



Management's Discussion and Analysis

For the Three and Nine Months Ended September 30, 2019

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MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following management's discussion and analysis provides information that management believes is relevant to an assessment and understanding of the consolidated financial condition and results of operations of Golden Star Resources Ltd. and its subsidiaries ("Golden Star" or "the Company" or "we" or "our"). This Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") should be read in conjunction with the Company's condensed interim consolidated financial statements and related notes for the three and nine months ended September 30, 2019, which are prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board. This MD&A includes information available to, and is dated, October 30, 2019. Unless noted otherwise, all currency amounts are stated in U.S. dollars and all financial information presented in this MD&A is prepared in accordance with IFRS.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This MD&A contains "forward-looking information" within the meaning of applicable Canadian securities laws and "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 concerning the business, operations and financial performance and condition of Golden Star. Generally, forward-looking information and statements can be identified by the use of forward-looking terminology such as "plans", "expects", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", "believes" or variations of such words and phrases (including negative or grammatical variations) or statements that certain actions, events or results "may", "could", "would", "might" or "will be taken", "occur" or "be achieved" or the negative connotation or grammatical variation thereof. Forward-looking information and statements in this MD&A include, but are not limited to, information or statements with respect to: gold production, cash operating costs, and all-in sustaining costs estimates and guidance for 2019 on a consolidated basis; sustaining and development capital expenditure estimates and guidance for 2019 on a consolidated basis; the Company's achievement of 2019 consolidated guidance; expected grade and mine rates for 2019; planned exploration and drilling at Wassa and Prestea in the fourth quarter of 2019; expected management changes at the Company and its subsidiaries in the second half of 2019 and in the first half of 2020; the expected closing of the Company's Toronto office and relocation of the executive team; the evaluation of outcomes of Phase 2 design and schedule review of Prestea Underground by CSA Global for inclusion in the 2020 budget and guidance; the Company's debt servicing obligations for the remainder of 2019; the lower grade and lower mining rate at Prestea Underground for the remainder of 2019, partially offset by the extension of surface mining; lower grade at Wassa for the full year 2019 due to limited stope grade definition drilling and low mine plan flexibility, offset by an increase in ore tonnes mined; losses at Prestea during the remainder of 2019; the ability of Wassa to offset losses at Prestea; the outcome of the third party review of Prestea Underground and its operations; the timing for completion of the concept study at Father Brown and the results thereof and the sufficiency of cash available, operations and Credit Facility (as defined herein) to support the Company's operations and mandatory expenditures for the next twelve months.

Forward-looking information and statements are made based upon certain assumptions and other important factors that, if untrue, could cause the actual results, performance or achievements of Golden Star to be materially different from future results, performance or achievements expressed or implied by such statements. Such statements and information are based on numerous assumptions regarding present and future business strategies and the environment in which Golden Star will operate in the future, including the price of gold, anticipated costs and ability to achieve goals. Certain important factors that could cause actual results, performances or achievements to differ materially from those set forth in the forward-looking information and statements include, among others, gold price volatility, discrepancies between actual and estimated production, mineral reserves and resources and metallurgical recoveries, mining operational and development risks, litigation risks, liquidity risks, suppliers suspending or denying delivery of products or services, regulatory restrictions (including environmental regulatory restrictions and liability), actions by governmental authorities (including changes in taxation), currency fluctuations, the speculative nature of gold exploration, the global economic climate, dilution, share price volatility, the availability of capital on reasonable terms or at all, local and community impacts and issues, results of pending or future feasibility studies, competition, loss of key employees, additional funding requirements and defective title to mineral claims or property. Although Golden Star has attempted to identify important factors that could cause actual results, performance or achievements to differ materially from those described in forward-looking information and statements, there may be other factors that cause actual results, performance or achievements not to be as anticipated, estimated or intended.

Forward-looking information and statements are subject to known and unknown risks, uncertainties and other important factors that may cause the actual results, performance or achievements of Golden Star to be materially different from those expressed or implied by such forward-looking information and statements, including but not limited to: risks related to international operations, including economic and political instability in foreign jurisdictions in which Golden Star operates; risks related to current global financial conditions; actual results of current exploration activities; environmental risks; future prices of gold; possible variations in mineral reserves and mineral resources, grade or recovery rates; mine development and operating risks; an inability to obtain power for operations on favourable terms or at all; mining plant or equipment breakdowns or failures; an inability to obtain products or services for operations or mine development from vendors and suppliers on reasonable terms, including pricing, or at all;

