include expected payments under non-qualified pension plans, environmental liabilities and deferred compensation plans.

Purchase obligations related to operating activities include agreements and contracts that give the supplier recourse to us for cancellation or nonperformance under the contract or contain terms that would subject us to liquidated damages. Such agreements and contracts may, for example, be related to direct materials, obligations to subcontractors and outsourcing arrangements. Total purchase obligations for operating activities in the preceding table include approximately \$49.9 billion related to contractual commitments entered into as a result of contracts we have with our U.S. Government customers. The U.S. Government generally would be required to pay us for any costs we incur relative to these commitments if they were to terminate the related contracts “for convenience” under the FAR, subject to available funding. This also would be true in cases where we perform subcontract work for a prime contractor under a U.S. Government contract. The termination for convenience language also may be included in contracts with foreign, state and local governments. We also have contracts with customers that do not include termination for convenience provisions, including contracts with commercial customers.

Purchase obligations in the preceding table for capital expenditures generally include facilities infrastructure, equipment and information technology.

We also may enter into industrial cooperation agreements, sometimes referred to as offset agreements, as a condition to obtaining orders for our products and services from certain customers in foreign countries. These agreements are designed to enhance the social and economic environment of the foreign country by requiring the contractor to promote investment in the country. Offset agreements may be satisfied through activities that do not require us to use cash, including transferring technology, providing manufacturing and other consulting support to in-country projects and the purchase by third parties (e.g., our vendors) of supplies from in-country vendors. These agreements also may be satisfied through our use of cash for such activities as purchasing supplies from in-country vendors, providing financial support for in-country projects, establishment of joint ventures with local companies and building or leasing facilities for in-country operations. We typically do not commit to offset agreements until orders for our products or services are definitive. The amounts ultimately applied against our offset agreements are based on negotiations with the customer and typically require cash outlays that represent only a fraction of the original amount in the offset agreement. Satisfaction of our offset obligations are included in the estimates of our total costs to complete the contract and may impact our sales, profitability and cash flows. Our ability to recover investments on our consolidated balance sheet that we make to satisfy offset obligations is generally dependent upon the successful operation of ventures that we do not control and may involve products and services that are dissimilar to our business activities. At December 31, 2019, the notional value of remaining obligations under our outstanding offset agreements totaled approximately \$15.1 billion, which primarily relate to our Aeronautics, MFC and RMS business segments, most of which extend through 2049. To the extent we have entered into purchase or other obligations at December 31, 2019 that also satisfy offset agreements, those amounts are included in the preceding table. Offset programs usually extend over several years and may provide for penalties, estimated at approximately \$1.9 billion at December 31, 2019, in the

event we fail to perform in accordance with offset requirements. While historically we have not been required to pay material penalties, resolution of offset requirements are often the result of negotiations and subjective judgments.

We have entered into standby letters of credit and surety bonds issued on our behalf by financial institutions, and we have directly issued guarantees to third parties primarily relating to advances received from customers and the guarantee of future performance on certain contracts. Letters of credit and surety bonds generally are available for draw down in the event we do not perform. In some cases, we may guarantee the contractual performance of third parties such as joint venture partners. At December 31, 2019, we had the following outstanding letters of credit, surety bonds and third-party guarantees (in millions):

	Commitment Expiration By Period				
	Total Commitment	Less Than 1 Year	Years 2 and 3	Years 4 and 5	After 5 Years
Standby letters of credit ^(a)	\$ 2,233	\$ 1,030	\$ 779	\$ 298	\$ 126
Surety bonds	359	350	9	—	—
Third-party Guarantees	996	199	317	151	329
Total commitments	\$ 3,588	\$ 1,579	\$ 1,105	\$ 449	\$ 455

^(a) Approximately \$725 million of standby letters of credit in the “Less Than 1 Year” category, \$456 million in the “Years 2 and 3” category and \$225 million in the “Years 4 and 5” category are expected to renew for additional periods until completion of the contractual obligation.

At December 31, 2019, third-party guarantees totaled \$996 million, of which approximately 76% related to guarantees of contractual performance of joint ventures to which we currently are or previously were a party. These amounts represent our estimate of the maximum amounts we would expect to incur upon the contractual non-performance of the joint venture, joint venture partners or divested businesses. Generally, we also have cross-indemnities in place that may enable us to recover amounts that may be paid on behalf of a joint venture partner.

In determining our exposures, we evaluate the reputation, performance on contractual obligations, technical capabilities and credit quality of our current and former joint venture partners and the transferee under novation agreements all of which include a guarantee as required by the FAR. There were no material amounts recorded in our financial statements related to third-party guarantees or novation agreements.

Critical Accounting Policies

Contract Accounting / Sales Recognition

The majority of our net sales are generated from long-term contracts with the U.S. Government and international customers (including FMS contracted through the U.S. Government) for the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. For certain contracts that meet the foregoing requirements, primarily international direct commercial sale contracts, we are required to obtain certain regulatory approvals. In these cases, we recognize revenue based on the likelihood of obtaining regulatory approvals based upon all known facts and circumstances. We provide our products and services under fixed-price and cost-reimbursable contracts.

Under fixed-price contracts, we agree to perform the specified work for a pre-determined price. To the extent our actual costs vary from the estimates upon which the price was negotiated, we will generate more or less profit or could incur a loss. Some fixed-price contracts have a performance-based component under which we may earn incentive payments or incur financial penalties based on our performance.

Cost-reimbursable contracts provide for the payment of allowable costs incurred during performance of the contract plus a fee up to a ceiling based on the amount that has been funded. Typically, we enter into three types of cost-reimbursable contracts: cost-plus-award-fee, cost-plus-incentive-fee, and cost-plus-fixed-fee. Cost-plus-award-fee contracts provide for an award fee that varies within specified limits based on the customer’s assessment of our performance against a predetermined set of criteria, such as targets based on cost, quality, technical and schedule criteria. Cost-plus-incentive-fee contracts provide for reimbursement of costs plus a fee, which is adjusted by a formula based on the relationship of total allowable costs to total target costs (i.e., incentive based on cost) or reimbursement of costs plus an incentive to exceed stated performance targets (i.e., incentive based on performance). The fixed-fee in a cost-plus-fixed-fee contract is negotiated at the inception of the contract and that fixed-fee does not vary with actual costs.

We account for a contract after it has been approved by all parties to the arrangement, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

We assess each contract at its inception to determine whether it should be combined with other contracts. When making this determination, we consider factors such as whether two or more contracts were negotiated and executed at or near the same time or were negotiated with an overall profit objective. If combined, we treat the combined contracts as a single contract for revenue recognition purposes.

We evaluate the products or services promised in each contract at inception to determine whether the contract should be accounted for as having one or more performance obligations. The products and services in our contracts are typically not distinct from one another due to their complex relationships and the significant contract management functions required to perform under the contract. Accordingly, our contracts are typically accounted for as one performance obligation. In limited cases, our contracts have more than one distinct performance obligation, which occurs when we perform activities that are not highly complex or interrelated or involve different product lifecycles. Significant judgment is required in determining performance obligations, and these decisions could change the amount of revenue and profit recorded in a given period. We classify net sales as products or services on our consolidated statements of earnings based on the predominant attributes of the performance obligations.

We determine the transaction price for each contract based on the consideration we expect to receive for the products or services being provided under the contract. For contracts where a portion of the price may vary, we estimate variable consideration at the most likely amount, which is included in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur. We analyze the risk of a significant revenue reversal and if necessary constrain the amount of variable consideration recognized in order to mitigate this risk.

At the inception of a contract we estimate the transaction price based on our current rights and do not contemplate future modifications (including unexercised options) or follow-on contracts until they become legally enforceable. Contracts are often subsequently modified to include changes in specifications, requirements or price, which may create new or change existing enforceable rights and obligations. Depending on the nature of the modification, we consider whether to account for the modification as an adjustment to the existing contract or as a separate contract. Generally, modifications to our contracts are not distinct from the existing contract due to the significant integration and interrelated tasks provided in the context of the contract. Therefore, such modifications are accounted for as if they were part of the existing contract and recognized as a cumulative adjustment to revenue.

For contracts with multiple performance obligations, we allocate the transaction price to each performance obligation based on the estimated standalone selling price of the product or service underlying each performance obligation. The standalone selling price represents the amount we would sell the product or service to a customer on a standalone basis (i.e., not bundled with any other products or services). Our contracts with the U.S. Government, including FMS contracts, are subject to FAR and the price is typically based on estimated or actual costs plus a reasonable profit margin. As a result of these regulations, the standalone selling price of products or services in our contracts with the U.S. Government and FMS contracts are typically equal to the selling price stated in the contract.

For non-U.S. Government contracts with multiple performance obligations, we evaluate whether the stated selling prices for the products or services represent their standalone selling prices. We primarily sell customized solutions unique to a customer's specifications. When it is necessary to allocate the transaction price to multiple performance obligations, we typically use the expected cost plus a reasonable profit margin to estimate the standalone selling price of each product or service. We occasionally sell standard products or services with observable standalone sales transactions. In these situations, the observable standalone sales transactions are used to determine the standalone selling price.

We recognize revenue as performance obligations are satisfied and the customer obtains control of the products and services. In determining when performance obligations are satisfied, we consider factors such as contract terms, payment terms and whether there is an alternative future use of the product or service. Substantially all of our revenue is recognized over time as we perform under the contract because control of the work in process transfers continuously to the customer. For most contracts with the U.S. Government and FMS contracts, this continuous transfer of control of the work in process to the customer is supported by clauses in the contract that give the customer ownership of work in process and allow the customer to unilaterally terminate the contract for convenience and pay us for costs incurred plus a reasonable profit. For most non-U.S. Government contracts, primarily international direct commercial contracts, continuous transfer of control to our customer is supported because we deliver products that do not have an alternative use to us and if our customer were to terminate the contract for reasons other than our non-performance we would have the right to recover damages which would include, among other potential damages, the right to payment for our work performed to date plus a reasonable profit.

For performance obligations to deliver products with continuous transfer of control to the customer, revenue is recognized based on the extent of progress towards completion of the performance obligation, generally using the percentage-of-completion cost-to-cost measure of progress for our contracts because it best depicts the transfer of control to the customer as we incur costs on our contracts. Under the percentage-of-completion cost-to-cost measure of progress, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs to complete the performance obligation(s). For performance obligations to provide services to the customer, revenue is recognized over time based on costs incurred or the right to invoice method (in situations where the value transferred matches our billing rights) as our customer receives and consumes the benefits.

For performance obligations in which control does not continuously transfer to the customer, we recognize revenue at the point in time in which each performance obligation is fully satisfied. This coincides with the point in time the customer obtains control of the product or service, which typically occurs upon customer acceptance or receipt of the product or service, given that we maintain control of the product or service until that point.

Significant estimates and assumptions are made in estimating contract sales and costs, including the profit booking rate. At the outset of a long-term contract, we identify and monitor risks to the achievement of the technical, schedule and cost aspects of the contract, as well as variable consideration, and assess the effects of those risks on our estimates of sales and total costs to complete the contract. The estimates consider the technical requirements (e.g., a newly-developed product versus a mature product), the schedule and associated tasks (e.g., the number and type of milestone events) and costs (e.g., material, labor, subcontractor, overhead, general and administrative and the estimated costs to fulfill our industrial cooperation agreements, sometimes referred to as offset or localization agreements, required under certain contracts with international customers). The initial profit booking rate of each contract considers risks surrounding the ability to achieve the technical requirements, schedule and costs in the initial estimated total costs to complete the contract. Profit booking rates may increase during the performance of the contract if we successfully retire risks surrounding the technical, schedule and cost aspects of the contract, which decreases the estimated total costs to complete the contract or may increase the variable consideration we expect to receive on the contract. Conversely, our profit booking rates may decrease if the estimated total costs to complete the contract increase or our estimates of variable consideration we expect to receive decrease. All of the estimates are subject to change during the performance of the contract and may affect the profit booking rate. When estimates of total costs to be incurred on a contract exceed total estimates of the transaction price, a provision for the entire loss is determined at the contract level and is recorded in the period in which the loss is determined.

Comparability of our segment sales, operating profit and operating margin may be impacted favorably or unfavorably by changes in profit booking rates on our contracts for which we recognize revenue over time using the percentage-of-completion cost-to-cost method to measure progress towards completion. Increases in the profit booking rates, typically referred to as risk retirements, usually relate to revisions in the estimated total costs to fulfill the performance obligations that reflect improved conditions on a particular contract. Conversely, conditions on a particular contract may deteriorate, resulting in an increase in the estimated total costs to fulfill the performance obligations and a reduction in the profit booking rate. Increases or decreases in profit booking rates are recognized in the current period and reflect the inception-to-date effect of such changes. Segment operating profit and margin may also be impacted favorably or unfavorably by other items, which may or may not impact sales. Favorable items may include the positive resolution of contractual matters, cost recoveries on severance and restructuring charges, insurance recoveries and gains on sales of assets. Unfavorable items may include the adverse resolution of contractual matters; restructuring charges, except for significant severance actions, which are excluded from segment operating results; reserves for disputes; certain asset impairments; and losses on sales of certain assets.

Other Contract Accounting Considerations

The majority of our sales are driven by pricing based on costs incurred to produce products or perform services under contracts with the U.S. Government. Cost-based pricing is determined under the FAR. The FAR provides guidance on the types of costs that are allowable in establishing prices for goods and services under U.S. Government contracts. For example, costs such as those related to charitable contributions, interest expense and certain advertising and public relations activities are unallowable and, therefore, not recoverable through sales. In addition, we may enter into advance agreements with the U.S. Government that address the subjects of allowability and allocability of costs to contracts for specific matters. For example, most of the environmental costs we incur for environmental remediation related to sites operated in prior years are allocated to our current operations as general and administrative costs under FAR provisions and supporting advance agreements reached with the U.S. Government.

We closely monitor compliance with and the consistent application of our critical accounting policies related to contract accounting. Costs incurred and allocated to contracts are reviewed for compliance with U.S. Government regulations by our personnel and are subject to audit by the Defense Contract Audit Agency.

Postretirement Benefit Plans

Overview

Many of our employees and retirees participate in qualified and nonqualified defined benefit pension plans, retiree medical and life insurance plans and other postemployment plans (collectively, postretirement benefit plans - see “Note 11 – Postretirement Benefit Plans” included in our Notes to Consolidated Financial Statements). The majority of our accrued benefit obligations relate to our qualified defined benefit pension plans and retiree medical and life insurance plans. We recognize on a plan-by-plan basis the net funded status of these postretirement benefit plans under GAAP as either an asset or a liability on our consolidated balance sheets. The GAAP funded status represents the difference between the fair value of each plan’s assets and the benefit obligation of the plan. The GAAP benefit obligation represents the present value of the estimated future benefits we currently expect to pay to plan participants based on past service.

We completed the final step of the previously announced planned freeze of our qualified and nonqualified defined benefit pension plans for salaried employees effective January 1, 2020. The freeze took effect in two stages. Effective January 1, 2016, the pay-based component of the formula used to determine retirement benefits was frozen. Effective January 1, 2020, the service-based component of the formula was frozen. As a result of these changes, the qualified defined benefit pension plans for salaried employees are fully frozen effective January 1, 2020. With the freeze complete, the majority of our salaried employees participate in an enhanced defined contribution retirement savings plan.

We may from time to time take actions to mitigate the effect of our defined benefit pension plans on our financial results by reducing the volatility of our pension obligations, including entering into additional transactions involving the purchase of a group annuity contract for a portion of our outstanding defined benefit pension obligations using assets from the pension trust. During December 2019, Lockheed Martin, through its master retirement trust, purchased an irrevocable group annuity contract from an insurance company (referred to as a buy-out contract) for \$1.9 billion to transfer \$1.9 billion of our outstanding defined benefit pension obligations related to certain U.S. retirees and beneficiaries. The group annuity contract was purchased using assets from the pension trust. As a result of this transaction, we were relieved of all responsibility for these pension obligations and the insurance company is now required to pay and administer the retirement benefits owed to approximately 20,000 U.S. retirees and beneficiaries, with no change to the amount, timing or form of monthly retirement benefit payments. Although the transaction was treated as a settlement for accounting purposes, we did not recognize a loss on the settlement in earnings associated with the transaction because total settlements during 2019 for the affected pension plans were less than the plans’ service and interest cost in 2019. Accordingly, the transaction had no impact on our 2019 FAS pension expense or CAS pension cost, and the difference of approximately \$45 million between the amount paid to the insurance company and the amount of the pension obligations settled was recognized in other comprehensive income and will be amortized to FAS pension expense in future periods. We expect to continue to look for opportunities to manage our pension liabilities through additional buy out contracts in future years and the amounts involved could be material to a particular reporting period. Future transactions could result in a non-cash settlement charge to earnings, which could be material to a reporting period.

Also, during December 2018, Lockheed Martin, through its master retirement trust, purchased two contracts from insurance companies for \$2.6 billion related to our outstanding defined benefit pension obligations. One of the contracts we purchased was an irrevocable group annuity contract from an insurance company (referred to as a buy-out contract), which relieved us of all responsibility for the pension obligations related to approximately 32,000 U.S. retirees and beneficiaries. The second contract was structured as a buy-in contract (that will reimburse the pension plan for all future benefit payments related to defined benefit obligations for approximately 9,000 U.S. retirees and beneficiaries). The buy-in contract is accounted for at fair value as an investment of the trust.

Notwithstanding these actions, the impact of these plans and benefits on our earnings may be volatile in that the amount of expense we record and the funded status for our postretirement benefit plans may materially change from year to year because those calculations are sensitive to funding levels as well as changes in several key economic assumptions, including interest rates, actual rates of return on plan assets and other actuarial assumptions including participant longevity and employee turnover, as well as the timing of cash funding.

Actuarial Assumptions

The plan assets and benefit obligations are measured at the end of each year or more frequently, upon the occurrence of certain events such as a significant plan amendment, settlement or curtailment. The amounts we record are measured using actuarial valuations, which are dependent upon key assumptions such as discount rates, the expected long-term rate of return on plan assets, participant longevity, employee turnover and the health care cost trend rates for our retiree medical plans. The assumptions we make affect both the calculation of the benefit obligations as of the measurement date and the calculation of net periodic benefit

cost in subsequent periods. When reassessing these assumptions we consider past and current market conditions and make judgments about future market trends. We also consider factors such as the timing and amounts of expected contributions to the plans and benefit payments to plan participants.

We continue to use a single weighted average discount rate approach when calculating our consolidated benefit obligations related to our defined benefit pension plans resulting in 3.25% at December 31, 2019, compared to 4.25% at December 31, 2018. We utilized a single weighted average discount rate of 3.25% when calculating our benefit obligations related to our retiree medical and life insurance plans at December 31, 2019, compared to 4.25% at December 31, 2018. We evaluate several data points in order to arrive at an appropriate single weighted average discount rate, including results from cash flow models, quoted rates from long-term bond indices and changes in long-term bond rates over the past year. As part of our evaluation, we calculate the approximate average yields on corporate bonds rated AA or better selected to match our projected postretirement benefit plan cash flows. The decrease in the discount rate from December 31, 2018 to December 31, 2019 resulted in an approximate \$5.8 billion increase in the projected benefit obligations of our qualified defined benefit pension plans.

We utilized an expected long-term rate of return on plan assets of 7.00% at December 31, 2019 compared to 7.00% for December 31, 2018. The long-term rate of return assumption represents the expected long-term rate of return on the funds invested or to be invested, to provide for the benefits included in the benefit obligations. This assumption is based on several factors including historical market index returns, the anticipated long-term allocation of plan assets, the historical return data for the trust funds, plan expenses and the potential to outperform market index returns. The difference between the long-term rate of return on plan assets assumption we select and the actual return on plan assets in any given year affects both the funded status of our benefit plans and the calculation of FAS pension expense in subsequent periods. Although the actual return in any specific year likely will differ from the assumption, the average expected return over a long-term future horizon should be approximately equal to the assumption. Any variance in a given year should not, by itself, suggest that the assumption should be changed. Patterns of variances are reviewed over time, and then combined with expectations for the future. As a result, changes in this assumption are less frequent than changes in the discount rate. The actual investment return for our qualified defined benefit plans during 2019 of \$6.7 billion based on an actual rate of approximately 21% improved plan assets more than the \$2.3 billion expected return based on our 7.00% long-term rate of return assumption.

In October 2019, the Society of Actuaries published revised longevity assumptions that refined its prior studies. We used the revised assumptions in our December 31, 2019 re-measurement of benefit obligation. We reflected a longevity basis specific to the demographics of the underlying population (e.g., the nature of the work), versus the prior basis which was blended for all types of work, resulting in an approximate \$860 million increase in the projected benefit obligations of our qualified defined benefit pension plans.

Our stockholders' equity has been reduced cumulatively by \$15.5 billion from the annual year-end measurements of the funded status of postretirement benefit plans. The cumulative non-cash, after-tax reduction primarily represents net actuarial losses resulting from declines in discount rates, investment losses and updated longevity. A market-related value of our plan assets, determined using actual asset gains or losses over the prior three year period, is used to calculate the amount of deferred asset gains or losses to be amortized. These cumulative actuarial losses will be amortized to expense using the corridor method, where gains and losses are recognized to the extent they exceed 10% of the greater of plan assets or benefit obligations, over an average period of approximately twenty years as of December 31, 2019. This amortization period extended (approximately doubled from the prior nine years) in 2020 due to the freeze of our salaried pension plans to use the average remaining life expectancy of the participants instead of average future service. During 2019, \$908 million of these amounts were recognized as a component of postretirement benefit plans expense and about \$441 million is expected to be recognized as expense in 2020.

The discount rate and long-term rate of return on plan assets assumptions we select at the end of each year are based on our best estimates and judgment. A change of plus or minus 25 basis points in the 3.25% discount rate assumption at December 31, 2019, with all other assumptions held constant, would have decreased or increased the amount of the qualified pension benefit obligation we recorded at the end of 2019 by approximately \$1.5 billion, which would result in an after-tax increase or decrease in stockholders' equity at the end of the year of approximately \$1.2 billion. If the 3.25% discount rate at December 31, 2019 that was used to compute the expected 2020 FAS pension expense for our qualified defined benefit pension plans had been 25 basis points higher or lower, with all other assumptions held constant, the amount of FAS pension expense projected for 2020 would be lower or higher by approximately \$15 million. The impact of changes in the discount rate on FAS pension expense is significantly less than in prior years (i.e., \$15 million for 2020 compared to \$120 million for 2019) due to the freeze of our salaried pension plans effective January 1, 2020, and resulting service cost reduction and extended loss amortization period discussed above. If the 7.00% expected long-term rate of return on plan assets assumption at December 31, 2019 that was used to compute the expected 2020 FAS pension expense for our qualified defined benefit pension plans had been 25 basis points higher or lower, with all other assumptions held constant, the amount of FAS pension expense projected for 2020 would be lower or higher by approximately \$80 million. Each year, differences between the actual plan asset return and the expected long-term rate of return on plan assets

impacts the measurement of the following year's FAS expense. Every 100 basis points difference in return during 2019 between our actual rate of return of approximately 21% and our expected long-term rate of return of 7.00% impacted 2020 expected FAS pension expense by approximately \$15 million.

Funding Considerations

We made contributions of \$1.0 billion in 2019 and \$5.0 billion in 2018 to our qualified defined benefit pension plans. Funding of our qualified defined benefit pension plans is determined in a manner consistent with CAS and in accordance with the Employee Retirement Income Security Act of 1974 (ERISA), as amended by the Pension Protection Act of 2006 (PPA). Our goal has been to fund the pension plans to a level of at least 80%, as determined under the PPA. The ERISA funded status of our qualified defined benefit pension plans was approximately 82% and 81% as of December 31, 2019 and 2018; which is calculated on a different basis than under GAAP.

Contributions to our defined benefit pension plans are recovered over time through the pricing of our products and services on U.S. Government contracts, including FMS, and are recognized in our cost of sales and net sales. CAS govern the extent to which our pension costs are allocable to and recoverable under contracts with the U.S. Government, including FMS. Pension cost recoveries under CAS occur in different periods from when pension contributions are made under the PPA. The CAS rules fully transitioned in 2017 to better align the recovery of pension costs with the minimum funding requirements of the PPA (referred to as CAS Harmonization).

We recovered \$2.6 billion in 2019 and \$2.4 billion in 2018 as CAS pension costs. Amounts contributed in excess of the CAS pension costs recovered under U.S. Government contracts are considered to be prepayment credits under the CAS rules. Our prepayment credits were approximately \$8.5 billion at both December 31, 2019 and 2018. The prepayment credit balance will increase or decrease based on our actual investment return on plan assets.

Trends

We made contributions to our qualified defined benefit pension plans of \$1.0 billion in 2019 and \$5.0 billion in 2018, including required and discretionary contributions. As a result of these contributions, we do not expect to make contributions to our qualified defined benefit pension plans in 2020. We anticipate recovering approximately \$2.0 billion of CAS pension cost in 2020 allowing us to recoup a portion of our CAS prepayment credits.

We project FAS pension income of \$115 million in 2020, compared to FAS pension expense of \$1.1 billion in 2019, as a result of completing the planned freeze of our salaried pension plans effective January 1, 2020 that was previously announced on July 1, 2014. Our FAS pension expense is comprised of service cost, interest cost, expected return on plan assets, amortization of prior service cost or credit, and amortization of actuarial losses. The service cost and amortization of actuarial losses components of FAS pension expense are significantly lower due to the freeze. As a result, the expected return on plan assets and amortization of prior service credit exceed all other FAS pension expense components in 2020.

Environmental Matters

We are a party to various agreements, proceedings and potential proceedings for environmental remediation issues, including matters at various sites where we have been designated a potentially responsible party (PRP). At December 31, 2019 and 2018, the total amount of liabilities recorded on our consolidated balance sheet for environmental matters was \$810 million and \$864 million. We have recorded assets totaling \$703 million and \$750 million at December 31, 2019 and 2018 for the portion of environmental costs that are probable of future recovery in pricing of our products and services for agencies of the U.S. Government, as discussed below. The amount that is expected to be allocated to our non-U.S. Government contracts or that is determined to not be recoverable under U.S. Government contracts has been expensed through cost of sales. We project costs and recovery of costs over approximately 20 years.

We enter into agreements (e.g., administrative consent orders, consent decrees) that document the extent and timing of some of our environmental remediation obligations. We also are involved in environmental remediation activities at sites where formal agreements either do not exist or do not quantify the extent and timing of our obligations. Environmental remediation activities usually span many years, which makes estimating the costs more judgmental due to, for example, changing remediation technologies. To determine the costs related to clean up sites, we have to assess the extent of contamination, effects on natural resources, the appropriate technology to be used to accomplish the remediation and evolving environmental standards.

We perform quarterly reviews of environmental remediation sites and record liabilities and receivables in the period it becomes probable that a liability has been incurred and the amounts can be reasonably estimated (see the discussion under "Environmental Matters" in "Note 1 – Significant Accounting Policies" and "Note 14 – Legal Proceedings, Commitments and Contingencies")

included in our Notes to Consolidated Financial Statements). We consider the above factors in our quarterly estimates of the timing and amount of any future costs that may be required for environmental remediation activities, which results in the calculation of a range of estimates for a particular environmental remediation site. We do not discount the recorded liabilities, as the amount and timing of future cash payments are not fixed or cannot be reliably determined. Given the required level of judgment and estimation, it is likely that materially different amounts could be recorded if different assumptions were used or if circumstances were to change (e.g., a change in environmental standards or a change in our estimate of the extent of contamination).

Under agreements reached with the U.S. Government, most of the amounts we spend for environmental remediation are allocated to our operations as general and administrative costs. Under existing U.S. Government regulations, these and other environmental expenditures relating to our U.S. Government business, after deducting any recoveries received from insurance or other PRPs, are allowable in establishing prices of our products and services. As a result, most of the expenditures we incur are included in our net sales and cost of sales according to U.S. Government agreement or regulation, regardless of the contract form (e.g. cost-reimbursable, fixed-price). We continually evaluate the recoverability of our assets for the portion of environmental costs that are probable of future recovery by assessing, among other factors, U.S. Government regulations, our U.S. Government business base and contract mix, our history of receiving reimbursement of such costs, and efforts by some U.S. Government representatives to limit such reimbursement.

In addition to the proceedings and potential proceedings discussed above, California previously established a maximum level of the contaminant hexavalent chromium in drinking water of 10 parts per billion (ppb). This standard was successfully challenged by the California Manufacturers and Technology Association (CMTA) for failure to conduct the required economic feasibility analysis. In response to the court's ruling, the State Water Resources Control Board (State Board), a branch of the California Environmental Protection Agency, withdrew the hexavalent chromium standard from the published regulations, leaving only the 50 ppb standard for total chromium. The State Board has indicated it will work to re-establish a hexavalent chromium standard. Further, the U.S. Environmental Protection Agency (U.S. EPA) is considering whether to regulate hexavalent chromium.

California is also reevaluating its existing drinking water standard of 6 ppb for perchlorate, and the U.S. EPA is taking steps to regulate perchlorate in drinking water. If substantially lower standards are adopted, in either California or at the federal level for perchlorate or for hexavalent chromium, we expect a material increase in our estimates for environmental liabilities and the related assets for the portion of the increased costs that are probable of future recovery in the pricing of our products and services for the U.S. Government. The amount that would be allocable to our non-U.S. Government contracts or that is determined not to be recoverable under U.S. Government contracts would be expensed, which may have a material effect on our earnings in any particular interim reporting period.

As disclosed above, we may record changes in the amount of environmental remediation liabilities as a result of our quarterly reviews of the status of our environmental remediation sites, which would result in a change to the corresponding amount that is probable of future recovery and a charge to earnings. For example, if we were to determine that the liabilities should be increased by \$100 million, the corresponding amount that is probable of future recovery would be increased by approximately \$87 million, with the remainder recorded as a charge to earnings. This allocation is determined annually, based upon our existing and projected business activities with the U.S. Government.

We cannot reasonably determine the extent of our financial exposure at all environmental remediation sites with which we are involved. There are a number of former operating facilities we are monitoring or investigating for potential future environmental remediation. In some cases, although a loss may be probable, it is not possible at this time to reasonably estimate the amount of any obligation for remediation activities because of uncertainties (e.g., assessing the extent of the contamination). During any particular quarter, such uncertainties may be resolved, allowing us to estimate and recognize the initial liability to remediate a particular former operating site. The amount of the liability could be material. Upon recognition of the liability, a portion will be recognized as a receivable with the remainder charged to earnings, which may have a material effect in any particular interim reporting period.

If we are ultimately found to have liability at those sites where we have been designated a PRP, we expect that the actual costs of environmental remediation will be shared with other liable PRPs. Generally, PRPs that are ultimately determined to be responsible parties are strictly liable for site remediation and usually agree among themselves to share, on an allocated basis, the costs and expenses for environmental investigation and remediation. Under existing environmental laws, responsible parties are jointly and severally liable and, therefore, we are potentially liable for the full cost of funding such remediation. In the unlikely event that we were required to fund the entire cost of such remediation, the statutory framework provides that we may pursue rights of cost recovery or contribution from the other PRPs. The amounts we record do not reflect the fact that we may recover some of the environmental costs we have incurred through insurance or from other PRPs, which we are required to pursue by agreement and U.S. Government regulation.

Goodwill and Intangible Assets

The assets and liabilities of acquired businesses are recorded under the acquisition method of accounting at their estimated fair values at the date of acquisition. Goodwill represents costs in excess of fair values assigned to the underlying identifiable net assets of acquired businesses. Intangible assets from acquired businesses are recognized at fair value on the acquisition date and consist of customer programs, trademarks, customer relationships, technology and other intangible assets. Customer programs include values assigned to major programs of acquired businesses and represent the aggregate value associated with the customer relationships, contracts, technology and trademarks underlying the associated program and are amortized on a straight-line basis over a period of expected cash flows used to measure fair value, which ranges from nine to 20 years.

Our goodwill balance was \$10.6 billion at December 31, 2019 and \$10.8 billion at December 31, 2018. We perform an impairment test of our goodwill at least annually in the fourth quarter or more frequently whenever events or changes in circumstances indicate the carrying value of goodwill may be impaired. Such events or changes in circumstances may include a significant deterioration in overall economic conditions, changes in the business climate of our industry, a decline in our market capitalization, operating performance indicators, competition, reorganizations of our business, U.S. Government budget restrictions or the disposal of all or a portion of a reporting unit. Our goodwill has been allocated to and is tested for impairment at a level referred to as the reporting unit, which is our business segment level or a level below the business segment. The level at which we test goodwill for impairment requires us to determine whether the operations below the business segment constitute a self-sustaining business for which discrete financial information is available and segment management regularly reviews the operating results.

We may use both qualitative and quantitative approaches when testing goodwill for impairment. For selected reporting units where we use the qualitative approach, we perform a qualitative evaluation of events and circumstances impacting the reporting unit to determine the likelihood of goodwill impairment. Based on that qualitative evaluation, if we determine it is more likely than not that the fair value of a reporting unit exceeds its carrying amount, no further evaluation is necessary. Otherwise we perform a quantitative impairment test. We perform quantitative tests for most reporting units at least once every three years. However, for certain reporting units we may perform a quantitative impairment test every year.

To perform the quantitative impairment test, we compare the fair value of a reporting unit to its carrying value, including goodwill. If the fair value of a reporting unit exceeds its carrying value, goodwill of the reporting unit is not impaired. If the carrying value of the reporting unit, including goodwill, exceeds its fair value, a goodwill impairment loss is recognized in an amount equal to that excess. We generally estimate the fair value of each reporting unit using a combination of a discounted cash flow (DCF) analysis and market-based valuation methodologies such as comparable public company trading values and values observed in recent business acquisitions. Determining fair value requires the exercise of significant judgments, including the amount and timing of expected future cash flows, long-term growth rates, discount rates and relevant comparable public company earnings multiples and relevant transaction multiples. The cash flows employed in the DCF analysis are based on our best estimate of future sales, earnings and cash flows after considering factors such as general market conditions, U.S. Government budgets, existing firm orders, expected future orders, contracts with suppliers, labor agreements, changes in working capital, long term business plans and recent operating performance. The discount rates utilized in the DCF analysis are based on the respective reporting unit's weighted average cost of capital, which takes into account the relative weights of each component of capital structure (equity and debt) and represents the expected cost of new capital, adjusted as appropriate to consider the risk inherent in future cash flows of the respective reporting unit. The carrying value of each reporting unit includes the assets and liabilities employed in its operations, goodwill and allocations of amounts held at the business segment and corporate levels.

In the fourth quarter of 2019, we performed our annual goodwill impairment test for each of our reporting units. The results of that test indicated that for each of our reporting units no impairment existed. As of the date of our annual impairment test, the fair value of our Sikorsky reporting unit exceeded its carrying value, which included goodwill of \$2.7 billion, by a margin of approximately 40%. While the margin between the fair value and carrying value of our Sikorsky reporting unit improved since the prior year impairment test, the fair value of our Sikorsky reporting unit can be significantly impacted by changes in expected future orders, discount rates and long term growth rates, along with other significant judgments. Based on our assessment of these circumstances, we have determined that goodwill at our Sikorsky reporting unit is at risk for impairment should there be a deterioration of projected cash flows of the reporting unit.

Impairment assessments inherently involve management judgments regarding a number of assumptions such as those described above. Due to the many variables inherent in the estimation of a reporting unit's fair value and the relative size of our recorded goodwill, differences in assumptions could have a material effect on the estimated fair value of one or more of our reporting units and could result in a goodwill impairment charge in a future period.

Acquired intangible assets deemed to have indefinite lives are not amortized, but are subject to annual impairment testing. This testing compares carrying value to fair value and, when appropriate, the carrying value of these assets is reduced to fair value.

Finite-lived intangibles are amortized to expense over the applicable useful lives, ranging from three to 20 years, based on the nature of the asset and the underlying pattern of economic benefit as reflected by future net cash inflows. We perform an impairment test of finite-lived intangibles whenever events or changes in circumstances indicate their carrying value may be impaired. If events or changes in circumstances indicate the carrying value of a finite-lived intangible may be impaired, the sum of the undiscounted future cash flows expected to result from the use of the asset group would be compared to the asset group's carrying value. If the asset group's carrying amount exceed the sum of the undiscounted future cash flows, we would determine the fair value of the asset group and record an impairment loss in net earnings.

The carrying value of our Sikorsky business includes an indefinite-lived trademark intangible asset of \$887 million as of December 31, 2019. In the fourth quarter of 2019, we performed the annual impairment test for the Sikorsky indefinite-lived trademark intangible asset and the results indicated that no impairment existed. As of the date of our annual impairment test, the fair value of the Sikorsky trademark exceeded its carrying value by a margin of approximately 10%. Additionally, our Sikorsky business has finite-lived customer program intangible assets with carrying values of \$2.2 billion as of December 31, 2019. Any business deterioration, contract cancellations or terminations, or negative changes in market factors could cause our sales to decline below current projections. Based on our assessment of these circumstances, we have determined that our Sikorsky intangible assets are at risk for impairment should there be any business deterioration, contract cancellations or terminations, or negative changes in market factors.

Recent Accounting Pronouncements

See "Note 1 – Significant Accounting Policies" included in our Notes to Consolidated Financial Statements (under the caption "Recent Accounting Pronouncements").

ITEM 7A. Quantitative and Qualitative Disclosures About Market Risk

We maintain active relationships with a broad and diverse group of U.S. and international financial institutions. We believe that they provide us with sufficient access to the general and trade credit we require to conduct our business. We continue to closely monitor the financial market environment and actively manage counterparty exposure to minimize the potential impact from adverse developments with any single credit provider while ensuring availability of, and access to, sufficient credit resources.

Our main exposure to market risk relates to interest rates, foreign currency exchange rates and market prices on certain equity securities. Our financial instruments that are subject to interest rate risk principally include fixed-rate long-term debt and commercial paper, if issued. The estimated fair value of our outstanding debt was \$15.9 billion at December 31, 2019 and the outstanding principal amount was \$13.8 billion, excluding unamortized discounts and issuance costs of \$1.2 billion. A 10% change in the level of interest rates would not have a material impact on the fair value of our outstanding debt at December 31, 2019.

We use derivative instruments principally to reduce our exposure to market risks from changes in foreign currency exchange rates and interest rates. We do not enter into or hold derivative instruments for speculative trading purposes. We transact business globally and are subject to risks associated with changing foreign currency exchange rates. We enter into foreign currency hedges such as forward and option contracts that change in value as foreign currency exchange rates change. Our most significant foreign currency exposures relate to the British pound sterling, the euro, the Canadian dollar and the Australian dollar. These contracts hedge forecasted foreign currency transactions in order to mitigate fluctuations in our earnings and cash flows associated with changes in foreign currency exchange rates. As a result, we do not have material foreign currency exposure, including exposure to the pound sterling or euro should there be material foreign currency fluctuations due to the United Kingdom departing from the European Union (commonly referred to as Brexit). We designate foreign currency hedges as cash flow hedges. We also are exposed to the impact of interest rate changes primarily through our borrowing activities. For fixed rate borrowings, we may use variable interest rate swaps, effectively converting fixed rate borrowings to variable rate borrowings in order to reduce the amount of interest paid. These swaps are designated as fair value hedges. For variable rate borrowings, we may use fixed interest rate swaps, effectively converting variable rate borrowings to fixed rate borrowings in order to mitigate the impact of interest rate changes on earnings. These swaps are designated as cash flow hedges. We also may enter into derivative instruments that are not designated as hedges and do not qualify for hedge accounting, which are intended to mitigate certain economic exposures.

The classification of gains and losses resulting from changes in the fair values of derivatives is dependent on our intended use of the derivative and its resulting designation. Adjustments to reflect changes in fair values of derivatives attributable to highly effective hedges are either reflected in earnings and largely offset by corresponding adjustments to the hedged items or reflected net of income taxes in accumulated other comprehensive loss until the hedged transaction is recognized in earnings. Changes in the fair value of the derivatives that are not highly effective, if any, are immediately recognized in earnings. The aggregate notional amount of our outstanding interest rate swaps at December 31, 2019 and 2018 was \$750 million and \$1.3 billion. The aggregate notional amount of our outstanding foreign currency hedges at December 31, 2019 and 2018 was \$3.8 billion and \$3.5 billion. At December 31, 2019 and 2018, the net fair value of our derivative instruments was not material (see “Note 16 – Fair Value Measurements” included in our Notes to Consolidated Financial Statements). A 10% unfavorable exchange rate movement of our foreign currency contracts would not have a material impact on the aggregate net fair value of such contracts or our consolidated financial statements. Additionally, as we enter into foreign currency contracts to hedge foreign currency exposure on underlying transactions we believe that any movement on our foreign currency contracts would be offset by movement on the underlying transactions and, therefore, when taken together do not create material risk.

We evaluate the credit quality of potential counterparties to derivative transactions and only enter into agreements with those deemed to have acceptable credit risk at the time the agreements are executed. Our foreign currency exchange hedge portfolio is diversified across several banks. We periodically monitor changes to counterparty credit quality as well as our concentration of credit exposure to individual counterparties. We do not hold or issue derivative financial instruments for trading or speculative purposes.

We maintain a separate trust that includes investments to fund certain of our non-qualified deferred compensation plans. As of December 31, 2019, investments in the trust totaled \$1.8 billion and are reflected at fair value on our consolidated balance sheet in other noncurrent assets. The trust holds investments in marketable equity securities and fixed-income securities that are exposed to price changes and changes in interest rates. A portion of the liabilities associated with the deferred compensation plans supported by the trust is also impacted by changes in the market price of our common stock and certain market indices. Changes in the value of the liabilities have the effect of partially offsetting the impact of changes in the value of the trust. Both the change in the fair value of the trust and the change in the value of the liabilities are recognized on our consolidated statements of earnings in other unallocated, net and were not material for the year ended December 31, 2019.

ITEM 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm on the Audited Consolidated Financial Statements

Board of Directors and Stockholders
Lockheed Martin Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Lockheed Martin Corporation (the Corporation) as of December 31, 2019 and 2018, the related consolidated statements of earnings, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Corporation at December 31, 2019 and 2018, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Corporation’s internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 7, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Corporation’s management. Our responsibility is to express an opinion on the Corporation’s financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Corporation in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue recognition based on the percentage of completion method

Description of the Matter

For the year ended December 31, 2019, the Corporation recorded net sales of \$59.8 billion. As more fully described in Note 1 to the consolidated financial statements, the Corporation generates the majority of its net sales from long-term contracts with its customers whereby substantially all of the Corporation's revenue is recognized over time using the percentage-of-completion cost-to-cost measure of progress. Under the percentage-of-completion cost-to-cost measure of progress, the Corporation measures progress towards completion based on the ratio of costs incurred to date to the estimated total costs to complete the performance obligation(s) (referred to as the estimate-at-completion analysis). The Corporation estimates profit on these contracts as the difference between total estimated revenues, including estimated variable consideration, and total estimated cost at completion and recognizes that profit as costs are incurred using the current estimate of the profit booking rate.

The percentage-of-completion cost-to-cost method requires management to make significant estimates and assumptions to estimate contract sales, costs and profit associated with its contracts with customers. At the outset of a long-term contract, the Corporation identifies risks to the achievement of the technical, schedule and cost aspects of the contract, and estimates the variable consideration to be received. Throughout the contract life cycle, the Corporation monitors and assesses the effects of those risks on its estimates of sales and total costs to complete the contract. Profit booking rates may increase during the performance of the contract if the Corporation successfully retires risks surrounding the technical, schedule and cost aspects of the contract, which would decrease the estimated total costs to complete the contract or increase the variable consideration it expects to receive on the contract. Conversely, the profit booking rates may decrease if the estimated total costs to complete the contract increase or the Corporation's estimates of variable consideration they expect to receive decrease. Changes to the profit booking rates resulting from changes in estimates could have a material effect on the Corporation's results of operations.

Auditing the Corporation's estimate-at-completion analyses used in its revenue recognition process was complex due to the judgment involved in evaluating the significant estimates and assumptions made by management in the creation and subsequent updates to the Corporation's estimate-at-completion analyses and related profit booking rates. The estimate-at-completion analyses and profit booking rate of each contract consider risks surrounding the Corporation's ability to estimate the variable consideration to be received and to achieve the technical, schedule, and cost aspects of the contract.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of relevant internal controls over the Corporation's revenue recognition process. For example, we tested internal controls over management's review of the estimate-at-completion analyses and the significant assumptions underlying the estimated contract value (including variable consideration) and estimated total costs to complete. We also tested internal controls that management executes to validate the data used in the estimate-at-completion analyses was complete and accurate.

To test the accuracy of the Corporation's estimate-at-completion analyses, our audit procedures included, among others, comparing estimates of labor costs, subcontractor costs, materials and variable consideration to historical results of similar contracts, and agreeing the key terms, including the terms of the variable consideration, to contract documentation and management's estimates. We also performed sensitivity analyses over the significant assumptions to evaluate the change in the profit booking rates resulting from changes in the assumptions.

Goodwill and Indefinite-Lived Intangible Asset Impairment Assessments - Sikorsky Reporting Unit and Trademark

Description of the Matter

At December 31, 2019, the Corporation's Sikorsky reporting unit had a goodwill balance of \$2.7 billion, and the Sikorsky indefinite-lived trademark intangible asset was \$887 million, which represented approximately 6% and 2% of total assets, respectively. As discussed in Note 1 and Note 3 to the consolidated financial statements, goodwill is tested for impairment at least annually at the reporting unit level using either a qualitative or quantitative approach. Under the quantitative approach to test for goodwill impairment, the Corporation compares the fair value of a reporting unit to its carrying amount, including goodwill. Generally, the Corporation estimates the fair value of its reporting units using a combination of a discounted cash flows analysis and market-based valuation methodologies. Similarly, the trademark intangible asset is not amortized but rather is tested by management for impairment at least annually using a market-based valuation methodology.

Auditing management's annual impairment tests over the Sikorsky reporting unit goodwill and trademark intangible asset was complex and highly judgmental due to the significant estimation required in determining the fair values. In particular, the fair value estimates were sensitive to significant assumptions, such as revenue growth rates, operating margins, cash flows, terminal value, and weighted average cost of capital, which are affected by expectations about future market or economic conditions and expected future operating results of the Sikorsky business.

*How We
Addressed the
Matter in Our
Audit*

We obtained an understanding, evaluated the design and tested the operating effectiveness of relevant internal controls over the Corporation's goodwill impairment review and trademark intangible asset impairment process, including controls over management's review of the valuation models and significant assumptions described above. We also tested the internal controls management executes to validate the data used in the valuation models was complete and accurate.

To test the estimated fair values of the Sikorsky reporting unit and trademark intangible asset, we performed audit procedures that included, among others, assessing the valuation methodologies used by the Corporation, involving our valuation specialists to assist in testing the significant assumptions described above that are used in the valuations, and testing the completeness and accuracy of the underlying data the Corporation used in its analyses. For example, we compared the significant assumptions to current industry, market and economic trends, historical results of the Sikorsky business, and other relevant factors. We also performed a sensitivity analysis over the significant assumptions to evaluate the impact that changes in significant assumptions would have on the fair value of the reporting unit and trademark intangible asset.

Defined Benefit Pension Plan Obligation

*Description of
the Matter*

At December 31, 2019, the Corporation's aggregate obligation for its qualified defined benefit pension plans was \$48.67 billion and exceeded the gross fair value of the related plan assets of \$35.44 billion, resulting in a net unfunded qualified defined benefit pension obligation of \$13.23 billion. As explained in Note 11 of the consolidated financial statements, the Corporation remeasures the qualified defined benefit pension assets and obligations at the end of each year or more frequently upon the occurrence of certain events. The amounts are measured using actuarial valuations, which depend on key assumptions such as the discount rate, the expected long-term rate of return on plan assets, and participant longevity.

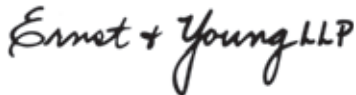
Auditing the defined benefit pension obligation was complex and required the involvement of specialists as a result of the judgmental nature of the actuarial assumptions such as discount rate, expected long-term rate of return on plan assets, and participant longevity, used in the measurement process. These assumptions have a significant effect on the projected benefit obligation, with the discount rate being the most sensitive of those assumptions.

*How We
Addressed the
Matter in Our
Audit*

We obtained an understanding, evaluated the design and tested the operating effectiveness of relevant internal controls over management's measurement and valuation of the defined benefit pension obligation calculations. For example, we tested the internal controls over management's review of the defined benefit pension obligation calculations, the significant actuarial assumptions and the data inputs provided to the actuaries.

To test the defined benefit pension obligation, our audit procedures included, among others, evaluating the methodology used, the significant actuarial assumptions described above and the underlying data used by the Corporation. We compared the actuarial assumptions used by management to historical trends and evaluated the change in the defined benefit pension obligation from prior year due to the change in service cost, interest cost, benefit payments, actuarial gains and losses, contributions, new longevity assumptions and plan amendments. In addition, we involved our actuarial specialists to assist in evaluating management's methodology for determining the discount rate that reflects the maturity and duration of the benefit payments and is used to measure the defined benefit pension obligation. As part of this assessment, we compared the projected cash flows to prior year and compared the current year benefits paid to the prior year projected cash flows.

To evaluate the mortality rate and the longevity, we evaluated management's selection of mortality base tables and improvement scales, adjusted for entity-specific factors. We also tested the completeness and accuracy of the underlying data, including the participant data provided to the Corporation's actuarial specialists. Lastly, to evaluate the expected return on plan assets, we assessed whether management's assumption was consistent with a range of returns for a portfolio of comparative investments.