accidents, labor disputes and other risks of the mining industry; delays in obtaining governmental approvals or financing or in the completion of development or construction activities; risks related to indebtedness and the service of such indebtedness, as well as those factors discussed in the section entitled "Risk Factors" in Golden Star's Annual Information Form for the year ended December 31, 2018 (filed on March 29, 2019). Although Golden Star has attempted to identify important factors that could cause actual results, performances and achievements to differ materially from those contained in forward-looking information and statements, there may be other factors that cause results, performance and achievements not to be as anticipated, estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results, performance, and achievements and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information and statements. Forward-looking information and statements are made as of the date hereof and accordingly are subject to change after such date. Except as otherwise indicated by Golden Star, these statements do not reflect the potential impact of any non-recurring or other special items or of any dispositions, monetizations, mergers, acquisitions, other business combinations or other transactions that may be announced or that may occur after the date hereof. Forward-looking information and statements are provided for the purpose of providing information about management's current expectations and plans and allowing investors and others to get a better understanding of the Company's operating environment. Golden Star does not undertake to update any forward-looking information and statements that are included in this MD&A, except as required by applicable securities laws.

CAUTIONARY NOTE REGARDING RESERVES AND RESOURCES

Scientific and technical information contained in this MD&A was reviewed and approved by S. Mitchel Wasel, BSc Geology, who is a Qualified Person pursuant to National Instrument 43-101 ("NI 43-101"). Mr. Wasel is Vice President Exploration for Golden Star and an active member of the Australasian Institute of Mining and Metallurgy. All mineral reserves and mineral resources have been calculated in accordance with the standards of the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") and in compliance with the requirements of NI 43-101. All mineral resources are reported inclusive of mineral reserves. Mineral resources which are not mineral reserves do not have demonstrated economic viability. Information on data verification performed on, and other scientific and technical information relating to, the mineral properties mentioned in this MD&A that are considered to be material mineral properties of the Company are contained in Golden Star's Annual Information Form for the year ended December 31, 2018 and the following current technical reports for those properties available at www.sedar.com: (i) Wassa - "NI 43-101 Technical Report on Resources and Reserves, Golden Star Resources, Wassa Gold Mine, Ghana" effective date December 31, 2018; and (ii) Prestea Underground - "NI 43-101 Technical Report on Resources and Reserves, Golden Star Resources, Bogoso/Prestea Gold Mine, Ghana" effective date December 31, 2017.

Cautionary Note to U.S. Investors

This MD&A has been prepared in accordance with the requirements of the securities laws in effect in Canada, which differ materially from the requirements of United States securities laws applicable to U.S. companies. Information concerning our mineral properties has been prepared in accordance with the requirements of Canadian securities laws, which differ in material respects from the requirements of the United States Securities and Exchange Commission (the "SEC") set forth in Industry Guide 7. Under the SEC's Industry Guide 7, mineralization may not be classified as a "reserve" unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time of the reserve determination, and the SEC does not recognize the reporting of mineral deposits which do not meet the SEC Industry Guide 7 definition of "Reserve". In accordance with NI 43-101, the terms "mineral reserve", "proven mineral reserve", "probable mineral reserve", "mineral resource", "measured mineral resource", "indicated mineral resource" and "inferred mineral resource" are defined in accordance with CIM standards. While the terms "mineral resource", "measured mineral resource", "indicated mineral resource" and "inferred mineral resource" are recognized and required by NI 43-101, the SEC does not recognize them. You are cautioned that, except for that portion of mineral resources classified as mineral reserves, mineral resources do not have demonstrated economic viability. Inferred mineral resources have a high degree of uncertainty as to their existence and as to whether they can be economically or legally mined. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Therefore, you are cautioned not to assume that all or any part of an inferred mineral resource exists, that it can be economically or legally mined, or that it will ever be upgraded to a higher category. Likewise, you are cautioned not to assume that all or any part of measured mineral resources or indicated mineral resources will ever be upgraded into mineral reserves.

OVERVIEW OF GOLDEN STAR

Golden Star is an established, African-focused gold producer that holds a 90% interest in two producing gold mines in Ghana.

The Wassa Complex (“Wassa”) became an underground-only operation in January 2017. The Prestea Complex (“Prestea”) comprises the Prestea Open Pits and the Prestea Underground Mine (“Prestea Underground”) and is planned to become an underground-only operation. The Wassa Underground Mine (“Wassa Underground”) achieved commercial production on January 1, 2017, and Prestea Underground achieved commercial production on February 1, 2018.

Golden Star’s objective is to grow into a best-in-class, mid-tier gold producer. We aim to expand the Company and its production profile through the exploration and development of our existing mines, particularly Wassa, and through strategic value accretive acquisitions.