The logo for Ernst & Young LLP, featuring the company name in a stylized, handwritten-style font.

We have served as the Corporation's auditor since 1994.

Tysons, Virginia
February 7, 2020

Lockheed Martin Corporation
Consolidated Statements of Earnings
(in millions, except per share data)

	Years Ended December 31,		
	2019	2018	2017
Net sales			
Products	\$ 50,053	\$ 45,005	\$ 42,502
Services	9,759	8,757	7,458
Total net sales	59,812	53,762	49,960
Cost of sales			
Products	(44,589)	(40,293)	(38,417)
Services	(8,731)	(7,738)	(6,673)
Severance and restructuring charges	—	(96)	—
Other unallocated, net	1,875	1,639	1,501
Total cost of sales	(51,445)	(46,488)	(43,589)
Gross profit	8,367	7,274	6,371
Other income, net	178	60	373
Operating profit	8,545	7,334	6,744
Interest expense	(653)	(668)	(651)
Other non-operating expense, net	(651)	(828)	(847)
Earnings from continuing operations before income taxes	7,241	5,838	5,246
Income tax expense	(1,011)	(792)	(3,356)
Net earnings from continuing operations	6,230	5,046	1,890
Net earnings from discontinued operations	—	—	73
Net earnings	\$ 6,230	\$ 5,046	\$ 1,963
Earnings per common share			
Basic			
Continuing operations	\$ 22.09	\$ 17.74	\$ 6.56
Discontinued operations	—	—	0.26
Basic earnings per common share	\$ 22.09	\$ 17.74	\$ 6.82
Diluted			
Continuing operations	\$ 21.95	\$ 17.59	\$ 6.50
Discontinued operations	—	—	0.25
Diluted earnings per common share	\$ 21.95	\$ 17.59	\$ 6.75

The accompanying notes are an integral part of these consolidated financial statements.

Lockheed Martin Corporation
Consolidated Statements of Comprehensive Income
(in millions)

	Years Ended December 31,		
	2019	2018	2017
Net earnings	\$ 6,230	\$ 5,046	\$ 1,963
Other comprehensive income (loss), net of tax			
Postretirement benefit plans			
Net other comprehensive loss recognized during the period, net of tax benefit of \$586 million in 2019, \$136 million in 2018 and \$375 million in 2017	(2,182)	(501)	(1,380)
Amounts reclassified from accumulated other comprehensive loss, net of tax expense of \$247 million in 2019, \$327 million in 2018 and \$437 million in 2017	908	1,202	802
Other, net	41	(75)	141
Other comprehensive income (loss), net of tax	(1,233)	626	(437)
Comprehensive income	\$ 4,997	\$ 5,672	\$ 1,526

The accompanying notes are an integral part of these consolidated financial statements.

Lockheed Martin Corporation
Consolidated Balance Sheets
(in millions, except par value)

	December 31,	
	2019	2018
Assets		
Current assets		
Cash and cash equivalents	\$ 1,514	\$ 772
Receivables, net	2,337	2,444
Contract assets	9,094	9,472
Inventories	3,619	2,997
Other current assets	531	418
Total current assets	17,095	16,103
Property, plant and equipment, net	6,591	6,124
Goodwill	10,604	10,769
Intangible assets, net	3,213	3,494
Deferred income taxes	3,319	3,208
Other noncurrent assets	6,706	5,178
Total assets	\$ 47,528	\$ 44,876
Liabilities and equity		
Current liabilities		
Accounts payable	\$ 1,281	\$ 2,402
Contract liabilities	7,054	6,491
Salaries, benefits and payroll taxes	2,466	2,122
Current maturities of long-term debt and commercial paper	1,250	1,500
Other current liabilities	1,921	1,883
Total current liabilities	13,972	14,398
Long-term debt, net	11,404	12,604
Accrued pension liabilities	13,234	11,410
Other postretirement benefit liabilities	337	704
Other noncurrent liabilities	5,410	4,311
Total liabilities	44,357	43,427
Stockholders' equity		
Common stock, \$1 par value per share	280	281
Additional paid-in capital	—	—
Retained earnings	18,401	15,434
Accumulated other comprehensive loss	(15,554)	(14,321)
Total stockholders' equity	3,127	1,394
Noncontrolling interests in subsidiary	44	55
Total equity	3,171	1,449
Total liabilities and equity	\$ 47,528	\$ 44,876

The accompanying notes are an integral part of these consolidated financial statements.

Lockheed Martin Corporation
Consolidated Statements of Cash Flows
(in millions)

	Years Ended December 31,		
	2019	2018	2017
Operating activities			
Net earnings	\$ 6,230	\$ 5,046	\$ 1,963
Adjustments to reconcile net earnings to net cash provided by operating activities			
Depreciation and amortization	1,189	1,161	1,195
Stock-based compensation	189	173	158
Deferred income taxes	222	(244)	3,448
Severance and restructuring charges	—	96	—
Gain on property sale	(51)	—	(198)
Gain on divestiture of IS&GS business	—	—	(73)
Changes in assets and liabilities			
Receivables, net	107	(179)	(902)
Contract assets	378	(1,480)	390
Inventories	(622)	(119)	(79)
Accounts payable	(1,098)	914	(189)
Contract liabilities	563	(537)	353
Postretirement benefit plans	81	(3,574)	1,316
Income taxes	(151)	1,077	(1,210)
Other, net	274	804	304
Net cash provided by operating activities	7,311	3,138	6,476
Investing activities			
Capital expenditures	(1,484)	(1,278)	(1,177)
Other, net	243	203	30
Net cash used for investing activities	(1,241)	(1,075)	(1,147)
Financing activities			
Repurchases of common stock	(1,200)	(1,492)	(2,001)
Dividends paid	(2,556)	(2,347)	(2,163)
Proceeds from issuance of commercial paper, net	(600)	600	—
Repayments of long-term debt	(900)	(750)	—
Other, net	(72)	(163)	(141)
Net cash used for financing activities	(5,328)	(4,152)	(4,305)
Net change in cash and cash equivalents	742	(2,089)	1,024
Cash and cash equivalents at beginning of year	772	2,861	1,837
Cash and cash equivalents at end of year	\$ 1,514	\$ 772	\$ 2,861

The accompanying notes are an integral part of these consolidated financial statements.

Lockheed Martin Corporation
Consolidated Statements of Equity
(in millions, except per share data)

	Common Stock	Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity (Deficit)	Noncontrolling Interests in Subsidiary	Total Equity (Deficit)
Balance at December 31, 2016	\$ 289	\$ —	\$ 13,195	\$ (12,102)	\$ 1,382	\$ 95	\$ 1,477
Net earnings	—	—	1,963	—	1,963	—	1,963
Other comprehensive loss, net of tax	—	—	—	(437)	(437)	—	(437)
Repurchases of common stock	(7)	(398)	(1,596)	—	(2,001)	—	(2,001)
Dividends declared (\$7.46 per share)	—	—	(2,157)	—	(2,157)	—	(2,157)
Stock-based awards, ESOP activity and other	2	398	—	—	400	—	400
Net decrease in noncontrolling interests in subsidiary	—	—	—	—	—	(21)	(21)
Balance at December 31, 2017	\$ 284	\$ —	\$ 11,405	\$ (12,539)	\$ (850)	\$ 74	\$ (776)
Net earnings	—	—	5,046	—	5,046	—	5,046
Other comprehensive income, net of tax	—	—	—	626	626	—	626
Repurchases of common stock	(5)	(404)	(1,083)	—	(1,492)	—	(1,492)
Dividends declared (\$8.20 per share)	—	—	(2,342)	—	(2,342)	—	(2,342)
Stock-based awards, ESOP activity and other	2	404	—	—	406	—	406
Reclassification of income tax effects from tax reform	—	—	2,408	(2,408)	—	—	—
Net decrease in noncontrolling interests in subsidiary	—	—	—	—	—	(19)	(19)
Balance at December 31, 2018	\$ 281	\$ —	\$ 15,434	\$ (14,321)	\$ 1,394	\$ 55	\$ 1,449
Net earnings	—	—	6,230	—	6,230	—	6,230
Other comprehensive loss, net of tax	—	—	—	(1,233)	(1,233)	—	(1,233)
Repurchases of common stock	(4)	(483)	(713)	—	(1,200)	—	(1,200)
Dividends declared (\$9.00 per share)	—	—	(2,550)	—	(2,550)	—	(2,550)
Stock-based awards, ESOP activity and other	3	483	—	—	486	—	486
Net decrease in noncontrolling interests in subsidiary	—	—	—	—	—	(11)	(11)
Balance at December 31, 2019	\$ 280	\$ —	\$ 18,401	\$ (15,554)	\$ 3,127	\$ 44	\$ 3,171

The accompanying notes are an integral part of these consolidated financial statements.

Lockheed Martin Corporation
Notes to Consolidated Financial Statements

Note 1 – Significant Accounting Policies

Organization – We are a global security and aerospace company principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. We also provide a broad range of management, engineering, technical, scientific, logistics, system integration and cybersecurity services. We serve both U.S. and international customers with products and services that have defense, civil and commercial applications, with our principal customers being agencies of the U.S. Government.

Basis of presentation – Our consolidated financial statements include the accounts of subsidiaries we control and variable interest entities if we are the primary beneficiary. We eliminate intercompany balances and transactions in consolidation. Our receivables, inventories, customer advances and amounts in excess of costs incurred and certain amounts in other current liabilities primarily are attributable to long-term contracts or programs in progress for which the related operating cycles are longer than one year. In accordance with industry practice, we include these items in current assets and current liabilities. Unless otherwise noted, we present all per share amounts cited in these consolidated financial statements on a “per diluted share” basis.

Use of estimates – We prepare our consolidated financial statements in conformity with U.S. generally accepted accounting principles (GAAP). In doing so, we are required to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. We base these estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying amounts of assets and liabilities that are not readily apparent from other sources. Our actual results may differ materially from these estimates. Significant estimates inherent in the preparation of our consolidated financial statements include, but are not limited to, accounting for sales and cost recognition, postretirement benefit plans, assets for the portion of environmental costs that are probable of future recovery and liabilities, evaluation of goodwill and other assets for impairment, income taxes including deferred income taxes, fair value measurements and contingencies.

Revenue Recognition – The majority of our net sales are generated from long-term contracts with the U.S. Government and international customers (including foreign military sales (FMS) contracted through the U.S. Government) for the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. For certain contracts that meet the foregoing requirements, primarily international direct commercial sale contracts, we are required to obtain certain regulatory approvals. In these cases, we recognize revenue based on the likelihood of obtaining regulatory approvals based upon all known facts and circumstances. We provide our products and services under fixed-price and cost-reimbursable contracts.

Under fixed-price contracts, we agree to perform the specified work for a pre-determined price. To the extent our actual costs vary from the estimates upon which the price was negotiated, we will generate more or less profit or could incur a loss. Some fixed-price contracts have a performance-based component under which we may earn incentive payments or incur financial penalties based on our performance.

Cost-reimbursable contracts provide for the payment of allowable costs incurred during performance of the contract plus a fee up to a ceiling based on the amount that has been funded. Typically, we enter into three types of cost-reimbursable contracts: cost-plus-award-fee, cost-plus-incentive-fee, and cost-plus-fixed-fee. Cost-plus-award-fee contracts provide for an award fee that varies within specified limits based on the customer’s assessment of our performance against a predetermined set of criteria, such as targets based on cost, quality, technical and schedule criteria. Cost-plus-incentive-fee contracts provide for reimbursement of costs plus a fee, which is adjusted by a formula based on the relationship of total allowable costs to total target costs (i.e., incentive based on cost) or reimbursement of costs plus an incentive to exceed stated performance targets (i.e., incentive based on performance). The fixed-fee in a cost-plus-fixed-fee contract is negotiated at the inception of the contract and that fixed-fee does not vary with actual costs.

We account for a contract after it has been approved by all parties to the arrangement, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

We assess each contract at its inception to determine whether it should be combined with other contracts. When making this determination, we consider factors such as whether two or more contracts were negotiated and executed at or near the same time or were negotiated with an overall profit objective. If combined, we treat the combined contracts as a single contract for revenue recognition purposes.

We evaluate the products or services promised in each contract at inception to determine whether the contract should be accounted for as having one or more performance obligations. The products and services in our contracts are typically not distinct from one another due to their complex relationships and the significant contract management functions required to perform under the contract. Accordingly, our contracts are typically accounted for as one performance obligation. In limited cases, our contracts have more than one distinct performance obligation, which occurs when we perform activities that are not highly complex or interrelated or involve different product lifecycles. Significant judgment is required in determining performance obligations, and these decisions could change the amount of revenue and profit recorded in a given period. We classify net sales as products or services on our consolidated statements of earnings based on the predominant attributes of the performance obligations.

We determine the transaction price for each contract based on the consideration we expect to receive for the products or services being provided under the contract. For contracts where a portion of the price may vary, we estimate variable consideration at the most likely amount, which is included in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur. We analyze the risk of a significant revenue reversal and if necessary constrain the amount of variable consideration recognized in order to mitigate this risk.

At the inception of a contract we estimate the transaction price based on our current rights and do not contemplate future modifications (including unexercised options) or follow-on contracts until they become legally enforceable. Contracts are often subsequently modified to include changes in specifications, requirements or price, which may create new or change existing enforceable rights and obligations. Depending on the nature of the modification, we consider whether to account for the modification as an adjustment to the existing contract or as a separate contract. Generally, modifications to our contracts are not distinct from the existing contract due to the significant integration and interrelated tasks provided in the context of the contract. Therefore, such modifications are accounted for as if they were part of the existing contract and recognized as a cumulative adjustment to revenue.

For contracts with multiple performance obligations, we allocate the transaction price to each performance obligation based on the estimated standalone selling price of the product or service underlying each performance obligation. The standalone selling price represents the amount we would sell the product or service to a customer on a standalone basis (i.e., not bundled with any other products or services). Our contracts with the U.S. Government, including FMS contracts, are subject to the Federal Acquisition Regulations (FAR) and the price is typically based on estimated or actual costs plus a reasonable profit margin. As a result of these regulations, the standalone selling price of products or services in our contracts with the U.S. Government and FMS contracts are typically equal to the selling price stated in the contract.

For non-U.S. Government contracts with multiple performance obligations, we evaluate whether the stated selling prices for the products or services represent their standalone selling prices. We primarily sell customized solutions unique to a customer's specifications. When it is necessary to allocate the transaction price to multiple performance obligations, we typically use the expected cost plus a reasonable profit margin to estimate the standalone selling price of each product or service. We occasionally sell standard products or services with observable standalone sales transactions. In these situations, the observable standalone sales transactions are used to determine the standalone selling price.

We recognize revenue as performance obligations are satisfied and the customer obtains control of the products and services. In determining when performance obligations are satisfied, we consider factors such as contract terms, payment terms and whether there is an alternative future use of the product or service. Substantially all of our revenue is recognized over time as we perform under the contract because control of the work in process transfers continuously to the customer. For most contracts with the U.S. Government and FMS contracts, this continuous transfer of control of the work in process to the customer is supported by clauses in the contract that give the customer ownership of work in process and allow the customer to unilaterally terminate the contract for convenience and pay us for costs incurred plus a reasonable profit. For most non-U.S. Government contracts, primarily international direct commercial contracts, continuous transfer of control to our customer is supported because we deliver products that do not have an alternative use to us and if our customer were to terminate the contract for reasons other than our non-performance we would have the right to recover damages which would include, among other potential damages, the right to payment for our work performed to date plus a reasonable profit.

For performance obligations to deliver products with continuous transfer of control to the customer, revenue is recognized based on the extent of progress towards completion of the performance obligation, generally using the percentage-of-completion cost-to-cost measure of progress for our contracts because it best depicts the transfer of control to the customer as we incur costs on our contracts. Under the percentage-of-completion cost-to-cost measure of progress, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs to complete the performance obligation(s). For performance obligations to provide services to the customer, revenue is recognized over time based on costs incurred or the right to invoice method (in situations where the value transferred matches our billing rights) as our customer receives and consumes the benefits.

For performance obligations in which control does not continuously transfer to the customer, we recognize revenue at the point in time in which each performance obligation is fully satisfied. This coincides with the point in time the customer obtains control of the product or service, which typically occurs upon customer acceptance or receipt of the product or service, given that we maintain control of the product or service until that point.

Backlog (i.e., unfulfilled or remaining performance obligations) represents the sales we expect to recognize for our products and services for which control has not yet transferred to the customer. For our cost-reimbursable and fixed-priced-incentive contracts, the estimated consideration we expect to receive pursuant to the terms of the contract may exceed the contractual award amount. The estimated consideration is determined at the outset of the contract and is continuously reviewed throughout the contract period. In determining the estimated consideration, we consider the risks related to the technical, schedule and cost impacts to complete the contract and an estimate of any variable consideration. Periodically, we review these risks and may increase or decrease backlog accordingly. As the risks on such contracts are successfully retired, the estimated consideration from customers may be reduced, resulting in a reduction of backlog without a corresponding recognition of sales. As of December 31, 2019, our ending backlog was \$144.0 billion. We expect to recognize approximately 39% of our backlog over the next 12 months and approximately 65% over the next 24 months as revenue, with the remainder recognized thereafter.

For arrangements with the U.S. Government and FMS contracts, we generally do not begin work on contracts until funding is appropriated by the customer. Billing timetables and payment terms on our contracts vary based on a number of factors, including the contract type. Typical payment terms under fixed-price contracts with the U.S. Government provide that the customer pays either performance-based payments (PBPs) based on the achievement of contract milestones or progress payments based on a percentage of costs we incur. For the majority of our international direct commercial contracts to deliver complex systems, we typically receive advance payments prior to commencement of work, as well as milestone payments that are paid in accordance with the terms of our contract as we perform. We recognize a liability for payments in excess of revenue recognized, which is presented as a contract liability on the balance sheet. The portion of payments retained by the customer until final contract settlement is not considered a significant financing component because the intent is to protect the customer from our failure to adequately complete some or all of the obligations under the contract. Payments received from customers in advance of revenue recognition are not considered to be significant financing components because they are used to meet working capital demands that can be higher in the early stages of a contract.

For fixed-price and cost-reimbursable contracts, we present revenues recognized in excess of billings as contract assets on the balance sheet. Amounts billed and due from our customers under both contract types are classified as receivables on the balance sheet.

Significant estimates and assumptions are made in estimating contract sales and costs, including the profit booking rate. At the outset of a long-term contract, we identify and monitor risks to the achievement of the technical, schedule and cost aspects of the contract, as well as variable consideration, and assess the effects of those risks on our estimates of sales and total costs to complete the contract. The estimates consider the technical requirements (e.g., a newly-developed product versus a mature product), the schedule and associated tasks (e.g., the number and type of milestone events) and costs (e.g., material, labor, subcontractor, overhead, general and administrative and the estimated costs to fulfill our industrial cooperation agreements, sometimes referred to as offset or localization agreements, required under certain contracts with international customers). The initial profit booking rate of each contract considers risks surrounding the ability to achieve the technical requirements, schedule and costs in the initial estimated total costs to complete the contract. Profit booking rates may increase during the performance of the contract if we successfully retire risks surrounding the technical, schedule and cost aspects of the contract, which decreases the estimated total costs to complete the contract or may increase the variable consideration we expect to receive on the contract. Conversely, our profit booking rates may decrease if the estimated total costs to complete the contract increase or our estimates of variable consideration we expect to receive decrease. All of the estimates are subject to change during the performance of the contract and may affect the profit booking rate. When estimates of total costs to be incurred on a contract exceed total estimates of the transaction price, a provision for the entire loss is determined at the contract level and is recorded in the period in which the loss is determined.

Comparability of our segment sales, operating profit and operating margin may be impacted favorably or unfavorably by changes in profit booking rates on our contracts for which we recognize revenue over time using the percentage-of-completion cost-to-cost method to measure progress towards completion. Increases in the profit booking rates, typically referred to as risk retirements, usually relate to revisions in the estimated total costs to fulfill the performance obligations that reflect improved conditions on a particular contract. Conversely, conditions on a particular contract may deteriorate, resulting in an increase in the estimated total costs to fulfill the performance obligations and a reduction in the profit booking rate. Increases or decreases in profit booking rates are recognized in the current period and reflect the inception-to-date effect of such changes. Segment operating profit and margin may also be impacted favorably or unfavorably by other items, which may or may not impact sales. Favorable items may include the positive resolution of contractual matters, cost recoveries on severance and restructuring charges, insurance recoveries and gains on sales of assets. Unfavorable items may include the adverse resolution of contractual matters; restructuring

charges, except for significant severance actions, which are excluded from segment operating results; reserves for disputes; certain asset impairments; and losses on sales of certain assets.

Our consolidated net adjustments not related to volume, including net profit booking rate adjustments and other items, increased segment operating profit by approximately \$1.9 billion in each of 2019 and 2018, and \$1.6 billion in 2017. These adjustments increased net earnings by approximately \$1.5 billion (\$5.29 per share in 2019 and \$5.23 per share in 2018), and \$1.1 billion (\$3.79 per share) in 2017. We recognized net sales from performance obligations satisfied in prior periods of approximately \$2.2 billion, \$2.0 billion and \$1.8 billion in 2019, 2018 and 2017, which primarily relate to changes in profit booking rates that impacted revenue.

As previously disclosed, we are responsible for a program to design, develop and construct a ground-based radar at our RMS business segment. The program has experienced performance issues for which we have periodically accrued reserves. In 2019, we revised our estimated costs to complete the program and recorded a charge of approximately \$60 million (\$47 million, or \$0.17 per share, after-tax) at our RMS business segment, which resulted in cumulative losses of approximately \$205 million on this program as of December 31, 2019. We may continue to experience issues related to customer requirements and our performance under this contract and have to record additional charges. However, based on the losses previously recorded and our current estimate of the sales and costs to complete the program, at this time we do not anticipate that additional losses, if any, would be material to our operating results or financial condition.

As previously disclosed, we have a program, EADGE-T, to design, integrate, and install an air missile defense command, control, communications, computers – intelligence (C4I) system for an international customer that has experienced performance issues and for which we have periodically accrued reserves. In 2017, we revised our estimated costs to complete the EADGE-T contract as a consequence of ongoing performance matters and recorded an additional charge of \$120 million (\$74 million, or \$0.25 per share, after-tax) at our Rotary and Mission Systems (RMS) business segment, which resulted in cumulative losses of approximately \$260 million on this program. As of December 31, 2019, cumulative losses remained at approximately \$260 million. We continue to monitor program requirements and our performance. At this time, we do not anticipate additional charges that would be material to our operating results or financial condition.

As previously disclosed, we have two commercial satellite programs at our Space business segment for which we have experienced performance issues related to the development and integration of a modernized LM 2100 satellite platform. These programs are for the delivery of three satellites in total, including one that launched in February 2019 and one that launched in April 2019. We have periodically revised our estimated costs to complete these developmental commercial programs. As of December 31, 2019, cumulative losses remained at approximately \$410 million for these programs. While these losses reflect our estimated total losses on the programs, we will continue to incur unrecoverable general and administrative costs each period until we complete the contract for the third satellite. We have launched two satellites from one program, and the third satellite has completed development and has been shipped to the launch site for a planned launch in the first quarter of 2020. Any new satellite anomalies discovered during launch preparation requiring repair or rework, or prolonged on orbit testing prior to customer handover, could require that we record additional loss reserves, which could be material to our operating results.

As previously disclosed, we are responsible for designing, developing and installing an upgraded turret for the Warrior Capability Sustainment Program. In 2018, we revised our estimated costs to complete the program as a consequence of performance issues, and recorded a charge of approximately \$85 million (\$64 million, or \$0.22 per share, after-tax) at our Missiles and Fire Control (MFC) business segment, which resulted in cumulative losses of approximately \$140 million on this program. As of December 31, 2019, cumulative losses remained at approximately \$140 million. We may continue to experience issues related to customer requirements and our performance under this contract and have to record additional reserves. However, based on the losses already recorded and our current estimate of the sales and costs to complete the program, at this time we do not anticipate that additional losses, if any, would be material to our operating results or financial condition.

Research and development and similar costs – We conduct research and development (R&D) activities using our own funds (referred to as company-funded R&D or independent research and development (IR&D)) and under contractual arrangements with our customers (referred to as customer-funded R&D) to enhance existing products and services and to develop future technologies. R&D costs include basic research, applied research, concept formulation studies, design, development, and related test activities. Company-funded R&D costs are allocated to customer contracts as part of the general and administrative overhead costs and generally recoverable on our customer contracts with the U.S. Government. Customer-funded R&D costs are charged directly to the related customer contract. Substantially all R&D costs are charged to cost of sales as incurred. Company-funded R&D costs charged to cost of sales totaled \$1.3 billion in each of 2019 and 2018 and \$1.2 billion in 2017.

Stock-based compensation – Compensation cost related to all share-based payments is measured at the grant date based on the estimated fair value of the award. We generally recognize the compensation cost ratably over a three-year vesting period, net of estimated forfeitures. At each reporting date, the number of shares is adjusted to the number ultimately expected to vest.

Income taxes – We calculate our provision for income taxes using the asset and liability method, under which deferred tax assets and liabilities are recognized based on the future tax consequences attributable to temporary differences that exist between the financial statement carrying amount of assets and liabilities and their respective tax bases, as well as from operating loss and tax credit carry-forwards. We measure deferred tax assets and liabilities using enacted tax rates that will apply in the years in which we expect the temporary differences to be recovered or paid.

We periodically assess our tax exposures related to periods that are open to examination. Based on the latest available information, we evaluate our tax positions to determine whether the position will more likely than not be sustained upon examination by the Internal Revenue Service (IRS) or other taxing authorities. If we cannot reach a more-likely-than-not determination, no benefit is recorded. If we determine that the tax position is more likely than not to be sustained, we record the largest amount of benefit that is more likely than not to be realized when the tax position is settled. We record interest and penalties related to income taxes as a component of income tax expense on our consolidated statements of earnings. Interest and penalties were not material.

Cash and cash equivalents – Cash equivalents include highly liquid instruments with original maturities of 90 days or less.

Receivables – Receivables, net represent our unconditional right to consideration under the contract and include amounts billed and currently due from customers. The amounts are stated at their net estimated realizable value. There were no significant impairment losses related to our receivables in 2019, 2018, or 2017.

On occasion, our customers may seek deferred payment terms to purchase our products. In connection with these transactions, we may, at our customer's request, enter into arrangements for the non-recourse sale of customer receivables to unrelated third-party financial institutions. For accounting purposes, these transactions are not discounted and are treated as a sale of receivables as we have no continuing involvement. The sale proceeds from the financial institutions are reflected in our operating cash flows on the statement of cash flows. We sold approximately \$387 million in 2019 and \$532 million in 2018 of customer receivables. There were no gains or losses related to sales of these receivables.

Contract assets – Contract assets include unbilled amounts typically resulting from sales under contracts when the percentage-of-completion cost-to-cost method of revenue recognition is utilized and revenue recognized exceeds the amount billed to the customer. The amounts may not exceed their estimated net realizable value. Contract assets are classified as current based on our contract operating cycle.

Inventories – We record inventories at the lower of cost or estimated net realizable value. If events or changes in circumstances indicate that the utility of our inventories have diminished through damage, deterioration, obsolescence, changes in price or other causes, a loss is recognized in the period in which it occurs. We capitalize labor, material, subcontractor and overhead costs as work-in-process for contracts where control has not yet passed to the customer. In addition, we capitalize costs incurred to fulfill a contract in advance of contract award in inventories as work-in-process if we determine that contract award is probable. We determine the costs of other product and supply inventories by using the first-in first-out or average cost methods.

Contract liabilities – Contract liabilities (formerly referred to as customer advances and amounts in excess of costs incurred) include advance payments and billings in excess of revenue recognized. Contract liabilities are classified as current based on our contract operating cycle and reported on a contract-by-contract basis, net of revenue recognized, at the end of each reporting period.

Property, plant and equipment – We record property, plant and equipment at cost. We provide for depreciation and amortization on plant and equipment generally using accelerated methods during the first half of the estimated useful lives of the assets and the straight-line method thereafter. The estimated useful lives of our plant and equipment generally range from 10 to 40 years for buildings and five to 15 years for machinery and equipment. No depreciation expense is recorded on construction in progress until such assets are placed into operation. Depreciation expense related to plant and equipment was \$794 million in 2019, \$759 million in 2018, and \$760 million in 2017.

We review the carrying amounts of long-lived assets for impairment if events or changes in the facts and circumstances indicate that their carrying amounts may not be recoverable. We assess impairment by comparing the estimated undiscounted future cash flows of the related asset grouping to its carrying amount. If an asset is determined to be impaired, we recognize an impairment charge in the current period for the difference between the fair value of the asset and its carrying amount.

Capitalized software – We capitalize certain costs associated with the development or purchase of internal-use software. The amounts capitalized are included in other noncurrent assets on our consolidated balance sheets and are amortized on a straight-line basis over the estimated useful life of the resulting software, which ranges from two to six years. As of December 31, 2019 and 2018, capitalized software totaled \$511 million and \$447 million, net of accumulated amortization of \$2.2 billion and \$2.1 billion. No amortization expense is recorded until the software is ready for its intended use. Amortization expense related to capitalized software was \$111 million in 2019, \$106 million in 2018 and \$123 million in 2017.

Goodwill and Intangible Assets – The assets and liabilities of acquired businesses are recorded under the acquisition method of accounting at their estimated fair values at the date of acquisition. Goodwill represents costs in excess of fair values assigned to the underlying identifiable net assets of acquired businesses. Intangible assets from acquired businesses are recognized at fair value on the acquisition date and consist of customer programs, trademarks, customer relationships, technology and other intangible assets. Customer programs include values assigned to major programs of acquired businesses and represent the aggregate value associated with the customer relationships, contracts, technology and trademarks underlying the associated program and are amortized on a straight-line basis over a period of expected cash flows used to measure fair value, which ranges from nine to 20 years.

Our goodwill balance was \$10.6 billion at December 31, 2019 and \$10.8 billion at December 31, 2018. We perform an impairment test of our goodwill at least annually in the fourth quarter or more frequently whenever events or changes in circumstances indicate the carrying value of goodwill may be impaired. Such events or changes in circumstances may include a significant deterioration in overall economic conditions, changes in the business climate of our industry, a decline in our market capitalization, operating performance indicators, competition, reorganizations of our business, U.S. Government budget restrictions or the disposal of all or a portion of a reporting unit. Our goodwill has been allocated to and is tested for impairment at a level referred to as the reporting unit, which is our business segment level or a level below the business segment. The level at which we test goodwill for impairment requires us to determine whether the operations below the business segment constitute a self-sustaining business for which discrete financial information is available and segment management regularly reviews the operating results.

We may use either a qualitative or quantitative approach when testing a reporting unit's goodwill for impairment. For selected reporting units where we use the qualitative approach, we perform a qualitative evaluation of events and circumstances impacting the reporting unit to determine the likelihood of goodwill impairment. Based on that qualitative evaluation, if we determine it is more likely than not that the fair value of a reporting unit exceeds its carrying amount, no further evaluation is necessary. Otherwise we perform a quantitative impairment test. We perform quantitative tests for most reporting units at least once every three years. However, for certain reporting units we may perform a quantitative impairment test every year.

For the quantitative impairment test we compare the fair value of a reporting unit to its carrying value, including goodwill. If the fair value of a reporting unit exceeds its carrying value, goodwill of the reporting unit is not impaired. If the carrying value of the reporting unit, including goodwill, exceeds its fair value, a goodwill impairment loss is recognized in an amount equal to that excess. We generally estimate the fair value of each reporting unit using a combination of a discounted cash flow (DCF) analysis and market-based valuation methodologies such as comparable public company trading values and values observed in recent business acquisitions. Determining fair value requires the exercise of significant judgments, including the amount and timing of expected future cash flows, long-term growth rates, discount rates and relevant comparable public company earnings multiples and relevant transaction multiples. The cash flows employed in the DCF analysis are based on our best estimate of future sales, earnings and cash flows after considering factors such as general market conditions, U.S. Government budgets, existing firm orders, expected future orders, contracts with suppliers, labor agreements, changes in working capital, long term business plans and recent operating performance. The discount rates utilized in the DCF analysis are based on the respective reporting unit's weighted average cost of capital, which takes into account the relative weights of each component of capital structure (equity and debt) and represents the expected cost of new capital, adjusted as appropriate to consider the risk inherent in future cash flows of the respective reporting unit. The carrying value of each reporting unit includes the assets and liabilities employed in its operations, goodwill and allocations of certain assets and liabilities held at the business segment and corporate levels.

During the fourth quarters of 2019, 2018 and 2017, we performed our annual goodwill impairment test for each of our reporting units. The results of our annual impairment tests of goodwill indicated that no impairment existed.

Acquired intangible assets deemed to have indefinite lives are not amortized, but are subject to annual impairment testing. This testing compares carrying value to fair value and, when appropriate, the carrying value of these assets is reduced to fair value. Finite-lived intangibles are amortized to expense over the applicable useful lives, ranging from three to 20 years, based on the nature of the asset and the underlying pattern of economic benefit as reflected by future net cash inflows. We perform an impairment test of finite-lived intangibles whenever events or changes in circumstances indicate their carrying value may be impaired.

Postretirement benefit plans – Many of our employees are covered by defined benefit pension plans and we provide certain health care and life insurance benefits to eligible retirees (collectively, postretirement benefit plans). GAAP requires that the amounts we record related to our postretirement benefit plans be computed, based on service to date, using actuarial valuations that are based in part on certain key economic assumptions we make, including the discount rate, the expected long-term rate of return on plan assets and other actuarial assumptions including participant longevity (also known as mortality), health care cost trend rates and employee turnover, each as appropriate based on the nature of the plans.

A market-related value of our plan assets, determined using actual asset gains or losses over the prior three year period, is used to calculate the amount of deferred asset gains or losses to be amortized. These asset gains or losses, along with those resulting from adjustments to our benefit obligation, will be amortized to expense using the corridor method, where gains and losses are recognized over a period of years to the extent they exceed 10% of the greater of plan assets or benefit obligations. This amortization period extended (approximately doubled from the prior nine years) in 2020 due to the freeze of our salaried pension plans to use the average remaining life expectancy of the participants instead of average future service.

We recognize on a plan-by-plan basis the funded status of our postretirement benefit plans under GAAP as either an asset recorded within other noncurrent assets or a liability recorded within noncurrent liabilities on our consolidated balance sheets. The GAAP funded status is measured as the difference between the fair value of the plan's assets and the benefit obligation of the plan. The funded status under the Employee Retirement Income Security Act of 1974 (ERISA), as amended by the Pension Protection Act of 2006 (PPA), is calculated on a different basis than under GAAP.

Environmental matters – We record a liability for environmental matters when it is probable that a liability has been incurred and the amount can be reasonably estimated. The amount of liability recorded is based on our estimate of the costs to be incurred for remediation at a particular site. We do not discount the recorded liabilities, as the amount and timing of future cash payments are not fixed or cannot be reliably determined. Our environmental liabilities are recorded on our consolidated balance sheets within other liabilities, both current and noncurrent. We expect to include a substantial portion of environmental costs in our net sales and cost of sales in future periods pursuant to U.S. Government agreement or regulation. At the time a liability is recorded for future environmental costs, we record a receivable for estimated future recovery considered probable through the pricing of products and services to agencies of the U.S. Government, regardless of the contract form (e.g., cost-reimbursable, fixed-price). We continuously evaluate the recoverability of our assets for the portion of environmental costs that are probable of future recovery by assessing, among other factors, U.S. Government regulations, our U.S. Government business base and contract mix, our history of receiving reimbursement of such costs, and recent efforts by some U.S. Government representatives to limit such reimbursement. We include the portion of those environmental costs expected to be allocated to our non-U.S. Government contracts, or that is determined to not be recoverable under U.S. Government contracts, in our cost of sales at the time the liability is established. Our assets for the portion of environmental costs that are probable of future recovery are recorded on our consolidated balance sheets within other assets, both current and noncurrent. We project costs and recovery of costs over approximately 20 years.

Investments in marketable securities – Investments in marketable securities consist of debt and equity securities which are recorded at fair value. As of December 31, 2019 and 2018, the fair value of our investments totaled \$1.8 billion and \$1.3 billion and was included in other noncurrent assets on our consolidated balance sheets. Our investments are held in a separate trust, which includes investments to fund our deferred compensation plan liabilities. Net gains on these securities were \$233 million and \$150 million in 2019 and 2017 compared to net losses on these securities of \$67 million in 2018. Gains and losses on these investments are included in other unallocated, net within cost of sales on our consolidated statements of earnings in order to align the classification of changes in the market value of investments held for the plan with changes in the value of the corresponding plan liabilities.

Equity method investments – Investments where we have the ability to exercise significant influence, but do not control, are accounted for under the equity method of accounting and are included in other noncurrent assets on our consolidated balance sheets. Significant influence typically exists if we have a 20% to 50% ownership interest in the investee. Under this method of accounting, our share of the net earnings or losses of the investee is included in operating profit in other income, net on our consolidated statements of earnings since the activities of the investee are closely aligned with the operations of the business segment holding the investment. We evaluate our equity method investments for impairment whenever events or changes in circumstances indicate that the carrying amounts of such investments may be impaired. If a decline in the value of an equity method investment is determined to be other than temporary, a loss is recorded in earnings in the current period. As of December 31, 2019 and 2018, our equity method investments totaled \$1.2 billion, which primarily are composed of our investment in the United Launch Alliance (ULA) joint venture and the Advanced Military Maintenance, Repair and Overhaul Center (AMMROC) joint venture. Our share of net earnings related to our equity method investees was \$154 million in 2019, \$119 million in 2018 and \$207 million in 2017, of which approximately \$145 million, \$210 million and \$205 million was included in our Space business segment operating profit.

During the year ended December 31, 2018, equity earnings included a non-cash asset impairment charge of \$110 million (\$83 million, or \$0.29 per share, after-tax) related to our equity method investee, AMMROC. During the year ended December 31, 2017, equity earnings included a charge recorded in the first quarter of 2017 of approximately \$64 million (\$40 million, or \$0.14 per share, after-tax), which represented our portion of a non-cash asset impairment related to certain long-lived assets held by AMMROC. Substantially all of AMMROC's current business is dependent on one contract that is currently up for re-competition and if AMMROC is not successful in securing such business on favorable terms or at all, the carrying value of our investment would be adversely affected. We are continuing to monitor this investment in light of ongoing performance, business base and

economic issues and we may have to record our portion of additional charges, or an impairment of our investment, or both, should the carrying value of our investment exceed its fair value. These charges could adversely affect our results of operations.

Derivative financial instruments – We use derivative instruments principally to reduce our exposure to market risks from changes in foreign currency exchange rates and interest rates. We do not enter into or hold derivative instruments for speculative trading purposes. We transact business globally and are subject to risks associated with changing foreign currency exchange rates. We enter into foreign currency hedges such as forward and option contracts that change in value as foreign currency exchange rates change. These contracts hedge forecasted foreign currency transactions in order to mitigate fluctuations in our earnings and cash flows associated with changes in foreign currency exchange rates. We designate foreign currency hedges as cash flow hedges. We also are exposed to the impact of interest rate changes primarily through our borrowing activities. For fixed rate borrowings, we may use variable interest rate swaps, effectively converting fixed rate borrowings to variable rate borrowings in order to reduce the amount of interest paid. These swaps are designated as fair value hedges. For variable rate borrowings, we may use fixed interest rate swaps, effectively converting variable rate borrowings to fixed rate borrowings in order to mitigate the impact of interest rate changes on earnings. These swaps are designated as cash flow hedges. We also may enter into derivative instruments that are not designated as hedges and do not qualify for hedge accounting, which are intended to mitigate certain economic exposures.

We record derivatives at their fair value. The classification of gains and losses resulting from changes in the fair values of derivatives is dependent on our intended use of the derivative and its resulting designation. Adjustments to reflect changes in fair values of derivatives attributable to highly effective hedges are either reflected in earnings and largely offset by corresponding adjustments to the hedged items or reflected net of income taxes in accumulated other comprehensive loss until the hedged transaction is recognized in earnings. Changes in the fair value of the derivatives that are not highly effective, if any, are immediately recognized in earnings. The aggregate notional amount of our outstanding interest rate swaps at December 31, 2019 and 2018 was \$750 million and \$1.3 billion. The aggregate notional amount of our outstanding foreign currency hedges at December 31, 2019 and 2018 was \$3.8 billion and \$3.5 billion. The fair values of our outstanding interest rate swaps and foreign currency hedges at December 31, 2019 and 2018 were not significant. Derivative instruments did not have a material impact on net earnings and comprehensive income during the years ended December 31, 2019, 2018 and 2017. The impact of derivative instruments on our consolidated statements of cash flows is included in net cash provided by operating activities. Substantially all of our derivatives are designated for hedge accounting. See “Note 16 – Fair Value Measurements” for more information on the fair value measurements related to our derivative instruments.

Recent Accounting Pronouncements

Leases

Effective January 1, 2019, we adopted ASU 2016-02, *Leases (Topic 842)*, as amended, which requires lessees to recognize a right-of-use (ROU) asset and lease liability on the balance sheet for most lease arrangements and expands disclosures about leasing arrangements, among other items. We adopted ASU 2016-02 using the optional transition method whereby we applied the new lease requirements under ASU 2016-02 through a cumulative-effect adjustment, which after completing our implementation analysis, resulted in no adjustment to our January 1, 2019 beginning retained earnings balance. On January 1, 2019, we recognized approximately \$1.0 billion of ROU operating lease assets and approximately \$1.1 billion of operating lease liabilities, including noncurrent operating lease liabilities of approximately \$830 million, as a result of adopting this standard. The difference between ROU operating lease assets and operating lease liabilities was primarily due to previously accrued rent expense relating to periods prior to January 1, 2019. As part of our adoption, we elected the package of practical expedients, which among other things, permits the carry forward of historical lease classifications. We did not elect to use the practical expedient permitting the use of hindsight in determining the lease term and in assessing impairment of our ROU assets. The adoption of the standard did not have a material impact on our operating results or cash flows. Financial information for periods prior to January 1, 2019, has not been restated for the adoption of ASU 2016-02.

Derivatives and Hedging

Effective January 1, 2019, we adopted ASU 2017-12, *Derivatives and Hedging (Topic 815)*, which eliminates the requirement to separately measure and report hedge ineffectiveness among other items. The adoption of this standard did not have a significant impact on our operating results, financial position or cash flows.

Compensation—Retirement Benefits—Defined Benefit Plans—General

In August 2018, the FASB issued ASU 2018-14, *Compensation—Retirement Benefits—Defined Benefit Plans—General (Topic 715-20): Disclosure Framework—Changes to the Disclosure Requirements For Defined Benefit Plans*. The new standard modifies the disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans by removing and adding certain disclosures for these plans. The effective date is our fiscal year ending December 31, 2020 with early adoption permitted and requires application on a retrospective basis. The adoption will not have a material effect on the Company's consolidated financial statements.

Credit Losses

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which requires companies to record an allowance for expected credit losses over the contractual term of financial assets, including short-term trade receivables and contract assets, and expands disclosure requirements for credit quality of financial assets. Upon adoption of the new standard on January 1, 2020, we began recognizing an allowance for credit losses based on the estimated lifetime expected credit loss related to our financial assets. We do not anticipate that the adoption of the new standard will have a significant impact on our operating results, financial position or cash flows.

Note 2 – Earnings Per Share

The weighted average number of shares outstanding used to compute earnings per common share were as follows (in millions):

	2019	2018	2017
Weighted average common shares outstanding for basic computations	282.0	284.5	287.8
Weighted average dilutive effect of equity awards	1.8	2.3	2.8
Weighted average common shares outstanding for diluted computations	283.8	286.8	290.6

We compute basic and diluted earnings per common share by dividing net earnings by the respective weighted average number of common shares outstanding for the periods presented. Our calculation of diluted earnings per common share also includes the dilutive effects for the assumed vesting of outstanding restricted stock units (RSUs), performance stock units (PSUs) and exercise of outstanding stock options based on the treasury stock method. There were no significant anti-dilutive equity awards for the years ended December 31, 2019, 2018 and 2017.

Note 3 – Goodwill and Acquired Intangibles

Changes in the carrying amount of goodwill by segment were as follows (in millions):

	Aeronautics	MFC	RMS	Space	Total
Balance at December 31, 2017	\$ 171	\$ 2,265	\$ 6,784	\$ 1,587	\$ 10,807
Other	—	(3)	(33)	(2)	(38)
Balance at December 31, 2018	171	2,262	6,751	1,585	10,769
Distributed Energy Solutions divestiture	—	(175)	—	—	(175)
Other	—	2	7	1	10
Balance at December 31, 2019	\$ 171	\$ 2,089	\$ 6,758	\$ 1,586	\$ 10,604

On November 18, 2019, we divested our Distributed Energy Solutions business, a commercial energy service provider included in our MFC business segment. As a result of the divestiture, MFC's goodwill decreased by the \$175 million allocated to the Distributed Energy Solutions business.

The gross carrying amounts and accumulated amortization of our acquired intangible assets consisted of the following (in millions):

	2019			2018		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Finite-Lived:						
Customer programs	\$ 3,184	\$ (967)	\$ 2,217	\$ 3,184	\$ (735)	\$ 2,449
Customer relationships	344	(243)	101	344	(199)	145
Other	53	(45)	8	53	(40)	13
Total finite-lived intangibles	3,581	(1,255)	2,326	3,581	(974)	2,607
Indefinite-Lived:						
Trademark	887	—	887	887	—	887
Total acquired intangibles	\$ 4,468	\$ (1,255)	\$ 3,213	\$ 4,468	\$ (974)	\$ 3,494

Acquired finite-lived intangible assets are amortized to expense primarily on a straight-line basis over the following estimated useful lives: customer programs, from nine to 20 years; customer relationships, from four to 10 years; and other intangibles, from three to 10 years.

Amortization expense for acquired finite-lived intangible assets was \$284 million, \$296 million and \$312 million in 2019, 2018 and 2017. Estimated future amortization expense is as follows: \$263 million in 2020; \$256 million in 2021; \$253 million in 2022; \$250 million in 2023; \$247 million in 2024 and \$1.1 billion thereafter.

With the acquisition of Sikorsky Aircraft Corporation (Sikorsky), we recorded customer contractual obligations of \$507 million. Customer contractual obligations represent liabilities on certain development programs where the expected costs exceed the expected sales under contract. These liabilities are liquidated in accordance with the underlying economic pattern of the contractual obligations, as reflected by the estimated future net cash outflows incurred on the associated contracts. As of December 31, 2019, we have recognized approximately \$390 million in net sales related to customer contractual obligations. As of December 31, 2019, the estimated liquidation of the customer contractual obligation is approximated as follows: \$55 million in 2020, \$25 million in 2021, \$5 million in 2022, \$20 million in 2023, \$5 million in 2024 and \$7 million thereafter.

Note 4 – Information on Business Segments

We operate in four business segments: Aeronautics, MFC, RMS and Space. We organize our business segments based on the nature of products and services offered. Following is a brief description of the activities of our business segments:

- **Aeronautics** – Engaged in the research, design, development, manufacture, integration, sustainment, support and upgrade of advanced military aircraft, including combat and air mobility aircraft, unmanned air vehicles and related technologies.
- **Missiles and Fire Control** – Provides air and missile defense systems; tactical missiles and air-to-ground precision strike weapon systems; logistics; fire control systems; mission operations support, readiness, engineering support and integration services; manned and unmanned ground vehicles; and energy management solutions.
- **Rotary and Mission Systems** – Provides design, manufacture, service and support for a variety of military and commercial helicopters; ship and submarine mission and combat systems; mission systems and sensors for rotary and fixed-wing aircraft; sea and land-based missile defense systems; radar systems; the Littoral Combat Ship (LCS); the Multi-Mission Surface Combatant; simulation and training services; and unmanned systems and technologies. In addition, RMS supports the needs of customers in cybersecurity and delivers communications and command and control capability through complex mission solutions for defense applications.
- **Space** – Engaged in the research and development, design, engineering and production of satellites, space transportation systems, and strategic, advanced strike, and defensive systems. Space provides network-enabled situational awareness and integrates complex space and ground global systems to help our customers gather, analyze and securely distribute critical intelligence data. Space is also responsible for various classified systems and services in support of vital national security systems. Operating profit for our Space business segment also includes our share of earnings for our 50% ownership interest in ULA, which provides expendable launch services to the U.S. Government. Our investment in ULA totaled \$709 million and \$687 million at December 31, 2019 and 2018.

Net sales of our business segments in the following tables exclude intersegment sales as these activities are eliminated in consolidation.

Operating profit of our business segments includes our share of earnings or losses from equity method investees as the operating activities of the equity method investees are closely aligned with the operations of our business segments. ULA, results of which are included in our Space business segment, is our primary equity method investee. Operating profit of our business segments excludes the FAS/CAS operating adjustment for our qualified defined benefit pension plans (described below); the adjustment from CAS to FAS service cost component for all other postretirement benefit plans; expense for stock-based compensation; the effects of items not considered part of management's evaluation of segment operating performance, such as charges related to significant severance and restructuring actions (see "Note 15 – Severance and Restructuring Charges") and goodwill impairments; gains or losses from significant divestitures; the effects of certain legal settlements; corporate costs not allocated to our business segments; and other miscellaneous corporate activities. These items are included in the reconciling item "Unallocated items" between operating profit from our business segments and our consolidated operating profit. See "Note 1 – Significant Accounting Policies" (under the caption "Use of Estimates") for a discussion related to certain factors that may impact the comparability of net sales and operating profit of our business segments.