As the winner of the Prospectors & Developers Association of Canada 2018 Environmental and Social Responsibility Award, we are committed to leaving a positive and sustainable legacy in the locations where we operate.

The Company is a reporting issuer or the equivalent in all provinces of Canada, in Ghana and in the United States, and files disclosure documents with securities regulatory authorities in Canada and Ghana, and with the SEC in the United States.

SUMMARY OF OPERATING AND FINANCIAL RESULTS

		Three Months Ended September 30,		Nine Months Ended September 30,	
		2019	2018	2019	2018
OPERATING SUMMARY					
Wassa gold sold	oz	33,875	38,295	114,599	112,397
Prestea gold sold	oz	14,663	19,364	36,177	64,181
Total gold sold	oz	48,538	57,659	150,776	176,578
Wassa gold produced	oz	34,565	38,097	114,831	112,135
Prestea gold produced	oz	14,827	19,016	36,267	63,803
Total gold produced	oz	49,392	57,113	151,098	175,938
Average realized gold price ¹	\$/oz	1,432	1,175	1,318	1,236
Cost of sales per ounce - Consolidated ²	\$/oz	1,108	998	1,046	1,102
Cost of sales per ounce - Wassa ²	\$/oz	923	817	818	919
Cost of sales per ounce - Prestea ²	\$/oz	1,536	1,355	1,767	1,433
Cash operating cost per ounce - Consolidated ²	\$/oz	888	780	832	831
Cash operating cost per ounce - Wassa ²	\$/oz	732	613	639	634
Cash operating cost per ounce - Prestea ²	\$/oz	1,249	1,110	1,442	1,188
All-in sustaining cost per ounce - Consolidated ²	\$/oz	1,233	994	1,135	1,077
All-in sustaining cost per ounce - Wassa ²	\$/oz	1,061	805	909	885
All-in sustaining cost per ounce - Prestea ²	\$/oz	1,630	1,367	1,852	1,424

¹ Average realized gold price per ounce in the nine months ended September 30, 2018 excludes 2,049 pre-commercial production ounces sold at Prestea Underground in January 2018.

² See “Non-GAAP Financial Measures” section for a reconciliation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce to cost of sales excluding depreciation and amortization.

FINANCIAL SUMMARY		Three Months Ended September 30,		Nine Months Ended September 30,	
		2019	2018 ³	2019	2018 ³
Gold revenues	\$'000	69,504	67,738	198,676	215,678
Cost of sales excluding depreciation and amortization	\$'000	46,798	48,873	137,108	166,164
Depreciation and amortization	\$'000	6,979	8,659	20,590	26,115
Mine operating margin	\$'000	15,727	10,206	40,978	23,399
General and administrative expense	\$'000	5,491	6,166	19,101	14,184
(Gain)/loss on fair value of financial instruments, net	\$'000	(4,793)	629	(1,344)	(3,512)
Income tax expense	\$'000	5,244	4,151	17,724	10,825
Net income/(loss) attributable to Golden Star shareholders	\$'000	5,960	(3,178)	(5,000)	(8,805)
Adjusted net income attributable to Golden Star shareholders ¹	\$'000	6,961	3,011	17,227	3,295
Income/(loss) per share attributable to Golden Star shareholders - basic	\$/share	0.05	(0.04)	(0.05)	(0.12)
Income/(loss) per share attributable to Golden Star shareholders - diluted	\$/share	0.02	(0.04)	(0.05)	(0.12)
Adjusted income per share attributable to Golden Star shareholders - basic ¹	\$/share	0.06	0.04	0.16	0.04
Cash provided by operations	\$'000	8,137	10,771	9,730	17,121
Cash provided by operations before working capital changes ²	\$'000	11,898	7,947	27,397	19,033
Cash provided by operations per share - basic	\$/share	0.07	0.14	0.09	0.22
Cash provided by operations before working capital changes per share - basic ²	\$/share	0.11	0.10	0.25	0.25
Capital expenditures	\$'000	16,950	9,784	47,085	31,554

¹ See “Non-GAAP Financial Measures” section for a reconciliation of adjusted net income attributable to Golden Star shareholders and adjusted income per share attributable to Golden Star shareholders-basic to net income/(loss) attributable to Golden Star shareholders.

² See “Non-GAAP Financial Measures” section for an explanation of the calculation of cash provided by operations before working capital changes and cash provided by operations before working capital changes per share - basic.

³ Per share data has been re-stated to reflect the share consolidation that was implemented on October 30, 2018.