Our business segments' results of operations include pension expense only as calculated under U.S. Government Cost Accounting Standards (CAS), which we refer to as CAS pension cost. We recover CAS pension cost through the pricing of our products and services on U.S. Government contracts and, therefore, the CAS pension cost is recognized in each of our business segments' net sales and cost of sales. Our consolidated operating profit in our consolidated financial statements must present the service cost component of FAS pension and other postretirement benefit plan expense calculated in accordance with FAS requirements under U.S. GAAP. The operating portion of the net FAS/CAS operating adjustment represents the difference between the service cost component of FAS pension expense and the CAS pension cost recorded in our business segments' results of operations. The non-service FAS pension and other postretirement benefit plan cost component is included in other non-operating expenses, net on our consolidated statement of earnings.

Selected Financial Data by Business Segment

Summary operating results for each of our business segments were as follows (in millions):

	2019	2018	2017
Net sales			
Aeronautics	\$ 23,693	\$ 21,242	\$ 19,410
Missiles and Fire Control	10,131	8,462	7,282
Rotary and Mission Systems	15,128	14,250	13,663
Space	10,860	9,808	9,605
Total net sales	\$ 59,812	\$ 53,762	\$ 49,960
Operating profit			
Aeronautics	\$ 2,521	\$ 2,272	\$ 2,176
Missiles and Fire Control	1,441	1,248	1,034
Rotary and Mission Systems	1,421	1,302	902
Space	1,191	1,055	980
Total business segment operating profit	6,574	5,877	5,092
Unallocated items			
FAS/CAS operating adjustment ^(a)	2,049	1,803	1,613
Stock-based compensation	(189)	(173)	(158)
Severance and restructuring charges ^(b)	—	(96)	—
Other, net ^(c)	111	(77)	197
Total unallocated, net	1,971	1,457	1,652
Total consolidated operating profit	\$ 8,545	\$ 7,334	\$ 6,744

^(a) The FAS/CAS operating adjustment represents the difference between the service cost component of FAS pension expense and total pension costs recoverable on U.S. Government contracts as determined in accordance with CAS. For a detail of the FAS/CAS operating adjustment and the total net FAS/CAS pension adjustment, see the table below.

^(b) See “Note 15 – Severance and Restructuring Charges” for information on charges related to certain severance actions at our business segments. Severance and restructuring charges for initiatives that are not significant are included in business segment operating profit.

^(c) Other, net in 2019 includes a previously deferred non-cash gain of \$51 million related to properties sold in 2015 as a result of completing our remaining obligations and a gain of \$34 million for the sale of its Distributed Energy Solutions business. Other, net in 2018 includes a non-cash asset impairment charge of \$110 million related to our equity method investee, AMMROC (see “Note 1 – Significant Accounting Policies”). Other, net in 2017 includes a previously deferred non-cash gain of \$198 million related to properties sold in 2015 as a result of completing our remaining obligations (see “Note 7 – Property, Plant and Equipment, net”) and a \$64 million charge, which represents our portion of a non-cash asset impairment charge recorded by AMMROC. (see “Note 1 – Significant Accounting Policies”).

Total net FAS/CAS pension adjustments, including the service and non-service cost components of FAS pension expense, were as follows (in millions):

	2019	2018	2017
Total FAS expense and CAS costs			
FAS pension expense	\$ (1,093)	\$ (1,431)	\$ (1,372)
Less: CAS pension cost	2,565	2,433	2,248
Net FAS/CAS pension adjustment	\$ 1,472	\$ 1,002	\$ 876
Service and non-service cost reconciliation			
FAS pension service cost	(516)	(630)	(635)
Less: CAS pension cost	2,565	2,433	2,248
FAS/CAS operating adjustment	2,049	1,803	1,613
Non-operating FAS pension expense ^(a)	(577)	(801)	(737)
Net FAS/CAS pension adjustment	\$ 1,472	\$ 1,002	\$ 876

^(a) We record the non-service cost components of net periodic benefit cost as part of other non-operating expense, net in the consolidated statement of earnings. The non-service cost components in the table above relate only to our qualified defined benefit pension plans. We incurred total non-service costs for our qualified defined benefit pension plans in the table above, along with similar costs for our other postretirement benefit plans of \$116 million, \$67 million, and \$109 million for the years ended 2019, 2018 and 2017.

We recover CAS pension and other postretirement benefit plan cost through the pricing of our products and services on U.S. Government contracts and, therefore, recognize CAS cost in each of our business segment's net sales and cost of sales. Our consolidated financial statements must present FAS pension and other postretirement benefit plan expense calculated in accordance with FAS requirements under U.S. GAAP. The operating portion of the net FAS/CAS pension adjustment represents the difference between the service cost component of FAS pension expense and total CAS pension cost. The non-service FAS pension cost component is included in other non-operating expense, net in our consolidated statements of earnings. The net FAS/CAS pension adjustment increases or decreases CAS pension cost to equal total FAS pension expense (both service and non-service).

	2019	2018	2017
Intersegment sales			
Aeronautics	\$ 217	\$ 120	\$ 122
Missiles and Fire Control	515	423	355
Rotary and Mission Systems ^(a)	1,872	1,759	1,801
Space	352	237	111
Total intersegment sales	\$ 2,956	\$ 2,539	\$ 2,389
Depreciation and amortization			
Aeronautics	\$ 318	\$ 304	\$ 311
Missiles and Fire Control	124	105	99
Rotary and Mission Systems	464	458	468
Space	213	229	245
Total business segment depreciation and amortization	1,119	1,096	1,123
Corporate activities	70	65	72
Total depreciation and amortization	\$ 1,189	\$ 1,161	\$ 1,195
Capital expenditures			
Aeronautics	\$ 526	\$ 460	\$ 371
Missiles and Fire Control	300	244	156
Rotary and Mission Systems	272	255	308
Space	258	255	179
Total business segment capital expenditures	1,356	1,214	1,014
Corporate activities	128	64	163
Total capital expenditures	\$ 1,484	\$ 1,278	\$ 1,177

^(a) During 2019 a program within our RMS business segment, which primarily performed work for our Aeronautics business segment, was realigned under Aeronautics. The 2018 and 2017 RMS intersegment sales have been adjusted to reflect the current program structure.

Net Sales by Type

Net sales by total products and services, contract type, customer category and geographic region for each of our business segments were as follows (in millions):

	2019				
	Aeronautics	MFC	RMS	Space	Total
Net sales					
Products	\$ 20,319	\$ 8,424	\$ 12,206	\$ 9,104	\$ 50,053
Services	3,374	1,707	2,922	1,756	9,759
Total net sales	\$ 23,693	\$ 10,131	\$ 15,128	\$ 10,860	\$ 59,812
Net sales by contract type					
Fixed-price	\$ 17,239	\$ 6,449	\$ 10,382	\$ 2,135	\$ 36,205
Cost-reimbursable	6,454	3,682	4,746	8,725	23,607
Total net sales	\$ 23,693	\$ 10,131	\$ 15,128	\$ 10,860	\$ 59,812
Net sales by customer					
U.S. Government	\$ 14,776	\$ 7,524	\$ 10,803	\$ 9,322	\$ 42,425
International ^(a)	8,733	2,465	3,822	1,511	16,531
U.S. commercial and other	184	142	503	27	856
Total net sales	\$ 23,693	\$ 10,131	\$ 15,128	\$ 10,860	\$ 59,812
Net sales by geographic region					
United States	\$ 14,960	\$ 7,666	\$ 11,306	\$ 9,349	\$ 43,281
Asia Pacific	3,882	420	1,451	73	5,826
Europe	3,224	516	769	1,419	5,928
Middle East	1,465	1,481	979	19	3,944
Other	162	48	623	—	833
Total net sales	\$ 23,693	\$ 10,131	\$ 15,128	\$ 10,860	\$ 59,812

^(a) International sales include foreign military sales contracted through the U.S. Government, direct commercial sales with international governments and commercial and other sales to international customers.

	2018				
	Aeronautics	MFC	RMS	Space	Total
Net sales					
Products	\$ 18,207	\$ 6,945	\$ 11,714	\$ 8,139	\$ 45,005
Services	3,035	1,517	2,536	1,669	8,757
Total net sales	\$ 21,242	\$ 8,462	\$ 14,250	\$ 9,808	\$ 53,762
Net sales by contract type					
Fixed-price	\$ 15,719	\$ 5,653	\$ 9,975	\$ 1,892	\$ 33,239
Cost-reimbursable	5,523	2,809	4,275	7,916	20,523
Total net sales	\$ 21,242	\$ 8,462	\$ 14,250	\$ 9,808	\$ 53,762
Net sales by customer					
U.S. Government	\$ 13,321	\$ 6,088	\$ 10,083	\$ 8,224	\$ 37,716
International ^(a)	7,735	2,190	3,693	1,538	15,156
U.S. commercial and other	186	184	474	46	890
Total net sales	\$ 21,242	\$ 8,462	\$ 14,250	\$ 9,808	\$ 53,762
Net sales by geographic region					
United States	\$ 13,507	\$ 6,272	\$ 10,557	\$ 8,270	\$ 38,606
Asia Pacific	3,335	427	1,433	85	5,280
Europe	2,837	321	829	1,416	5,403
Middle East	1,380	1,404	781	37	3,602
Other	183	38	650	—	871
Total net sales	\$ 21,242	\$ 8,462	\$ 14,250	\$ 9,808	\$ 53,762

^(a) International sales include foreign military sales contracted through the U.S. Government, direct commercial sales with international governments and commercial and other sales to international customers.

	2017				
	Aeronautics	MFC	RMS	Space	Total
Net sales					
Products	\$ 16,981	\$ 5,940	\$ 11,398	\$ 8,183	\$ 42,502
Services	2,429	1,342	2,265	1,422	7,458
Total net sales	\$ 19,410	\$ 7,282	\$ 13,663	\$ 9,605	\$ 49,960
Net sales by contract type					
Fixed-price	\$ 13,828	\$ 5,102	\$ 10,059	\$ 2,058	\$ 31,047
Cost-reimbursable	5,582	2,180	3,604	7,547	18,913
Total net sales	\$ 19,410	\$ 7,282	\$ 13,663	\$ 9,605	\$ 49,960
Net sales by customer					
U.S. Government	\$ 12,609	\$ 4,467	\$ 9,715	\$ 8,088	\$ 34,879
International ^(a)	6,641	2,672	3,575	1,446	14,334
U.S. commercial and other	160	143	373	71	747
Total net sales	\$ 19,410	\$ 7,282	\$ 13,663	\$ 9,605	\$ 49,960
Net sales by geographic region					
United States	\$ 12,769	\$ 4,610	\$ 10,088	\$ 8,159	\$ 35,626
Asia Pacific	2,823	516	1,344	92	4,775
Europe	2,331	305	927	1,270	4,833
Middle East	1,316	1,798	572	81	3,767
Other	171	53	732	3	959
Total net sales	\$ 19,410	\$ 7,282	\$ 13,663	\$ 9,605	\$ 49,960

^(a) International sales include foreign military sales contracted through the U.S. Government, direct commercial sales with international governments and commercial and other sales to international customers.

Our Aeronautics business segment includes our largest program, the F-35 Lightning II Joint Strike Fighter, an international multi-role, multi-variant, stealth fighter aircraft. Net sales for the F-35 program represented approximately 27% of our consolidated net sales during 2019 and 2018, and 26% during 2017.

Total assets for each of our business segments were as follows (in millions):

	2019	2018
Assets ^(a)		
Aeronautics	\$ 9,109	\$ 8,435
Missiles and Fire Control	5,030	5,017
Rotary and Mission Systems	18,751	18,333
Space	5,844	5,445
Total business segment assets	38,734	37,230
Corporate assets ^(b)	8,794	7,646
Total assets	\$ 47,528	\$ 44,876

^(a) We have no long-lived assets with material carrying values located in foreign countries.

^(b) Corporate assets primarily include cash and cash equivalents, deferred income taxes, assets for the portion of environmental costs that are probable of future recovery and investments held in a separate trust.

Note 5 – Receivables, net, Contract Assets and Contract Liabilities

Receivables, net, contract assets and contract liabilities were as follows (in millions):

	2019	2018
Receivables, net	\$ 2,337	\$ 2,444
Contract assets	9,094	9,472
Contract liabilities	7,054	6,491

Receivables, net consist of approximately \$1.7 billion from the U.S. Government and \$648 million from other governments and commercial customers as of December 31, 2019.

Contract assets are net of \$33.0 billion and \$30.2 billion of customer advances and progress payments as of December 31, 2019 and 2018. Contract assets decreased \$378 million during 2019, primarily due to billings related to the satisfaction or partial satisfaction of performance obligations during 2019 exceeding the revenue recognized. There were no significant impairment losses related to our contract assets during 2019 and 2018. We expect to bill our customers for the majority of the December 31, 2019 contract assets during 2020.

Contract liabilities increased \$563 million during 2019, primarily due to payments received in excess of revenue recognized on these performance obligations. During 2019 and 2018, we recognized \$3.9 billion of our contract liabilities at December 31, 2018 and 2017, respectively, as revenue. During 2017, we recognized \$3.3 billion of our contract liabilities at December 31, 2016 as revenue.

Note 6 – Inventories

Inventories consisted of the following (in millions):

	2019	2018
Materials, spares and supplies	\$ 532	\$ 446
Work-in-process	2,783	2,161
Finished goods	304	390
Total inventories	\$ 3,619	\$ 2,997

Costs incurred to fulfill a contract in advance of the contract being awarded are included in inventories as work-in-process if we determine that those costs relate directly to a contract or to an anticipated contract that we can specifically identify and contract award is probable, the costs generate or enhance resources that will be used in satisfying performance obligations, and the costs are recoverable (referred to as pre-contract costs). Pre-contract costs that are initially capitalized in inventory are generally recognized as cost of sales consistent with the transfer of products and services to the customer upon the receipt of the anticipated contract. All other pre-contract costs, including start-up costs, are expensed as incurred. As of December 31, 2019 and 2018, \$493 million and \$443 million of pre-contract costs were included in inventories.

Note 7 – Property, Plant and Equipment, net

Property, plant and equipment, net consisted of the following (in millions):

	2019	2018
Land	\$ 136	\$ 135
Buildings	7,013	6,553
Machinery and equipment	8,128	7,871
Construction in progress	1,701	1,530
Total property, plant and equipment	16,978	16,089
Less: accumulated depreciation and amortization	(10,387)	(9,965)
Total property, plant and equipment, net	\$ 6,591	\$ 6,124

Note 8 – Leases

We evaluate whether our contractual arrangements contain leases at the inception of such arrangements. Specifically, we consider whether we can control the underlying asset and have the right to obtain substantially all of the economic benefits or outputs from the asset. Substantially all of our leases are long-term operating leases with fixed payment terms. We do not have significant financing leases. Our ROU operating lease assets represent our right to use an underlying asset for the lease term, and our operating lease liabilities represent our obligation to make lease payments. ROU operating lease assets are recorded in other noncurrent assets in our consolidated balance sheet. Operating lease liabilities are recorded in other current liabilities or other noncurrent liabilities in our consolidated balance sheet based on their contractual due dates.

Both the ROU operating lease asset and liability are recognized as of the lease commencement date at the present value of the lease payments over the lease term. Most of our leases do not provide an implicit rate that can readily be determined. Therefore, we use a discount rate based on our incremental borrowing rate, which is determined using our credit rating and information available as of the commencement date. ROU operating lease assets include lease payments made at or before the lease commencement date, net of any lease incentives.

Our operating lease agreements may include options to extend the lease term or terminate it early. We include options to extend or terminate leases in the ROU operating lease asset and liability when it is reasonably certain we will exercise these options. Operating lease expense is recognized on a straight-line basis over the lease term and is included in cost of sales on our consolidated statement of earnings.

We have operating lease arrangements with lease and non-lease components. The non-lease components in our arrangements are not significant when compared to the lease components. For all operating leases, we account for the lease and non-lease components as a single component. Additionally, for certain equipment leases, we apply a portfolio approach to recognize operating lease ROU assets and liabilities. We evaluate ROU assets for impairment consistent with our property, plant and equipment policy (see Note 1 – Significant Accounting Policies).

We generally enter into operating lease agreements for facilities, land and equipment. Our ROU operating lease assets were \$1.0 billion at December 31, 2019. Operating lease liabilities were \$1.1 billion, of which \$855 million were classified as noncurrent, at December 31, 2019. New ROU operating lease assets and liabilities entered into during 2019 were \$209 million. The weighted average remaining lease term and discount rate for our operating leases were approximately 9 years and 3.2% at December 31, 2019.

We recognized operating lease expense of \$239 million, \$247 million and \$169 million in 2019, 2018 and 2017. In addition, we made cash payments of \$223 million for operating leases during 2019, which are included in cash flows from operating activities in our consolidated statement of cash flows.

Future minimum lease commitments at December 31, 2019 were as follows (in millions):

	Total	2020	2021	2022	2023	2024	Thereafter
Operating leases	\$ 1,287	\$ 280	\$ 190	\$ 154	\$ 119	\$ 98	\$ 446
Less: imputed interest	\$ 182						
Total	\$ 1,105						

Note 9 – Income Taxes

Our provision for federal and foreign income tax expense for continuing operations consisted of the following (in millions):

	2019	2018	2017
Federal income tax expense (benefit):			
Current			
Operations	\$ 698	\$ 975	\$ (189)
One-time charge due to tax legislation ^(a)	—	(6)	43
Deferred			
Operations	235	(194)	1,607
One-time charge due to tax legislation ^(a)	—	(37)	1,843
Total federal income tax expense	933	738	3,304
Foreign income tax expense (benefit):			
Current	91	67	53
Deferred	(13)	(13)	(1)
Total foreign income tax expense	78	54	52
Total income tax expense	\$ 1,011	\$ 792	\$ 3,356

^(a) Represents one-time charge in 2017 primarily due to the re-measurement of certain net deferred tax assets using the lower U.S. corporate income tax rate and a deemed repatriation tax, and true-up to this charge in 2018.

On December 22, 2017, the President signed the Tax Cuts and Jobs Act (the “Tax Act”). The Tax Act, among other things, lowered the U.S. corporate income tax rate from 35% to 21% effective January 1, 2018. Consequently, we wrote down our net deferred tax assets as of December 31, 2017 by \$2.0 billion to reflect the estimated impact of the Tax Act. We recorded a corresponding net one-time charge of \$2.0 billion (\$6.77 per share), substantially all of which was non-cash, primarily related to enactment of the Tax Act, the re-measurement of certain net deferred tax assets using the lower U.S. corporate income tax rate, a

deemed repatriation tax, and a reduction in the U.S. manufacturing benefit as a result of our decision to accelerate contributions to our pension fund in 2018 in order to receive a tax deduction in 2017.

We applied the guidance in Staff Accounting Bulletin 118 when accounting for the enactment-date effects of the Tax Act in 2017 and throughout 2018. At December 31, 2017, we had substantially completed our provisional analysis of the income tax effects of the Tax Act and recorded a reasonable estimate in 2017 of such effects. During 2018, we refined our calculations, evaluated changes in interpretations and assumptions that we had made, applied additional guidance issued by the U.S. Government, and evaluated actions and related accounting policy decisions we have made. As of December 22, 2018, we completed our accounting for all of the enactment-date income tax effects of the Tax Act and did not identify any material changes to the provisional, net, one-time charge for the year ended December 31, 2017, related to the Tax Act.

State income taxes are included in our operations as general and administrative costs and, under U.S. Government regulations, are allowable costs in establishing prices for the products and services we sell to the U.S. Government. Therefore, a substantial portion of state income taxes is included in our net sales and cost of sales. As a result, the impact of certain transactions on our operating profit and of other matters presented in these consolidated financial statements is disclosed net of state income taxes. Our total net state income tax expense was \$96 million for 2019, \$83 million for 2018, and \$103 million for 2017.

Our reconciliation of the U.S. federal statutory income tax rate (21% in 2019 and 2018 and 35% in 2017) to actual income tax expense for continuing operations is as follows (dollars in millions):

	2019		2018		2017	
	Amount	Rate	Amount	Rate	Amount	Rate
Income tax expense at the U.S. federal statutory tax rate	\$ 1,521	21.0%	\$ 1,226	21.0%	\$ 1,836	35.0%
Research and development tax credit	(148)	(2.0)	(138)	(2.4)	(115)	(2.2)
Foreign derived intangible income deduction	(122)	(1.7)	(61)	(1.0)	—	—
Excess tax benefits for share-based payment awards	(63)	(0.9)	(55)	(0.9)	(106)	(2.0)
Tax deductible dividends	(62)	(0.9)	(59)	(1.0)	(94)	(1.8)
Tax accounting method change ^(a)	(15)	(0.2)	(61)	(1.0)	—	—
Deferred tax write-down and transition tax ^(b)	—	—	(43)	(0.7)	1,886	35.9
U.S. manufacturing deduction benefit ^(c)	—	—	—	—	(7)	(0.1)
Other, net ^(d)	(100)	(1.3)	(17)	(0.4)	(44)	(0.8)
Income tax expense	\$ 1,011	14.0%	\$ 792	13.6%	\$ 3,356	64.0%

^(a) Recognized tax benefit of \$15 million and \$61 million in 2019 and 2018, from our change in a tax accounting method related to restoration of tax basis.

^(b) Includes a deferred tax re-measurement and transition tax true-up in 2018 and one-time charge in 2017 primarily due to the re-measurement of certain net deferred tax assets using the lower U.S. corporate income tax rate and a deemed repatriation tax.

^(c) Includes a reduction in our 2017 manufacturing benefit as a result of our decision to accelerate contributions to our pension funds in 2018. The Tax Act repealed the manufacturing benefit for years after 2017.

^(d) Includes additional \$98 million deduction for foreign derived intangible income related to prior year recognized in 2019 reflecting proposed tax regulations released on March 4, 2019.

We recognized a tax benefit of \$220 million in 2019 and \$61 million in 2018 from the deduction for foreign derived intangible income enacted by the Tax Act. The rate for 2019 benefited from \$98 million additional tax deductions for the prior year, primarily due to proposed tax regulations released on March 4, 2019. The Tax Act repealed the U.S. manufacturing deduction for years after 2017. Therefore, there was no U.S. manufacturing benefit in 2019 or 2018. Tax benefits from the U.S. manufacturing deduction were not significant in 2017.

We receive a tax deduction for dividends paid on shares of our common stock held by certain of our defined contribution plans with an employee stock ownership plan feature. The benefit of the tax deduction has declined in both 2019 and 2018 from 2017, principally due to the lower tax rate enacted by the Tax Act.

We recognized a tax benefit of \$15 million in 2019 and \$61 million in 2018 from our change in a tax accounting method reflecting a 2012 Court of Federal Claims decision, which held that the tax basis in certain assets should be increased and realized upon the assets' disposition.

We participate in the IRS Compliance Assurance Process program. Examinations of the years 2018 and 2019 remain under IRS review. We are also subject to taxation in various states and foreign jurisdictions including Australia, Canada, India, Italy,

Japan, Poland, and the United Kingdom. We are under, or may be subject to, audit or examination and additional assessments by the relevant authorities.

The primary components of our federal and foreign deferred income tax assets and liabilities at December 31 were as follows (in millions):

	2019	2018
Deferred tax assets related to:		
Accrued compensation and benefits	\$ 659	\$ 584
Pensions	3,057	2,623
Other postretirement benefit obligations	71	148
Contract accounting methods	349	539
Foreign company operating losses and credits	49	38
Other ^(a)	345	160
Valuation allowance ^(b)	(28)	(20)
Deferred tax assets, net	4,502	4,072
Deferred tax liabilities related to:		
Goodwill and purchased intangibles	330	296
Property, plant and equipment	340	296
Exchanged debt securities and other ^(a)	525	294
Deferred tax liabilities	1,195	886
Net deferred tax assets	\$ 3,307	\$ 3,186

^(a) Includes deferred tax assets and liabilities related to lease liability and ROU asset.

^(b) A valuation allowance was provided against certain foreign company deferred tax assets arising from carryforwards of unused tax benefits.

As of December 31, 2019, 2018, and 2017, our liabilities associated with unrecognized tax benefits were not material.

We and our subsidiaries file income tax returns in the U.S. federal jurisdiction and various foreign jurisdictions. With few exceptions, the statute of limitations for these jurisdictions is no longer open for U.S. federal or non-U.S. income tax examinations for the years before 2015, other than with respect to refunds.

Our federal and foreign income tax payments, net of refunds, were \$940 million in 2019 and \$1.1 billion in 2017. We received net federal and foreign income tax refunds of \$41 million in 2018, primarily due to a 2017 net operating loss carryback arising from our accelerated pension contributions.

Note 10 – Debt

Our total debt consisted of the following (in millions):

	2019	2018
Notes		
4.25% due 2019	\$ —	\$ 900
2.50% due 2020	1,250	1,250
3.35% due 2021	900	900
3.10% due 2023	500	500
2.90% due 2025	750	750
3.55% due 2026	2,000	2,000
3.60% due 2035	500	500
4.50% and 6.15% due 2036	1,054	1,054
4.07% due 2042	1,336	1,336
3.80% due 2045	1,000	1,000
4.70% due 2046	1,326	1,326
4.09% due 2052	1,578	1,578
Other notes with rates from 4.85% to 9.13%, due 2022 to 2041	1,618	1,618
Commercial paper	—	600
Total debt	13,812	15,312
Less: unamortized discounts and issuance costs	(1,158)	(1,208)
Total debt, net	12,654	14,104
Less: current portion	(1,250)	(1,500)
Long-term debt, net	\$ 11,404	\$ 12,604

Revolving Credit Facilities

At December 31, 2019, we had a \$2.5 billion revolving credit facility (the 5-year Facility) with various banks that is available for general corporate purposes. Effective August 24, 2019, we extended the expiration date of the 5-year Facility from August 24, 2023 to August 24, 2024. The undrawn portion of the 5-year Facility also serves as a backup facility for the issuance of commercial paper. The total amount outstanding at any point in time under the combination of our commercial paper program and the credit facility cannot exceed the amount of the 5-year Facility. We may request and the banks may grant, at their discretion, an increase in the borrowing capacity under the 5-year Facility of up to an additional \$500 million. There were no borrowings outstanding under the 5-year Facility as of December 31, 2019 and 2018.

Borrowings under the 5-year Facility are unsecured and bear interest at rates based, at our option, on a Eurodollar Rate or a Base Rate, as defined in the 5-year Facility's agreement. Each bank's obligation to make loans under the 5-year Facility is subject to, among other things, our compliance with various representations, warranties and covenants, including covenants limiting our ability and certain of our subsidiaries' ability to encumber assets and a covenant not to exceed a maximum leverage ratio, as defined in the 5-year Facility agreement. As of December 31, 2019 and 2018, we were in compliance with all covenants contained in the 5-year Facility agreement, as well as in our debt agreements.

Long-Term Debt

In November 2019, we repaid \$900 million of long-term notes with a fixed interest rate of 4.25% according to their scheduled maturities. In November 2018, we repaid \$750 million of long-term notes with a fixed interest rate of 1.85% according to their scheduled maturities.

In September 2017, we issued notes totaling approximately \$1.6 billion with a fixed interest rate of 4.09% maturing in September 2052 (the New Notes) in exchange for outstanding notes totaling approximately \$1.4 billion with fixed interest rates ranging from 4.70% to 8.50% maturing 2029 to 2046 (the Old Notes). In connection with the exchange of principal, we paid a premium of \$237 million, substantially all of which was in the form of New Notes. This premium will be amortized as additional interest expense over the term of the New Notes using the effective interest method. We may, at our option, redeem some or all of the New Notes at any time by paying the principal amount of notes being redeemed plus a make-whole premium and accrued and unpaid interest. Interest on the New Notes is payable on March 15 and September 15 of each year and began on March 15, 2018.

The New Notes are unsecured senior obligations and rank equally in right of payment with all of our existing and future unsecured and unsubordinated indebtedness.

We made interest payments of approximately \$625 million, \$635 million and \$610 million during the years ended December 31, 2019, 2018 and 2017, respectively.

Short-Term Debt and Commercial Paper

As of December 31, 2019, we had \$1.3 billion of short-term borrowings due within one year, which are scheduled to mature in November 2020. As of December 31, 2018, we had \$1.5 billion of short-term borrowings due within one year, of which \$900 million was composed of a scheduled debt maturity due in November 2019 and \$600 million was composed of commercial paper with a weighted-average rate of 2.89% outstanding.

We have agreements in place with financial institutions to provide for the issuance of commercial paper. The outstanding balance of commercial paper can fluctuate daily and the amount outstanding during the period may be greater or less than the amount reported at the end of the period. During 2019, we borrowed and fully repaid amounts under our commercial paper program. There were no commercial paper borrowings outstanding as of December 31, 2019. All of our commercial paper borrowings had maturities of up to three months or less from the date of issuance. We may, as conditions warrant, continue to issue commercial paper backed by our revolving credit facility to manage the timing of cash flows.

Note 11 – Postretirement Benefit Plans

Defined Benefit Pension Plans and Retiree Medical and Life Insurance Plans

Many of our employees are covered by qualified defined benefit pension plans and we provide certain health care and life insurance benefits to eligible retirees (collectively, postretirement benefit plans). We also sponsor nonqualified defined benefit pension plans to provide for benefits in excess of qualified plan limits. Non-union employees hired after December 31, 2005 do not participate in our qualified defined benefit pension plans, but are eligible to participate in a qualified defined contribution plan in addition to our other retirement savings plans. They also have the ability to participate in our retiree medical plans, but we do not subsidize the cost of their participation in those plans as we do with employees hired before January 1, 2006. Over the last few years, we have negotiated similar changes with various labor organizations such that new union represented employees do not participate in our defined benefit pension plans. We completed the final step of the previously announced planned freeze of our qualified and nonqualified defined benefit pension plans for salaried employees effective January 1, 2020. The freeze took effect in two stages. Effective January 1, 2016, the pay-based component of the formula used to determine retirement benefits was frozen. Effective January 1, 2020, the service-based component of the formula was frozen. As a result of these changes, the qualified defined benefit pension plans for salaried employees are fully frozen effective January 1, 2020. With the freeze complete, the majority of our salaried employees participate in an enhanced defined contribution retirement savings plan.

We have made contributions to trusts established to pay future benefits to eligible retirees and dependents, including Voluntary Employees' Beneficiary Association trusts and 401(h) accounts, the assets of which will be used to pay expenses of certain retiree medical plans. We use December 31 as the measurement date. Benefit obligations as of the end of each year reflect assumptions in effect as of those dates. Net periodic benefit cost is based on assumptions in effect at the end of the respective preceding year.

The rules related to accounting for postretirement benefit plans under GAAP require us to recognize on a plan-by-plan basis the funded status of our postretirement benefit plans as either an asset or a liability on our consolidated balance sheets. The funded status is measured as the difference between the fair value of the plan's assets and the benefit obligation of the plan.

The net periodic benefit cost recognized for our qualified defined benefit pension plans and our retiree medical and life insurance plans each year included the following (in millions):

	Qualified Defined Benefit Pension Plans ^(a)			Retiree Medical and Life Insurance Plans		
	2019	2018	2017	2019	2018	2017
Service cost	\$ 516	\$ 630	\$ 635	\$ 14	\$ 19	\$ 19
Interest cost	1,806	1,740	1,835	97	91	103
Expected return on plan assets	(2,300)	(2,395)	(2,249)	(110)	(135)	(128)
Recognized net actuarial losses	1,404	1,777	1,506	2	5	19
Amortization of net prior service (credit) cost	(333)	(321)	(355)	42	15	15
Total net periodic benefit cost	\$ 1,093	\$ 1,431	\$ 1,372	\$ 45	\$ (5)	\$ 28

^(a) Total net periodic benefit cost associated with our qualified defined benefit plans represents pension expense calculated in accordance with GAAP (FAS pension expense). We are required to calculate pension expense in accordance with both GAAP and CAS rules, each of which results in a different calculated amount of pension expense. The CAS pension cost is recovered through the pricing of our products and services on U.S. Government contracts and, therefore, is recognized in net sales and cost of sales for products and services. We include the difference between FAS pension service cost and CAS pension cost, referred to as the FAS/CAS operating adjustment, as a component of other unallocated, net on our consolidated statements of earnings (see Note 4 – Information on Business Segments).

The following table provides a reconciliation of benefit obligations, plan assets and unfunded status related to our qualified defined benefit pension plans and our retiree medical and life insurance plans (in millions):

	Qualified Defined Benefit Pension Plans		Retiree Medical and Life Insurance Plans	
	2019	2018	2019	2018
Change in benefit obligation				
Beginning balance	\$ 43,305	\$ 48,686	\$ 2,348	\$ 2,602
Service cost	516	630	14	19
Interest cost	1,806	1,740	97	91
Benefits paid	(2,294)	(2,379)	(229)	(224)
Settlements	(1,933)	(1,821)	—	—
Actuarial losses (gains)	6,403	(3,281)	(1)	(311)
Changes in longevity assumptions	860	(162)	(70)	(8)
Plan amendments and curtailments ^(a)	11	(108)	(6)	101
Medicare Part D subsidy	—	—	2	9
Participants' contributions	—	—	71	69
Ending balance	\$ 48,674	\$ 43,305	\$ 2,226	\$ 2,348
Change in plan assets				
Beginning balance at fair value	\$ 32,002	\$ 33,095	\$ 1,644	\$ 1,883
Actual return on plan assets	6,667	(1,893)	342	(94)
Benefits paid	(2,294)	(2,379)	(229)	(224)
Settlements	(1,933)	(1,821)	—	—
Company contributions	1,000	5,000	59	1
Medicare Part D subsidy	—	—	2	9
Participants' contributions	—	—	71	69
Ending balance at fair value	\$ 35,442	\$ 32,002	\$ 1,889	\$ 1,644
Unfunded status of the plans	\$ (13,232)	\$ (11,303)	\$ (337)	\$ (704)

^(a) The 2018 qualified defined benefit pension plan includes a \$119 million curtailment gain.

In December 2019, Lockheed Martin, through its master retirement trust, purchased an irrevocable group annuity contract from an insurance company (referred to as a buy-out contract) for \$1.9 billion to transfer \$1.9 billion of our outstanding defined benefit pension obligations related to certain U.S. retirees and beneficiaries. The group annuity contract was purchased using assets from the pension trust. As a result of this transaction, we were relieved of all responsibility for these pension obligations and the insurance company is now required to pay and administer the retirement benefits owed to approximately 20,000 U.S. retirees and

beneficiaries, with no change to the amount, timing or form of monthly retirement benefit payments. Although the transaction was treated as a settlement for accounting purposes, we did not recognize a loss on the settlement in earnings associated with the transaction because total settlements during 2019 for the affected pension plans were less than the plans' service and interest cost in 2019. Accordingly, the transaction had no impact on our 2019 FAS pension expense or CAS pension cost, and the difference of approximately \$45 million between the amount paid to the insurance company and the amount of the pension obligations settled was recognized in other comprehensive income and will be amortized to FAS pension expense in future periods.

Also, during December 2018, Lockheed Martin, through its master retirement trust, purchased two contracts from insurance companies for \$2.6 billion related to our outstanding defined benefit pension obligations. One of the contracts we purchased was a buy-out contract, which relieved us of all responsibility for the pension obligations related to approximately 32,000 U.S. retirees and beneficiaries. The second contract was structured as a buy-in contract (that will reimburse the pension plan for all future benefit payments related to defined benefit obligations for approximately 9,000 U.S. retirees and beneficiaries). The buy-in contract is accounted for at fair value as an investment of the trust.

The following table provides amounts recognized on our consolidated balance sheets related to our qualified defined benefit pension plans and our retiree medical and life insurance plans (in millions):

	Qualified Defined Benefit Pension Plans		Retiree Medical and Life Insurance Plans	
	2019	2018	2019	2018
Prepaid pension asset	\$ 2	\$ 107	\$ —	\$ —
Accrued postretirement benefit liabilities	(13,234)	(11,410)	(337)	(704)
Accumulated other comprehensive loss (pre-tax) related to:				
Net actuarial losses	20,609	19,117	(69)	236
Prior service (credit) cost	(1,586)	(1,931)	120	167
Total ^(a)	\$ 19,023	\$ 17,186	\$ 51	\$ 403

^(a) Accumulated other comprehensive loss related to postretirement benefit plans, after-tax, of \$15.5 billion and \$14.3 billion at December 31, 2019 and 2018 (see "Note 12 – Stockholders' Equity") includes \$19.0 billion (\$15.0 billion, net of tax) and \$17.2 billion (\$13.5 billion, net of tax) for qualified defined benefit pension plans, \$51 million (\$39 million, net of tax) and \$403 million (\$316 million, net of tax) for retiree medical and life insurance plans and \$667 million (\$527 million, net of tax) and \$542 million (\$428 million, net of tax) for other plans.

The accumulated benefit obligation (ABO) for all qualified defined benefit pension plans was \$48.6 billion and \$43.3 billion at December 31, 2019 and 2018. The ABO represents benefits accrued without assuming future compensation increases to plan participants and is approximately equal to our projected benefit obligation. Plans where ABO was less than plan assets represent prepaid pension assets, which are included on our consolidated balance sheets in other noncurrent assets. Plans where ABO was in excess of plan assets represent accrued pension liabilities, which are included on our consolidated balance sheets.

We also sponsor nonqualified defined benefit plans to provide benefits in excess of qualified plan limits. The aggregate liabilities for these plans at December 31, 2019 and 2018 were \$1.4 billion and \$1.2 billion, which also represent the plans' unfunded status. We have set aside certain assets totaling \$657 million and \$425 million as of December 31, 2019 and 2018 in a separate trust which we expect to be used to pay obligations under our nonqualified defined benefit plans. In accordance with GAAP, those assets may not be used to offset the amount of the benefit obligation similar to the postretirement benefit plans in the table above. The unrecognized net actuarial losses at December 31, 2019 and 2018 were \$641 million and \$505 million. The unrecognized prior service credit at December 31, 2019 and 2018 were \$34 million and \$48 million. The expense associated with these plans totaled \$108 million in 2019, \$123 million in 2018 and \$126 million in 2017. We also sponsor a small number of other postemployment plans and foreign benefit plans. The aggregate liability for the other postemployment plans was \$42 million and \$46 million as of December 31, 2019 and 2018. The expense for the other postemployment plans, as well as the liability and expense associated with the foreign benefit plans, was not material to our results of operations, financial position or cash flows. The actuarial assumptions used to determine the benefit obligations and expense associated with our nonqualified defined benefit plans and postemployment plans are similar to those assumptions used to determine the benefit obligations and expense related to our qualified defined benefit pension plans and retiree medical and life insurance plans as described below.

The following table provides the amounts recognized in other comprehensive income (loss) related to postretirement benefit plans, net of tax, for the years ended December 31, 2019, 2018 and 2017 (in millions):

	Incurred but Not Yet Recognized in Net Periodic Benefit Cost			Recognition of Previously Deferred Amounts		
	2019	2018	2017	2019	2018	2017
	<i>Gains (losses)</i>			<i>(Gains) losses</i>		
Actuarial gains and losses						
Qualified defined benefit pension plans	\$ (2,283)	\$ (570)	\$ (1,172)	\$ 1,104	\$ 1,396	\$ 974
Retiree medical and life insurance plans	238	71	77	2	4	12
Other plans	(133)	83	(66)	42	55	44
	(2,178)	(416)	(1,161)	1,148	1,455	1,030
	<i>Credit (cost)</i>			<i>(Credit) cost</i>		
Net prior service credit and cost						
Qualified defined benefit pension plans	(8)	(6)	(219)	(263)	(255)	(229)
Retiree medical and life insurance plans	4	(79)	—	33	12	10
Other plans	—	—	—	(10)	(10)	(9)
	(4)	(85)	(219)	(240)	(253)	(228)
	\$ (2,182)	\$ (501)	\$ (1,380)	\$ 908	\$ 1,202	\$ 802

We expect that approximately \$559 million, or about \$441 million net of tax, of actuarial losses and net prior service credit related to postretirement benefit plans included in accumulated other comprehensive loss at the end of 2019 to be recognized in net periodic benefit cost during 2020. Of this amount, \$507 million, or \$399 million net of tax, relates to our qualified defined benefit plans and is included in our expected 2020 pension income of \$115 million.

Actuarial Assumptions

The actuarial assumptions used to determine the benefit obligations at December 31 of each year and to determine the net periodic benefit cost for each subsequent year, were as follows:

	Qualified Defined Benefit Pension Plans			Retiree Medical and Life Insurance Plans		
	2019	2018	2017	2019	2018	2017
Weighted average discount rate	3.250%	4.250%	3.625%	3.250%	4.250%	3.625%
Expected long-term rate of return on assets	7.00%	7.00%	7.50%	7.00%	7.00%	7.50%
Health care trend rate assumed for next year				8.00%	8.25%	8.50%
Ultimate health care trend rate				4.50%	5.00%	5.00%
Year that the ultimate health care trend rate is reached				2034	2032	2032

The decrease in the discount rate from December 31, 2018 to December 31, 2019 resulted in an increase in the projected benefit obligations of our qualified defined benefit pension plans of approximately \$5.8 billion at December 31, 2019. The increase in the discount rate from December 31, 2017 to December 31, 2018 resulted in a decrease in the projected benefit obligations of our qualified defined benefit pension plans of approximately \$3.5 billion at December 31, 2018.

In October 2019, the Society of Actuaries published revised longevity assumptions that refined its prior studies. We used the revised assumptions in our December 31, 2019 re-measurement of benefit obligation. We reflected a longevity basis specific to the demographics of the underlying population (e.g., the nature of the work), versus the prior basis which was blended for all types of work, resulting in an approximate \$860 million increase in the projected benefit obligations of our qualified defined benefit pension plans.

The long-term rate of return assumption represents the expected long-term rate of earnings on the funds invested, or to be invested, to provide for the benefits included in the benefit obligations. That assumption is based on several factors including historical market index returns, the anticipated long-term allocation of plan assets, the historical return data for the trust funds, plan expenses and the potential to outperform market index returns. The actual investment return for our qualified defined benefit

plans during 2019 of \$6.7 billion based on an actual rate of approximately 21% improved plan assets more than the \$2.3 billion expected return based on our 7.00% long-term rate of return assumption.

Plan Assets

Investment policies and strategies – Lockheed Martin Investment Management Company (LMIMCo), our wholly-owned subsidiary, has the fiduciary responsibility for making investment decisions related to the assets of our postretirement benefit plans. LMIMCo’s investment objectives for the assets of these plans are (1) to minimize the net present value of expected funding contributions; (2) to ensure there is a high probability that each plan meets or exceeds our actuarial long-term rate of return assumptions; and (3) to diversify assets to minimize the risk of large losses. The nature and duration of benefit obligations, along with assumptions concerning asset class returns and return correlations, are considered when determining an appropriate asset allocation to achieve the investment objectives. Investment policies and strategies governing the assets of the plans are designed to achieve investment objectives within prudent risk parameters. Risk management practices include the use of external investment managers; the maintenance of a portfolio diversified by asset class, investment approach and security holdings; and the maintenance of sufficient liquidity to meet benefit obligations as they come due.

LMIMCo’s investment policies require that asset allocations of postretirement benefit plans be maintained within the following approximate ranges:

Asset Class	Asset Allocation Ranges
Cash and cash equivalents	0-20%
Equity	15-65%
Fixed income	10-60%
Alternative investments:	
Private equity funds	0-15%
Real estate funds	0-10%
Hedge funds	0-20%
Commodities	0-15%

Fair value measurements – The rules related to accounting for postretirement benefit plans under GAAP require certain fair value disclosures related to postretirement benefit plan assets, even though those assets are not separately presented on our consolidated balance sheets. The following table presents the fair value of the assets (in millions) of our qualified defined benefit pension plans and retiree medical and life insurance plans by asset category and their level within the fair value hierarchy, which has three levels based on the uncertainty of the inputs used to determine fair value. Level 1 refers to fair values determined based on quoted prices in active markets for identical assets, Level 2 refers to fair values estimated using significant other observable inputs and Level 3 includes fair values estimated using significant unobservable inputs. Certain other investments are measured at their Net Asset Value (NAV) per share and do not have readily determined values and are thus not subject to leveling in the fair value hierarchy. The NAV is the total value of the fund divided by the number of the fund's shares outstanding. We recognize transfers between levels of the fair value hierarchy as of the date of the change in circumstances that causes the transfer.

	December 31, 2019				December 31, 2018			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
Investments measured at fair value								
Cash and cash equivalents ^(a)	\$ 1,961	\$ 1,961	\$ —	\$ —	\$ 1,727	\$ 1,727	\$ —	\$ —
Equity ^(a) :								
U.S. equity securities	7,189	7,182	—	7	3,936	3,927	3	6
International equity securities	7,244	7,217	23	4	5,406	5,400	—	6
Commingled equity funds	1,933	582	1,351	—	3,587	1,436	2,151	—
Fixed income ^(a) :								
Corporate debt securities	5,208	—	5,206	2	4,890	—	4,888	2
U.S. Government securities	2,260	—	2,260	—	3,399	—	3,399	—
U.S. Government-sponsored enterprise securities	530	—	530	—	571	—	571	—
Other fixed income investments ^(b)	3,134	35	2,135	964	2,926	—	1,988	938
Total	\$29,459	\$16,977	\$11,505	\$ 977	\$26,442	\$12,490	\$13,000	\$ 952
Investments measured at NAV ^(c)								
Commingled equity funds	181				144			
Other fixed income investments	32				29			
Private equity funds	4,019				4,014			
Real estate funds	2,493				2,117			
Hedge funds	1,069				828			
Total investments measured at NAV	7,794				7,132			
Receivables, net	78				72			
Total	\$37,331				\$33,646			

^(a) Cash and cash equivalents, equity securities and fixed income securities included derivative assets and liabilities whose fair values were not material as of December 31, 2019 and 2018. LMIMCo's investment policies restrict the use of derivatives to either establish long or short exposures for purposes consistent with applicable investment mandate guidelines or to hedge risks to the extent of a plan's current exposure to such risks. Most derivative transactions are settled on a daily basis.

^(b) Level 3 investments include \$857 million at December 31, 2019 and \$810 million at December 31, 2018 related to the buy-in contract discussed above.

^(c) Certain investments that are valued using the NAV per share (or its equivalent) as a practical expedient have not been classified in the fair value hierarchy and are included in the table to permit reconciliation of the fair value hierarchy to the aggregate postretirement benefit plan assets.

As of December 31, 2019 and 2018, the assets associated with our foreign defined benefit pension plans were not material and have not been included in the table above. Changes in the fair value of plan assets categorized as Level 3 during 2019 and 2018 were insignificant.

Valuation techniques – Cash equivalents are mostly comprised of short-term money-market instruments and are valued at cost, which approximates fair value.

U.S. equity securities and international equity securities categorized as Level 1 are traded on active national and international exchanges and are valued at their closing prices on the last trading day of the year. For U.S. equity securities and international equity securities not traded on an active exchange, or if the closing price is not available, the trustee obtains indicative quotes from a pricing vendor, broker or investment manager. These securities are categorized as Level 2 if the custodian obtains corroborated

quotes from a pricing vendor or categorized as Level 3 if the custodian obtains uncorroborated quotes from a broker or investment manager.

Commingled equity funds categorized as Level 1 are traded on active national and international exchanges and are valued at their closing prices on the last trading day of the year. For commingled equity funds not traded on an active exchange, or if the closing price is not available, the trustee obtains indicative quotes from a pricing vendor, broker or investment manager. These securities are categorized as Level 2 if the custodian obtains corroborated quotes from a pricing vendor.

Fixed income investments categorized as Level 2 are valued by the trustee using pricing models that use verifiable observable market data (e.g., interest rates and yield curves observable at commonly quoted intervals and credit spreads), bids provided by brokers or dealers or quoted prices of securities with similar characteristics. Fixed income investments are categorized as Level 3 when valuations using observable inputs are unavailable. The trustee typically obtains pricing based on indicative quotes or bid evaluations from vendors, brokers or the investment manager. In addition, certain other fixed income investments categorized as Level 3 are valued using a discounted cash flow approach. Significant inputs include projected annuity payments and the discount rate applied to those payments.

Certain commingled equity funds, consisting of equity mutual funds, are valued using the NAV. The NAV valuations are based on the underlying investments and typically redeemable within 90 days.

Private equity funds consist of partnership and co-investment funds. The NAV is based on valuation models of the underlying securities, which includes unobservable inputs that cannot be corroborated using verifiable observable market data. These funds typically have redemption periods between eight and 12 years.

Real estate funds consist of partnerships, most of which are closed-end funds, for which the NAV is based on valuation models and periodic appraisals. These funds typically have redemption periods between eight and 10 years.

Hedge funds consist of direct hedge funds for which the NAV is generally based on the valuation of the underlying investments. Redemptions in hedge funds are based on the specific terms of each fund, and generally range from a minimum of one month to several months.

Contributions and Expected Benefit Payments

The funding of our qualified defined benefit pension plans is determined in accordance with ERISA, as amended by the PPA, and in a manner consistent with CAS and Internal Revenue Code rules. We made contributions to our qualified defined benefit pension plans of \$1.0 billion in 2019 and \$5.0 billion in 2018, including required and discretionary contributions. As a result of these contributions, we do not expect to make contributions to our qualified defined benefit pension plans in 2020.