- Gold revenue totaled \$69.5 million in the third quarter of 2019, compared to \$67.7 million in the same period in 2018.** Gold revenue for the third quarter of 2019 was \$1.8 million or 3% higher than the same period in 2018, due to a 22% increase in the consolidated average realized gold price, offset by a 16% decrease in gold sold. Gold revenue generated from Prestea decreased 7% mainly due to a 41% decrease in ounces produced from Prestea Underground as a result of lower than planned grade due to a combination of excessive dilution and ore loss, offset by a 23% increase in average realized gold price. Gold revenue generated from Wassa increased by 7% due to a 21% increase in average realized gold price, offset by a 12% decrease in gold sold as a result of a 23% decrease in grade as compared to prior year. For the nine months ended September 30, 2019, gold revenue was \$198.7 million, a 8% decrease compared to \$215.7 million in the same period in 2018 due to a decrease in gold revenue at Prestea, offset by an increase at Wassa primarily a result of increased gold production from Wassa Underground.
- Gold sales totaled 48,538 ounces in the third quarter of 2019, compared to 57,659 ounces sold in the same period in 2018.** Gold sales in the third quarter of 2019 decreased 16% from the same period in 2018 as a result of a decrease in gold sales from both Prestea and Wassa. Prestea gold sales of 14,663 ounces in the third quarter of 2019 were 24% lower than the same period in 2018 due primarily to the lower than planned grade at Prestea Underground due to a combination of excessive dilution and ore loss. Production rates at Prestea Underground continue to be lower than expected and have not been able to offset the lower production at the Prestea Open Pits as planned. Wassa gold sales of 33,875 ounces in the third quarter of 2019 were 12% lower than the same period in 2018 as a result of a 23% decrease in underground grade processed. For the nine months ended September 30, 2019, gold sales of 150,776 ounces were 15% lower than the 176,578 ounces sold in the same period in 2018 due to a decrease in production at Prestea as a result of the planned reduction from the Prestea Open Pits and lower than planned head grade at Prestea Underground due to a combination of excessive dilution and ore loss. This was offset by a slight increase in production at Wassa which was primarily due to an increase in Wassa Underground tonnes mined and processed.
- Cost of sales excluding depreciation and amortization in the third quarter of 2019 totaled \$46.8 million compared to \$48.9 million in the same period in 2018.** Cost of sales excluding depreciation and amortization in the third quarter of 2019 decreased 4% compared to the same period in 2018 due mainly to a \$1.2 million decrease in operating costs to metals inventory

expense, as Wassa drew down less on ore stockpiles during the period. Mine operating expenses decreased \$0.7 million mainly due to reduced production from the Prestea Open Pits, offset partially by higher costs associated with increased mining rates at Wassa Underground. Inventory net realizable value adjustments and write-offs decreased \$0.4 million primarily as a result of the materials and supplies inventories written off at Wassa in the prior period related to open pit mining. Royalty expense increased \$0.2 million due to higher gold revenue in the period as a result of a higher average realized gold price. For the nine months ended September 30, 2019, cost of sales excluding depreciation and amortization was \$137.1 million, a 17% decrease compared to \$166.2 million in the same period in 2018. The decrease is mainly due to a decrease in mine operating costs at Prestea as production decreased compared to the same period in 2018 and a decrease at Wassa due to the suspension of the Wassa surface mining operation in the prior year.