The following table presents estimated future benefit payments, which reflect expected future employee service, as of December 31, 2019 (in millions):

	2020	2021	2022	2023	2024	2025 – 2029
Qualified defined benefit pension plans	\$ 2,300	\$ 2,360	\$ 2,450	\$ 2,530	\$ 2,600	\$ 13,540
Retiree medical and life insurance plans	160	160	160	160	150	700

Defined Contribution Plans

We maintain a number of defined contribution plans, most with 401(k) features, that cover substantially all of our employees. Under the provisions of our 401(k) plans, we match most employees' eligible contributions at rates specified in the plan documents. Our 401(k) contributions are comprised of (i) company match, the majority of which was funded using our common stock, and (ii) company contributions. Total 401(k) contributions were \$741 million in 2019, \$658 million in 2018 and \$613 million in 2017. Our defined contribution plans held approximately 31.9 million and 33.3 million shares of our common stock as of December 31, 2019 and 2018.

Note 12 – Stockholders' Equity

At December 31, 2019 and 2018, our authorized capital was composed of 1.5 billion shares of common stock and 50 million shares of series preferred stock. Of the 281 million shares of common stock issued and outstanding as of December 31, 2019, 280 million shares were considered outstanding for consolidated balance sheet presentation purposes; the remaining shares were held in a separate trust. Of the 283 million shares of common stock issued and outstanding as of December 31, 2018, 281 million shares were considered outstanding for consolidated balance sheet presentation purposes; the remaining shares were held in a separate trust. No shares of preferred stock were issued and outstanding at December 31, 2019 or 2018.

Repurchases of Common Stock

During 2019, we repurchased 3.5 million shares of our common stock for \$1.2 billion. During 2018 and 2017, we paid \$1.5 billion and \$2.0 billion to repurchase 4.7 million and 7.1 million shares of our common stock.

During the fourth quarter of 2019, we entered into an accelerated share repurchase (ASR) agreement to repurchase \$350 million of our common stock. We paid \$350 million and received an initial delivery of 658,886 shares on October 30, 2019. Upon final settlement of the ASR agreement on December 20, 2019, we received an additional delivery of 257,363 shares of our common stock based on the average price paid per share of \$381.99, calculated with reference to the volume weighted average price per share of our common stock over the term of the agreement, less a negotiated discount. The transaction was accounted for as an equity transaction and recognized as a reduction of common stock and additional paid-in-capital, with the excess purchase price over par value recorded as a reduction of additional paid-in capital.

On September 26, 2019, our Board of Directors approved a \$1.0 billion increase to our share repurchase program. Inclusive of this increase, the total remaining authorization for future common share repurchases under our program was \$2.8 billion as of December 31, 2019. As we repurchase our common shares, we reduce common stock for the \$1 of par value of the shares repurchased, with the excess purchase price over par value recorded as a reduction of additional paid-in capital. If additional paid-in capital is reduced to zero, we record the remainder of the excess purchase price over par value as a reduction of retained earnings. Due to the volume of repurchases made under our share repurchase program, additional paid-in capital was reduced to zero, with the remainder of the excess purchase price over par value of \$713.0 million, \$1.1 billion and \$1.6 billion recorded as a reduction of retained earnings in 2019, 2018 and 2017.

Dividends

We paid dividends totaling \$2.6 billion (\$9.00 per share) in 2019, \$2.3 billion (\$8.20 per share) in 2018 and \$2.2 billion (\$7.46 per share) in 2017. We paid quarterly dividends of \$2.20 per share during each of the first three quarters of 2019 and \$2.40 per share during the fourth quarter of 2019; \$2.00 per share during each of the first three quarters of 2018 and \$2.20 per share during the fourth quarter of 2018; and \$1.82 per share during each of the first three quarters of 2017 and \$2.00 per share during the fourth quarter of 2017.

Accumulated Other Comprehensive Loss

Changes in the balance of AOCL, net of income taxes, consisted of the following (in millions):

	Postretirement Benefit Plans ^(a)	Other, net	AOCL
Balance at December 31, 2016	\$ (11,981)	\$ (121)	\$ (12,102)
Other comprehensive (loss) income before reclassifications	(1,380)	120	(1,260)
Amounts reclassified from AOCL			
Recognition of net actuarial losses	1,030	—	1,030
Amortization of net prior service credits	(228)	—	(228)
Other	—	21	21
Total reclassified from AOCL	802	21	823
Total other comprehensive (loss) income	(578)	141	(437)
Balance at December 31, 2017	(12,559)	20	(12,539)
Other comprehensive loss before reclassifications	(501)	(105)	(606)
Amounts reclassified from AOCL			
Recognition of net actuarial losses	1,455	—	1,455
Amortization of net prior service credits	(253)	—	(253)
Other	—	30	30
Total reclassified from AOCL	1,202	30	1,232
Total other comprehensive (loss) income	701	(75)	626
Reclassification of income tax effects from tax reform ^(b)	(2,396)	(12)	(2,408)
Balance at December 31, 2018	(14,254)	(67)	(14,321)
Other comprehensive loss before reclassifications	(2,182)	18	(2,164)
Amounts reclassified from AOCL			
Recognition of net actuarial losses	1,148	—	1,148
Amortization of net prior service credits	(240)	—	(240)
Other	—	23	23
Total reclassified from AOCL	908	23	931
Total other comprehensive income (loss)	(1,274)	41	(1,233)
Balance at December 31, 2019	\$ (15,528)	\$ (26)	\$ (15,554)

^(a) AOCL related to postretirement benefit plans is shown net of tax benefits of \$4.2 billion at December 31, 2019, \$3.9 billion at December 31, 2018 and \$6.5 billion at December 31, 2017. These tax benefits include amounts recognized on our income tax returns as current deductions and deferred income taxes, which will be recognized on our tax returns in future years. See “Note 9 – Income Taxes” and “Note 11 – Postretirement Benefit Plans” for more information on our income taxes and postretirement benefit plans.

^(b) During 2018, we reclassified the impact of the income tax effects related to the Tax Cuts and Jobs Act of 2017 (the Tax Act) from AOCL to retained earnings by the same amount with zero impact to total equity.

Note 13 – Stock-Based Compensation

During 2019, 2018 and 2017, we recorded non-cash stock-based compensation expense totaling \$189 million, \$173 million and \$158 million, which is included as a component of other unallocated, net on our consolidated statements of earnings. The net impact to earnings for the respective years was \$149 million, \$137 million and \$103 million.

As of December 31, 2019, we had \$129 million of unrecognized compensation cost related to nonvested awards, which is expected to be recognized over a weighted average period of 1.8 years. We received cash from the exercise of stock options totaling \$66 million, \$43 million and \$71 million during 2019, 2018 and 2017. In addition, our income tax liabilities for 2019, 2018 and 2017 were reduced by \$103 million, \$75 million and \$203 million due to recognized tax benefits on stock-based compensation arrangements.

Stock-Based Compensation Plans

Under plans approved by our stockholders, we are authorized to grant key employees stock-based incentive awards, including options to purchase common stock, stock appreciation rights, RSUs, PSUs or other stock units. The exercise price of options to purchase common stock may not be less than the fair market value of our stock on the date of grant. No award of stock options may become fully vested prior to the third anniversary of the grant and no portion of a stock option grant may become vested in less than one year. The minimum vesting period for restricted stock or stock units payable in stock is three years. Award agreements may provide for shorter or pro-rated vesting periods or vesting following termination of employment in the case of death, disability, divestiture, retirement, change of control or layoff. The maximum term of a stock option or any other award is 10 years.

At December 31, 2019, inclusive of the shares reserved for outstanding stock options, RSUs and PSUs, we had approximately 7 million shares reserved for issuance under the plans. At December 31, 2019, approximately 4 million of the shares reserved for issuance remained available for grant under our stock-based compensation plans. We issue new shares upon the exercise of stock options or when restrictions on RSUs and PSUs have been satisfied.

RSUs

The following table summarizes activity related to nonvested RSUs:

	Number of RSUs (In thousands)	Weighted Average Grant-Date Fair Value Per Share
Nonvested at December 31, 2016	788	\$ 183.00
Granted	519	254.58
Vested	(624)	201.65
Forfeited	(32)	223.23
Nonvested at December 31, 2017	651	\$ 220.21
Granted	406	353.99
Vested	(470)	271.50
Forfeited	(24)	282.07
Nonvested at December 31, 2018	563	\$ 271.23
Granted	581	305.30
Vested	(523)	269.00
Forfeited	(21)	302.78
Nonvested at December 31, 2019	600	\$ 305.06

In 2019, we granted certain employees approximately 0.6 million RSUs with a weighted average grant-date fair value of \$305.30 per RSU. The grant-date fair value of these RSUs is equal to the closing market price of our common stock on the grant date less a discount to reflect the delay in payment of dividend-equivalent cash payments that are made only upon vesting, which is generally three years from the grant date. We recognize the grant-date fair value of RSUs, less estimated forfeitures, as compensation expense ratably over the requisite service period, which is shorter than the vesting period if the employee is retirement eligible on the date of grant or will become retirement eligible before the end of the vesting period.

Stock Options

We generally recognize compensation cost for stock options ratably over the three-year vesting period. At December 31, 2019 and 2018, there were 1.0 million (weighted average exercise price of \$80.29) and 1.8 million (weighted average exercise price of \$79.76) stock options outstanding. All of the stock options outstanding are vested as of December 31, 2019 and have a weighted average remaining contractual life of approximately 1.5 years and an aggregate intrinsic value of \$296 million. There were 0.8 million (weighted average exercise price of \$79.16) stock options exercised during 2019. We have not granted stock options to employees since 2012. The intrinsic value of all stock options exercised was \$223 million, \$104 million, and \$139 million in 2019, 2018 and 2017.

PSUs

In 2019, we granted certain employees PSUs with an aggregate target award of approximately 0.1 million shares of our common stock. The PSUs vest three years from the grant date based on continuous service, with the number of shares earned (0% to 200% of the target award) depending upon the extent to which we achieve certain financial and market performance targets measured over the period from January 1, 2019 through December 31, 2021. About half of the PSUs were valued at \$303.59 per PSU in a manner similar to RSUs mentioned above as the financial targets are based on our operating results. We recognize the grant-date fair value of these PSUs, less estimated forfeitures, as compensation expense ratably over the vesting period based on the number of awards expected to vest at each reporting date. The remaining PSUs were valued at \$301.03 per PSU using a Monte Carlo model as the performance target is related to our total shareholder return relative to our peer group. We recognize the grant-date fair value of these awards, less estimated forfeitures, as compensation expense ratably over the vesting period.

Note 14 – Legal Proceedings, Commitments and Contingencies

We are a party to or have property subject to litigation and other proceedings that arise in the ordinary course of our business, including matters arising under provisions relating to the protection of the environment, and are subject to contingencies related to certain businesses we previously owned. These types of matters could result in fines, penalties, cost reimbursements or contributions, compensatory or treble damages or non-monetary sanctions or relief. We believe the probability is remote that the outcome of each of these matters, including the legal proceedings described below, will have a material adverse effect on the corporation as a whole, notwithstanding that the unfavorable resolution of any matter may have a material effect on our net earnings in any particular interim reporting period. Among the factors that we consider in this assessment are the nature of existing legal proceedings and claims, the asserted or possible damages or loss contingency (if estimable), the progress of the case, existing law and precedent, the opinions or views of legal counsel and other advisers, our experience in similar cases and the experience of other companies, the facts available to us at the time of assessment and how we intend to respond to the proceeding or claim. Our assessment of these factors may change over time as individual proceedings or claims progress.

Although we cannot predict the outcome of legal or other proceedings with certainty, where there is at least a reasonable possibility that a loss may have been incurred, GAAP requires us to disclose an estimate of the reasonably possible loss or range of loss or make a statement that such an estimate cannot be made. We follow a thorough process in which we seek to estimate the reasonably possible loss or range of loss, and only if we are unable to make such an estimate do we conclude and disclose that an estimate cannot be made. Accordingly, unless otherwise indicated below in our discussion of legal proceedings, a reasonably possible loss or range of loss associated with any individual legal proceeding cannot be estimated.

Legal Proceedings

As a result of our acquisition of Sikorsky, we assumed the defense of and any potential liability for two civil False Claims Act lawsuits pending in the U.S. District Court for the Eastern District of Wisconsin. In October 2014, the U.S. Government filed a complaint in intervention in the first suit, which was brought by qui tam relator Mary Patzer, a former Derco Aerospace (Derco) employee. In May 2017, the U.S. Government filed a complaint in intervention in the second suit, which was brought by qui tam relator Peter Cimme, a former Sikorsky Support Services, Inc. (SSSI) employee. In November 2017, the Court consolidated the cases into a single action for discovery and trial.

The U.S. Government alleges that Sikorsky and two of its wholly-owned subsidiaries, Derco and SSSI, violated the civil False Claims Act and the Truth in Negotiations Act in connection with a contract the U.S. Navy awarded to SSSI in June 2006 to support the Navy's T-34 and T-44 fixed-wing turboprop training aircraft. SSSI subcontracted with Derco, primarily to procure and manage spare parts for the training aircraft. The U.S. Government contends that SSSI overbilled the Navy on the contract as the result of Derco's use of prohibited cost-plus-percentage-of-cost pricing to add profit and overhead costs as a percentage of the price of the spare parts that Derco procured and then sold to SSSI. The U.S. Government also alleges that Derco's claims to SSSI, SSSI's claims to the Navy, and SSSI's yearly Certificates of Final Indirect Costs from 2006 through 2012 were false and that SSSI

submitted inaccurate cost or pricing data in violation of the Truth in Negotiations Act for a sole-sourced, follow-on “bridge” contract. The U.S. Government’s complaints assert common law claims for breach of contract and unjust enrichment.

The U.S. Government further alleged violations of the Anti-Kickback Act and False Claims Act based on a monthly “chargeback,” through which SSSI billed Derco for the cost of certain SSSI personnel, allegedly in exchange for SSSI’s permitting a pricing arrangement that was “highly favorable” to Derco. On January 12, 2018, the Corporation filed a partial motion to dismiss intended to narrow the U.S. Government’s claims, including by seeking dismissal of the Anti-Kickback Act allegations. The Corporation also moved to dismiss Cimma as a party under the False Claims Act’s first-to-file rule, which permits only the first relator to recover in a pending case. The District Court granted these motions, in part, on July 20, 2018, dismissing the Government’s claims under the Anti-Kickback Act and dismissing Cimma as a party to the litigation.

The U.S. Government seeks damages of approximately \$52 million, subject to trebling, plus statutory penalties. We believe that we have legal and factual defenses to the U.S. Government’s remaining claims. Although we continue to evaluate our liability and exposure, we do not currently believe that it is probable that we will incur a material loss. If, contrary to our expectations, the U.S. Government prevails in this matter and proves damages at or near \$52 million and is successful in having such damages trebled, the outcome could have an adverse effect on our results of operations in the period in which a liability is recognized and on our cash flows for the period in which any damages are paid.

On February 8, 2019, the Department of Justice (DOJ) filed a complaint in the U.S. District Court for the Eastern District of Washington alleging, among other counts, civil False Claims Act and civil Anti-Kickback Act violations against Mission Support Alliance, LLC (MSA), Lockheed Martin, Lockheed Martin Services, Inc. (LMSI) and a current Lockheed Martin vice president. The dollar amount of damages sought is not specified but DOJ seeks treble damages with respect to the False Claims Act and penalties that are subject to doubling under the Anti-Kickback Act. The allegations relate primarily to information technology services performed by LMSI under a subcontract to MSA and the pricing by MSA and LMSI of those services as well as Lockheed Martin’s payment of standard incentive compensation to certain employees who were seconded to MSA, including the vice president. MSA is a joint venture that holds a prime contract to provide infrastructure support services at DOE’s Hanford facility. On April 23, 2019, the parties each filed partial motions to dismiss the U.S. Government’s False Claims Act and Anti-Kickback Act allegations. On January 13, 2020, the court dismissed the Anti-Kickback Act claim against all defendants with prejudice and denied the motions to dismiss the False Claims Act claims.

On August 16, 2016, we divested our former Information Systems & Global Solutions (IS&GS) business segment to Leidos Holdings, Inc. (Leidos) in a transaction that resulted in IS&GS becoming part of Leidos (the Transaction). In the Transaction, Leidos acquired IS&GS’ interest in MSA and the liabilities related to Lockheed Martin’s participation in MSA. Included within the liabilities assumed were those associated with this lawsuit. Lockheed Martin transferred to Leidos a reserve of approximately \$38 million established by Lockheed Martin with respect to its potential liability and that of its affiliates and agreed to indemnify Leidos with respect to the liabilities assumed for damages to Leidos for 100% of amounts in excess of this reserve up to \$64 million and 50% of amounts in excess of \$64 million.

We cannot reasonably estimate our exposure at this time, but it is possible that a settlement by or judgment against any of the defendants could implicate Lockheed Martin’s indemnification obligations as described above. At present, in view of what we believe to be the strength of the defenses, our belief that Leidos assumed the liabilities, and our view of the structure of the indemnity, we do not believe it probable that we will incur a material loss and have not taken any reserve.

On April 24, 2009, we filed a declaratory judgment action against the New York Metropolitan Transportation Authority and its Capital Construction Company (collectively, the MTA) asking the U.S. District Court for the Southern District of New York to find that the MTA is in material breach of our agreement based on the MTA’s failure to provide access to sites where work must be performed and the customer-furnished equipment necessary to complete the contract. The MTA filed an answer and counterclaim alleging that we breached the contract and subsequently terminated the contract for alleged default. The primary damages sought by the MTA are the costs to complete the contract and potential re-procurement costs. While we are unable to estimate the cost of another contractor to complete the contract and the costs of re-procurement, we note that our contract with the MTA had a total value of \$323 million, of which \$241 million was paid to us, and that the MTA is seeking damages of approximately \$190 million. We dispute the MTA’s allegations and are defending against them. Additionally, following an investigation, our sureties on a performance bond related to this matter, who were represented by independent counsel, concluded that the MTA’s termination of the contract was improper. Finally, our declaratory judgment action was later amended to include claims for monetary damages against the MTA of approximately \$95 million. This matter was taken under submission by the District Court in December 2014, after a five-week bench trial and the filing of post-trial pleadings by the parties. We continue to await a decision from the District Court. Although this matter relates to our former IS&GS business, we retained the litigation when we divested IS&GS in 2016.

Environmental Matters

We are involved in proceedings and potential proceedings relating to soil, sediment, surface water, and groundwater contamination, disposal of hazardous substances, and other environmental matters at several of our current or former facilities, facilities for which we may have contractual responsibility, and at third-party sites where we have been designated as a potentially responsible party (PRP). A substantial portion of environmental costs will be included in our net sales and cost of sales in future periods pursuant to U.S. Government regulations. At the time a liability is recorded for future environmental costs, we record assets for estimated future recovery considered probable through the pricing of products and services to agencies of the U.S. Government, regardless of the contract form (e.g., cost-reimbursable, fixed-price). We continually evaluate the recoverability of our assets for the portion of environmental costs that are probable of future recovery by assessing, among other factors, U.S. Government regulations, our U.S. Government business base and contract mix, our history of receiving reimbursement of such costs, and efforts by some U.S. Government representatives to limit such reimbursement. We include the portions of those environmental costs expected to be allocated to our non-U.S. Government contracts, or determined not to be recoverable under U.S. Government contracts, in our cost of sales at the time the liability is established.

At December 31, 2019 and 2018, the aggregate amount of liabilities recorded relative to environmental matters was \$810 million and \$864 million, most of which are recorded in other noncurrent liabilities on our consolidated balance sheets. We have recorded assets for the portion of environmental costs that are probable of future recovery totaling \$703 million and \$750 million at December 31, 2019 and 2018, most of which are recorded in other noncurrent assets on our consolidated balance sheets, for the estimated future recovery of these costs, as we consider the recovery probable based on the factors previously mentioned. We project costs and recovery of costs over approximately 20 years.

Environmental remediation activities usually span many years, which makes estimating liabilities a matter of judgment because of uncertainties with respect to assessing the extent of the contamination as well as such factors as changing remediation technologies and changing regulatory environmental standards. There are a number of former and present operating facilities that we are monitoring or investigating for potential future remediation. We perform quarterly reviews of the status of our environmental remediation sites and the related liabilities and receivables. Additionally, in our quarterly reviews, we consider these and other factors in estimating the timing and amount of any future costs that may be required for remediation activities, and record a liability when it is probable that a loss has occurred or will occur and the loss can be reasonably estimated. The amount of liability recorded is based on our estimate of the costs to be incurred for remediation at a particular site. We do not discount the recorded liabilities, as the amount and timing of future cash payments are not fixed or cannot be reliably determined. We reasonably cannot determine the extent of our financial exposure in all cases as, although a loss may be probable or reasonably possible, in some cases it is not possible at this time to estimate the loss or reasonably possible loss or range of loss.

We also pursue claims for recovery of costs incurred or for contribution to site remediation costs against other PRPs, including the U.S. Government, and are conducting remediation activities under various consent decrees, orders, and agreements relating to soil, groundwater, sediment, or surface water contamination at certain sites of former or current operations. Under agreements related to certain sites in California, New York and Washington, the U.S. Government reimburses us an amount equal to a percentage, specific to each site, of expenditures for certain remediation activities in the U.S. Government's capacity as a PRP under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

In addition to the proceedings and potential proceedings discussed above, California previously established a maximum level of the contaminant hexavalent chromium in drinking water of 10 parts per billion (ppb). This standard was successfully challenged by the California Manufacturers and Technology Association (CMTA) for failure to conduct the required economic feasibility analysis. In response to the court's ruling, the State Water Resources Control Board (State Board), a branch of the California Environmental Protection Agency, withdrew the hexavalent chromium standard from the published regulations, leaving only the 50 ppb standard for total chromium. The State Board has indicated it will work to re-establish a hexavalent chromium standard. Further, the U.S. Environmental Protection Agency (U.S. EPA) is considering whether to regulate hexavalent chromium.

California is also reevaluating its existing drinking water standard of 6 ppb for perchlorate, and the U.S. EPA is taking steps to regulate perchlorate in drinking water. If substantially lower standards are adopted, in either California or at the federal level for perchlorate or for hexavalent chromium, we expect a material increase in our estimates for environmental liabilities and the related assets for the portion of the increased costs that are probable of future recovery in the pricing of our products and services for the U.S. Government. The amount that would be allocable to our non-U.S. Government contracts or that is determined not to be recoverable under U.S. Government contracts would be expensed, which may have a material effect on our earnings in any particular interim reporting period.

Letters of Credit, Surety Bonds and Third-Party Guarantees

We have entered into standby letters of credit and surety bonds issued on our behalf by financial institutions, and we have directly issued guarantees to third parties primarily relating to advances received from customers and the guarantee of future performance on certain contracts. Letters of credit and surety bonds generally are available for draw down in the event we do not perform. In some cases, we may guarantee the contractual performance of third parties such as joint venture partners. We had total outstanding letters of credit, surety bonds and third-party guarantees aggregating \$3.6 billion at December 31, 2019 and December 31, 2018. Third-party guarantees do not include guarantees to subsidiaries and other consolidated entities.

At December 31, 2019 and 2018, third-party guarantees totaled \$996 million and \$850 million, of which approximately 76% and 65% related to guarantees of contractual performance of joint ventures to which we currently are or previously were a party. These amounts represent our estimate of the maximum amounts we would expect to incur upon the contractual non-performance of the joint venture, joint venture partners or divested businesses. Generally, we also have cross-indemnities in place that may enable us to recover amounts that may be paid on behalf of a joint venture partner.

In determining our exposures, we evaluate the reputation, performance on contractual obligations, technical capabilities and credit quality of our current and former joint venture partners and the transferee under novation agreements all of which include a guarantee as required by the FAR. There were no material amounts recorded in our financial statements related to third-party guarantees or novation agreements.

Note 15 – Severance and Restructuring Charges

During 2018, we recorded charges totaling \$96 million (\$76 million, or \$0.26 per share, after-tax) related to certain severance and restructuring actions at our RMS business segment. As of December 31, 2019, we have paid substantially all of the severance payments associated with these actions. In addition, we have recovered a significant portion of these payments through the pricing of our products and services to the U.S. Government and other customers, which are included in RMS' operating results.

Note 16 – Fair Value Measurements

Assets and liabilities measured and recorded at fair value on a recurring basis consisted of the following (in millions):

	December 31, 2019			December 31, 2018		
	Total	Level 1	Level 2	Total	Level 1	Level 2
Assets						
Mutual funds	\$ 1,363	\$ 1,363	\$ —	\$ 978	\$ 978	\$ —
U.S. Government securities	99	—	99	105	—	105
Other securities	319	171	148	144	28	116
Derivatives	18	—	18	22	—	22
Liabilities						
Derivatives	23	—	23	61	—	61
Assets measured at NAV						
Other commingled funds	19			18		

Substantially all assets measured at fair value, other than derivatives, represent investments held in a separate trust to fund certain of our non-qualified deferred compensation plans and are recorded in other noncurrent assets on our consolidated balance sheets. The fair values of mutual funds and certain other securities are determined by reference to the quoted market price per unit in active markets multiplied by the number of units held without consideration of transaction costs. The fair values of U.S. Government and other securities are determined using pricing models that use observable inputs (e.g., interest rates and yield curves observable at commonly quoted intervals), bids provided by brokers or dealers or quoted prices of securities with similar characteristics. The fair values of derivative instruments, which consist of foreign currency forward contracts, including embedded derivatives, and interest rate swap contracts, are primarily determined based on the present value of future cash flows using model-derived valuations that use observable inputs such as interest rates, credit spreads and foreign currency exchange rates.

In addition to the financial instruments listed in the table above, we hold other financial instruments, including cash and cash equivalents, receivables, accounts payable and debt and commercial paper. The carrying amounts for cash and cash equivalents, receivables and accounts payable approximated their fair values. The estimated fair value of our outstanding debt and commercial paper was \$15.9 billion and \$15.4 billion at December 31, 2019 and 2018. The outstanding principal amount was \$13.8 billion and \$15.3 billion at December 31, 2019 and 2018, respectively, excluding \$1.2 billion of unamortized discounts and issuance

costs. The estimated fair values of our outstanding debt were determined based on quoted prices for similar instruments in active markets (Level 2).

Note 17 – Summary of Quarterly Information (Unaudited)

A summary of quarterly information is as follows (in millions, except per share data):

	2019 Quarters ^(a)			
	First ^(c)	Second	Third ^(d)	Fourth
Net sales	\$ 14,336	\$ 14,427	\$ 15,171	\$ 15,878
Operating profit	2,283	2,008	2,105	2,149
Net earnings	1,704	1,420	1,608	1,498
Basic earnings per common share ^(b)	6.03	5.03	5.70	5.32
Diluted earnings per common share ^(b)	5.99	5.00	5.66	5.29

	2018 Quarters ^(a)			
	First	Second ^(e)	Third	Fourth ^(f)
Net sales	\$ 11,635	\$ 13,398	\$ 14,318	\$ 14,411
Operating profit	1,725	1,795	1,963	1,851
Net earnings	1,157	1,163	1,473	1,253
Basic earnings per common share ^(b)	4.05	4.08	5.18	4.43
Diluted earnings per common share ^(b)	4.02	4.05	5.14	4.39

^(a) Quarters are typically 13 weeks in length but, due to our fiscal year ending on December 31, the number of weeks in a reporting period may vary slightly during the year and for comparable prior year periods.

^(b) The sum of the quarterly earnings per share amounts do not equal the earnings per share amounts included on our consolidated statements of earnings. The difference in 2019 and 2018 relates to the timing of our share repurchases.

^(c) The first quarter of 2019 includes a previously deferred gain of approximately \$51 million (\$38 million, or \$0.13 per share, after-tax) related to properties sold in 2015 as a result of completing our remaining obligations. The first quarter of 2019 also includes benefits of \$75 million, or \$0.26 per share, from additional tax deductions, based on proposed tax regulations released on March 4, 2019, which clarified that foreign military sales qualify as foreign derived intangible income. Approximately \$65 million, or \$0.23 per share, of the total benefit was recorded discretely because it relates to the prior year.

^(d) The third quarter of 2019 includes benefits of \$62 million, or \$0.22 per share, for additional tax deductions for the prior year, primarily attributable to foreign derived intangible income treatment based on proposed tax regulations released on March 4, 2019 and our change in tax accounting method.

^(e) The second quarter of 2018 includes a \$96 million (\$76 million, or \$0.26 per share, after-tax) severance and restructuring charge (see “Note 15 – Severance and Restructuring Charges”).

^(f) The fourth quarter of 2018 includes a non-cash asset impairment charge of \$110 million (\$83 million, or \$0.29 per share, after-tax) related to our equity method investee, AMMROC (see “Note 1 – Significant Accounting Policies”).

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

ITEM 9A. Controls and Procedures**Evaluation of Disclosure Controls and Procedures**

We performed an evaluation of the effectiveness of our disclosure controls and procedures as of December 31, 2019. The evaluation was performed with the participation of senior management of each business segment and key corporate functions, under the supervision of the Chief Executive Officer (CEO) and Chief Financial Officer (CFO). Based on this evaluation, the CEO and CFO concluded that our disclosure controls and procedures were effective as of December 31, 2019.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control system is designed to provide reasonable assurance to our management and Board of Directors regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes.

Our management conducted an assessment of the effectiveness of our internal control over financial reporting as of December 31, 2019. This assessment was based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control-Integrated Framework (2013 framework). Based on this assessment, management concluded that our internal control over financial reporting was effective as of December 31, 2019.

Our independent registered public accounting firm has issued a report on the effectiveness of our internal control over financial reporting, which is below.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rules 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2019 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

***Report of Independent Registered Public Accounting Firm
Regarding Internal Control Over Financial Reporting***

Board of Directors and Stockholders
Lockheed Martin Corporation

Opinion on Internal Control over Financial Reporting

We have audited Lockheed Martin Corporation's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Lockheed Martin Corporation (the Corporation) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Corporation as of December 31, 2019 and 2018, the related consolidated statements of earnings, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and our report dated February 7, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Corporation's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Corporation's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Corporation in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

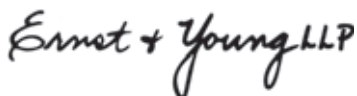
We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.



Tysons, Virginia
February 7, 2020

ITEM 9B. Other Information

None.

PART III**ITEM 10. Directors, Executive Officers and Corporate Governance**

The information concerning directors required by Item 401 of Regulation S-K is included under the caption “Proposal 1 - Election of Directors” in our definitive Proxy Statement to be filed pursuant to Regulation 14A within 120 days after the end of the fiscal year to which this report relates (the 2020 Proxy Statement), and that information is incorporated by reference in this Annual Report on Form 10-K (Form 10-K). Information concerning executive officers required by Item 401 of Regulation S-K is located under Part I, Item 4(a) of this Form 10-K. The information required by Item 405 of Regulation S-K is included under the caption “Delinquent Section 16(a) Reports” in the 2020 Proxy Statement, and that information is incorporated by reference in this Form 10-K. The information required by Items 407(d)(4) and (d)(5) of Regulation S-K is included under the captions “Committees of the Board of Directors” and “Audit Committee Report” in the 2020 Proxy Statement, and that information is incorporated by reference in this Form 10-K.

We have had a written code of ethics in place since our formation in 1995. *Setting the Standard*, our Code of Ethics and Business Conduct, applies to all our employees, including our principal executive officer, principal financial officer, and principal accounting officer and controller, and to members of our Board of Directors. A copy of our Code of Ethics and Business Conduct is available on our investor relations website: www.lockheedmartin.com/investor. Printed copies of our Code of Ethics and Business Conduct may be obtained, without charge, by contacting Investor Relations, Lockheed Martin Corporation, 6801 Rockledge Drive, Bethesda, Maryland 20817. We are required to disclose any change to, or waiver from, our Code of Ethics and Business Conduct for our Chief Executive Officer and senior financial officers. We use our website to disseminate this disclosure as permitted by applicable SEC rules.

ITEM 11. Executive Compensation

The information required by Item 402 of Regulation S-K is included in the text and tables under the captions “Executive Compensation” and “Director Compensation” in the 2020 Proxy Statement and that information is incorporated by reference in this Form 10-K. The information required by Item 407(e)(5) of Regulation S-K is included under the caption “Compensation Committee Report” in the 2020 Proxy Statement, and that information is incorporated by reference in this Form 10-K.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by Item 12 related to the security ownership of management and certain beneficial owners is included under the heading “Security Ownership of Management and Certain Beneficial Owners” in the 2020 Proxy Statement, and that information is incorporated by reference in this Annual Report on Form 10-K. The information required by this Item 12 related to our equity compensation plans that authorize the issuance of shares of Lockheed Martin common stock to employees and directors is included under the heading “Equity Compensation Plan Information” in the 2020 Proxy Statement, and that information is incorporated by reference in this Form 10-K.

ITEM 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item 404 and 407(a) of Regulation S-K is included under the captions “Corporate Governance - Related Person Transaction Policy,” “Corporate Governance - Certain Relationships and Related Person Transactions of Directors, Executive Officers and 5 Percent Stockholders,” and “Corporate Governance - Director Independence” in the 2020 Proxy Statement, and that information is incorporated by reference in this Form 10-K.

ITEM 14. Principal Accounting Fees and Services

The information required by this Item 14 is included under the caption “Proposal 2 - Ratification of Appointment of Independent Auditors” in the 2020 Proxy Statement, and that information is incorporated by reference in this Form 10-K.

PART IV

ITEM 15. Exhibits and Financial Statement Schedules

List of financial statements filed as part of this Form 10-K

The following financial statements of Lockheed Martin Corporation and consolidated subsidiaries are included in Item 8 of this Annual Report on Form 10-K (Form 10-K) at the page numbers referenced below:

	<u>Page</u>
Consolidated Statements of Earnings – Years ended December 31, 2019, 2018 and 2017	59
Consolidated Statements of Comprehensive Income – Years ended December 31, 2019, 2018 and 2017	60
Consolidated Balance Sheets – At December 31, 2019 and 2018	61
Consolidated Statements of Cash Flows – Years ended December 31, 2019, 2018 and 2017	62
Consolidated Statements of Equity – Years ended December 31, 2019, 2018 and 2017	63
Notes to Consolidated Financial Statements	64

The report of Lockheed Martin Corporation's independent registered public accounting firm with respect to the above-referenced financial statements and their report on internal control over financial reporting are included in Item 8 and Item 9A of this Form 10-K at the page numbers referenced below. Their consent appears as Exhibit 23 of this Form 10-K.

	<u>Page</u>
Report of Independent Registered Public Accounting Firm on the Audited Consolidated Financial Statements	56
Report of Independent Registered Public Accounting Firm Regarding Internal Control Over Financial Reporting	100

List of financial statement schedules filed as part of this Form 10-K

All schedules have been omitted because they are not applicable, not required or the information has been otherwise supplied in the consolidated financial statements or notes to consolidated financial statements.

Exhibits

- 3.1 Charter of Lockheed Martin Corporation, as amended by Articles of Amendment dated April 23, 2009 (incorporated by reference to Exhibit 3.1 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2010).
- 3.2 Bylaws of Lockheed Martin Corporation, as amended and restated effective December 8, 2017 (incorporated by reference to Exhibit 3.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on December 11, 2017).
- 4.1 Description of Lockheed Martin Corporation Common Stock.
- 4.2 Indenture, dated May 15, 1996, among Lockheed Martin Corporation, Lockheed Martin Tactical Systems, Inc. and First Trust of Illinois, National Association as Trustee (incorporated by reference to Exhibit 4.1 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2017).
- 4.3 Indenture, dated as of August 30, 2006, between Lockheed Martin Corporation and The Bank of New York (incorporated by reference to Exhibit 99.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on August 31, 2006).
- 4.4 Indenture, dated as of March 11, 2008, between Lockheed Martin Corporation and The Bank of New York (incorporated by reference to Exhibit 4.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on March 12, 2008).
- 4.5 Indenture, dated as of May 25, 2010, between Lockheed Martin Corporation and U.S. Bank National Association (incorporated by reference to Exhibit 99.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on May 25, 2010).
- 4.6 Indenture, dated as of September 6, 2011, between Lockheed Martin Corporation and U.S. Bank National Association (incorporated by reference to Exhibit 4.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on September 8, 2011).

- 4.7 Indenture, dated as of December 14, 2012, between Lockheed Martin Corporation and U.S. Bank National Association (incorporated by reference to Exhibit 99.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on December 17, 2012).
- 4.8 Indenture dated as of September 7, 2017, between Lockheed Martin Corporation and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 99.1 of Lockheed Martin's Current Report on Form 8-K filed with the SEC on September 7, 2017).
- See also Exhibits 3.1 and 3.2.
- No instruments defining the rights of holders of long-term debt that is not registered are filed because the total amount of securities authorized under any such instrument does not exceed 10% of the total assets of Lockheed Martin Corporation on a consolidated basis. Lockheed Martin Corporation agrees to furnish a copy of such instruments to the SEC upon request.
- 10.1 Five-Year Credit Agreement dated as of August 24, 2018, among Lockheed Martin Corporation, the lenders listed therein, and Bank of America, N.A., as administrative agent (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on August 24, 2018).
- 10.2 Extension Agreement dated as of August 24, 2019 by among Lockheed Martin Corporation, the lenders listed therein, and Bank of America, N.A., as administrative agent (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on August 26, 2019).
- 10.3 Non-Employee Director Compensation Summary (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended September 29, 2019).
- 10.4 Lockheed Martin Corporation Directors Deferred Compensation Plan, as amended (incorporated by reference to Exhibit 10.2 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2008).
- 10.5 Lockheed Martin Corporation Directors Equity Plan, as amended (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on November 2, 2006).
- 10.6 Lockheed Martin Corporation Amended and Restated Directors Equity Plan (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on April 26, 2018).
- 10.7 Lockheed Martin Corporation Supplemental Savings Plan, as amended and restated effective January 1, 2015 (incorporated by reference to Exhibit 10.4 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 29, 2015).
- 10.8 Lockheed Martin Corporation Deferred Management Incentive Compensation Plan, as amended and restated effective January 1, 2020.
- 10.9 Lockheed Martin Corporation Amended and Restated 2006 Management Incentive Compensation Plan (Performance Based), amended and restated effective January 1, 2019 (incorporated by reference to Exhibit 10.4 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019).
- 10.10 Lockheed Martin Corporation Amended and Restated 2003 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.17 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2008).
- 10.11 Forms of Stock Option Award Agreements under the Lockheed Martin Corporation 2003 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.32 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2008).
- 10.12 Forms of Stock Option Award Agreements under the Lockheed Martin Corporation 2003 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.33 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2009).
- 10.13 Form of Stock Option Award Agreement under the Lockheed Martin Corporation 2003 Incentive Performance Award Plan (incorporated by reference to Exhibit 99.3 of Lockheed Martin Corporation's Current Report on Form 8-K filed with the SEC on February 3, 2011).
- 10.14 Form of Indemnification Agreement (incorporated by reference to Exhibit 10.34 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2009).
- 10.15 Lockheed Martin Corporation 2011 Incentive Performance Award Plan, as amended and restated January 24, 2019 (incorporated by reference to Exhibit 10.13 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2018).

- 10.16 Forms of Stock Option Award Agreements under the Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.39 of Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2011).
- 10.17 Lockheed Martin Corporation Nonqualified Capital Accumulation Plan, as amended and restated generally effective as of December 18, 2015 (incorporated by reference to Exhibit 10.22 of Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2015).
- 10.18 Form of Restricted Stock Unit Award Agreement under the Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.2 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 26, 2017).
- 10.19 Form of Performance Stock Unit Award Agreement (2017 to 2019 Performance Period) under the Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.3 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 26, 2017).
- 10.20 Form of Long-Term Incentive Performance Award Agreement (2017 to 2019 Performance Period) under the Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.4 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 26, 2017).
- 10.21 Form of Restricted Stock Unit Award Agreement under Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 25, 2018).
- 10.22 Form of Performance Stock Unit Award Agreement (2018 to 2020 Performance Period) under Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.2 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 25, 2018).
- 10.23 Form of Long-Term Incentive Performance Award Agreement (2018 to 2020 Performance Period) under Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.3 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 25, 2018).
- 10.24 Form of Restricted Stock Unit Award Agreement under the Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019).
- 10.25 Form of Performance Stock Unit Award Agreement (2019 to 2021 Performance Period) under the Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.2 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019).
- 10.26 Form of Long Term Incentive Performance Award Agreement (2019 to 2021 Performance Period) under the Lockheed Martin Corporation 2011 Incentive Performance Award Plan (incorporated by reference to Exhibit 10.3 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019).
- 10.27 Lockheed Martin Corporation Consolidated Supplemental Retirement Benefit Plan, as amended and restated effective October 5, 2018 (incorporated by reference to Exhibit 10.26 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2018).
- 10.28 Lockheed Martin Corporation Executive Severance Plan, as amended and restated effective December 1, 2016 (incorporated by reference to Exhibit 10.26 to Lockheed Martin Corporation's Annual Report on Form 10-K for the year ended December 31, 2016).
- 10.29 Amendment No. 1 to Lockheed Martin Corporation Executive Severance Plan, as amended and restated effective December 1, 2016 (incorporated by reference to Exhibit 10.1 to Lockheed Martin Corporation's Quarterly Report on Form 10-Q for the quarter ended June 24, 2018).
- 10.30 Letter dated December 11, 2019 to Frank St. John regarding relocation assistance.
- 10.31 Amendment to Lockheed Martin Corporation Supplemental Savings Plan and Lockheed Martin Corporation Nonqualified Capital Accumulation Program, dated December 18, 2019.
- 21 Subsidiaries of Lockheed Martin Corporation.
- 23 Consent of Independent Registered Public Accounting Firm.
- 24 Powers of Attorney.
- 31.1 Certification of Marillyn A. Hewson pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
- 31.2 Certification of Kenneth R. Possenriede pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

- 32 Certification of Marillyn A. Hewson and Kenneth R. Possenriede Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
- 101.INS XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
- 101.SCH XBRL Taxonomy Extension Schema Document
- 101.CAL XBRL Taxonomy Extension Calculation Linkbase Document
- 101.DEF XBRL Taxonomy Extension Definition Linkbase Document
- 101.LAB XBRL Taxonomy Extension Label Linkbase Document
- 101.PRE XBRL Taxonomy Extension Presentation Linkbase Document
- 104 Cover Page Interactive Data File - the cover page XBRL tags are embedded within the Inline XBRL document contained in Exhibit 101

* Exhibits 10.3 through 10.31 constitute management contracts or compensatory plans or arrangements.

ITEM 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Lockheed Martin Corporation
(Registrant)

Date: February 7, 2020

By: Brian P. Colan
Brian P. Colan
Vice President, Controller, and Chief
Accounting Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<u>Signatures</u>	<u>Titles</u>	<u>Date</u>
<u>Marilyn A. Hewson</u> Marilyn A. Hewson	Chairman, President and Chief Executive Officer (Principal Executive Officer)	February 7, 2020
<u>Kenneth R. Possenriede</u> Kenneth R. Possenriede	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 7, 2020
<u>Brian P. Colan</u> Brian P. Colan	Vice President, Controller, and Chief Accounting Officer (Principal Accounting Officer)	February 7, 2020
* Daniel F. Akerson	Director	February 7, 2020
* David B. Burritt	Director	February 7, 2020
* Bruce A. Carlson	Director	February 7, 2020
* James O. Ellis, Jr.	Director	February 7, 2020
* Thomas J. Falk	Director	February 7, 2020
* Ilene S. Gordon	Director	February 7, 2020
* Vicki A. Hollub	Director	February 7, 2020
* Jeh C. Johnson	Director	February 7, 2020
* Debra L. Reed-Klages	Director	February 7, 2020
* James D. Taiclet, Jr.	Director	February 7, 2020

*By Maryanne R. Lavan pursuant to a Power of Attorney executed by the Directors listed above, which has been filed with this Annual Report on Form 10-K.

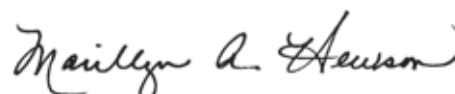
Date: February 7, 2020

By: Maryanne R. Lavan
Maryanne R. Lavan
Attorney-in-fact

**CERTIFICATION OF MARILLYN A. HEWSON PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Marillyn A. Hewson, certify that:

1. I have reviewed this Annual Report on Form 10-K of Lockheed Martin Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations, and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures, and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting;
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.



Marillyn A. Hewson
Chief Executive Officer

Date: February 7, 2020

**CERTIFICATION OF KENNETH R. POSSENRIEDE PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Kenneth R. Possenriede, certify that:

1. I have reviewed this Annual Report on Form 10-K of Lockheed Martin Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations, and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures, and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting;
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize, and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.



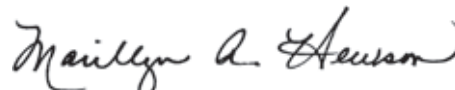
Kenneth R. Possenriede
Chief Financial Officer

Date: February 7, 2020

**CERTIFICATION OF MARILLYN A. HEWSON AND KENNETH R. POSSENRIEDE PURSUANT TO 18 U.S.C.
SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Lockheed Martin Corporation (the "Corporation") on Form 10-K for the period ended December 31, 2019, as filed with the U.S. Securities and Exchange Commission on the date hereof (the "Report"), I, Marillyn A. Hewson, Chief Executive Officer of the Corporation, and I, Kenneth R. Possenriede, Chief Financial Officer of the Corporation, each certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Corporation.



Marillyn A. Hewson
Chief Executive Officer



Kenneth R. Possenriede
Chief Financial Officer

Date: February 7, 2020

NON-GAAP DEFINITIONS AND RECONCILIATION OF NON-GAAP MEASURES TO GAAP MEASURES

This annual report contains non-generally accepted accounting principles (non-GAAP) financial measures. While we believe that these non-GAAP financial measures may be useful in evaluating the financial performance of Lockheed Martin, this information should be considered supplemental and is not a substitute for financial information prepared in accordance with GAAP. In addition, our definitions for non-GAAP measures may differ from similarly titled measures used by other companies or analysts.

Segment Operating Profit / Margin

Segment Operating Profit represents operating profit from our business segments before unallocated income and expense. This measure is used by our senior management in evaluating the performance of our business segments and is a performance goal in our annual incentive plan. The caption "Total Unallocated Items" reconciles Segment Operating Profit to Consolidated Operating Profit. Segment Margin is calculated by dividing Segment Operating Profit by Net Sales.

In millions	2019	2018	2017
Net sales	\$ 59,812	\$ 53,762	\$ 49,960
Consolidated operating profit	\$ 8,545	\$ 7,334	\$ 6,744
Less: Total unallocated items	1,971	1,457	1,652
Business segment operating profit (Non-GAAP)	\$ 6,574	\$ 5,877	\$ 5,092
Consolidated operating margin	14.3%	13.6%	13.5%
Segment operating margin (Non-GAAP)	11.0%	10.9%	10.2%

GENERAL INFORMATION

As of December 31, 2019, there were approximately 25,770 holders of record of Lockheed Martin common stock and 281,234,932 shares outstanding.

TRANSFER AGENT, REGISTRAR AND DIVIDEND DISBURSING AGENT

Computershare Trust Company, N.A.

Shareholder Services

P.O. Box 505000

Louisville, KY 40233

Telephone: 1-877-498-8861

TDD for the hearing impaired: 1-800-952-9245

Internet: www.computershare.com/investor

Overnight correspondence should be mailed to:

Computershare Trust Company, N.A.

462 South 4th Street, Suite 1600

Louisville, KY 40202

ELECTRONIC DELIVERY

Stockholders are encouraged to enroll in electronic delivery to receive all stockholder communications, including proxy voting materials, electronically, by visiting Shareholder Services at www.lockheedmartin.com/investor

DIRECT STOCK PURCHASE AND DIVIDEND REINVESTMENT PLAN

Lockheed Martin Direct Invest is a convenient direct stock purchase and dividend reinvestment program available for new investors to make an initial investment in Lockheed Martin common stock and for existing stockholders to increase their holdings of Lockheed Martin common stock. For more information about Lockheed Martin Direct Invest, contact Computershare Trust Company, N.A. at 1-877-498-8861, or view plan materials online and enroll electronically at www.computershare.com/investor

INDEPENDENT AUDITORS

Ernst & Young LLP

1775 Tysons Boulevard

Tysons, VA 22102

Telephone: 703-747-1000

COMMON STOCK

Stock symbol: LMT

Listed: New York Stock Exchange (NYSE)

2019 FORM 10-K

Our 2019 Form 10-K is included in this Annual Report in its entirety with the exception of certain exhibits. All of the exhibits may be obtained on our Investor Relations homepage at www.lockheedmartin.com/investor or by accessing our filings with the U.S. Securities and Exchange Commission. In addition, stockholders may obtain a paper copy of any exhibit by writing to:

Gregory M. Gardner - Vice President, Investor Relations

Lockheed Martin Corporation

Investor Relations Department MP 279

6801 Rockledge Drive

Bethesda, MD 20817

Lockheed Martin financial data and requests for printed materials may also be obtained on our website at www.lockheedmartin.com/investor

Lockheed Martin Corporation
6801 Rockledge Drive
Bethesda, MD 20817
www.lockheedmartin.com

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