- Consolidated cost of sales per ounce was \$1,108 in the third quarter of 2019, 11% higher than \$998 in the same period in 2018. Consolidated cash operating cost per ounce was \$888 in the third quarter of 2019, 14% higher than \$780 in the same period in 2018.** Cash operating cost per ounce at Wassa increased 19% in the third quarter of 2019 as gold sold was lower compared to the same period in 2018 and mine operating expense increased due to an increase in total tonnes mined, as Wassa Underground has steadily increased its mining rates. Cash operating cost per ounce at Prestea increased 13% due mainly to a decrease in gold sold during the period, offset partially by a decrease in mine operating expenses. Production rates at Prestea Underground continue to be lower than expected and have not been able to offset the lower production at the Prestea Open Pits as planned. Cash operating cost per ounce at Prestea has improved in the third quarter of 2019 compared to the prior two quarters and is the best quarter this year. Cash operating cost per ounce decreased 26% compared to the second quarter of 2019, and decreased 24% compared to the first quarter of 2019. For the nine months ended September 30, 2019, consolidated cash operating cost per ounce of \$832 remained consistent compared to \$831 per ounce in the same period in 2018.
- Depreciation and amortization expense totaled \$7.0 million in the third quarter of 2019 compared to \$8.7 million in the same period in 2018.** For the nine months ended September 30, 2019, depreciation and amortization expense was \$20.6 million, a 21% decrease compared to \$26.1 million in the same period in 2018. The decrease in depreciation and amortization expense for the three and nine months ended September 30, 2019 was due to decreases at both Wassa and Prestea. Wassa depreciation decreased mainly due to an increase in the total recoverable gold ounces over the life of mine of Wassa Underground, while Prestea depreciation decreased due to a decrease in gold production.
- General and administrative expense totaled \$5.5 million in the third quarter of 2019, compared to \$6.2 million in the same period in 2018.** The decrease in general and administrative expense for the third quarter of 2019 was due primarily to a decrease in share-based compensation expense compared to the same period in 2018. Share-based compensation expense decreased in the period as the final Performance Share Units ("PSU") vested in December 2018, therefore the Company did not recognize a PSU expense in the current period. General and administrative expense, excluding share-based compensation and termination costs related to the change in senior management in 2019, totaled \$4.6 million compared to \$4.0 million in the same period in 2018. For the nine months ended September 30, 2019, general and administrative expense totaled \$19.1 million compared to \$14.2 million in the same period in 2018. The increase relates primarily to the \$4.0 million termination costs related to the change in senior management in 2019, and an increase in professional and consulting fees compared to the same period in 2018.
- Finance expense totaled \$3.9 million in the third quarter of 2019, compared to \$4.1 million in the same period in 2018.** The decrease in finance expense for the third quarter of 2019 was due primarily to a \$0.3 million decrease in Ecobank loan interest. For the three months ended September 30, 2019 a total of \$2.6 million in interest payments were made, compared to \$2.9 million in the same period in 2018. For the nine months ended September 30, 2019, finance expense totaled \$11.1 million compared to \$14.3 million in the same period in 2018. The decrease was mainly due to a \$1.6 million decrease in Royal Gold loan interest and amortization of Royal Gold loan financing fee as the loan was fully paid in the prior year, in addition to a \$0.6 million increase in foreign exchange gain. For the nine months ended September 30, 2019, a total of \$6.4 million in interest payments were made, compared to \$6.8 million in the same period in 2018.
- The Company recorded a gain of \$4.8 million on fair value of financial instruments in the third quarter of 2019 compared to a \$0.6 million loss in the same period in 2018.** The \$4.8 million gain consists of \$4.5 million related to a non-cash revaluation gain on the embedded derivative liability of the 7% Convertible Debentures and \$0.3 million related to a non-cash revaluation gain on the non-hedge derivative asset. The \$0.6 million fair value loss recognized in the third quarter of 2018 was related to a non-cash revaluation loss on the embedded derivative liability of the 7% Convertible Debentures. For the nine months ended September 30, 2019, the Company recorded a \$1.3 million gain on fair value of financial instruments, compared to a \$3.5 million gain in the same period in 2018. The \$1.3 million gain consists of \$1.0 million related to a non-cash revaluation gain on the embedded derivative liability of the 7% Convertible Debentures and \$0.3 million related to a non-cash revaluation gain on the non-hedge derivative asset. The valuation techniques used for these financial instruments are disclosed in the "Financial Instruments" section of this MD&A.

- **Income tax expense was \$5.2 million in the third quarter of 2019 compared to \$4.2 million for the same period in 2018.** For the nine months ended September 30, 2019, income tax expense was \$17.7 million, compared to \$10.8 million in the same period in 2018. The increase in income tax expense for the three and nine months ended September 30, 2019 compared to the same periods in 2018 relates to the increase in mine operating margin at Wassa.
- **Net income attributable to Golden Star shareholders for the third quarter of 2019 totaled \$6.0 million or \$0.05 income per share (basic), compared to a net loss of \$3.2 million or \$0.04 loss per share (basic) in the same period in 2018.** The increase in net income and income per share attributable to Golden Star shareholders in the third quarter of 2019 was mainly due to a \$5.5 million increase in mine operating margin, a \$0.7 million decrease in general and administrative expenses, and a \$5.4 million increase in fair value gain on financial instruments. For the nine months ended September 30, 2019, net loss attributable to Golden Star shareholders totaled \$5.0 million or \$0.05 loss per share (basic), compared to a net loss of \$8.8 million or \$0.12 loss per share (basic) in the same period in 2018. The decrease in loss is mainly due to a \$17.6 million increase in mine operating margin, offset by a \$4.9 million increase in general and administration expenses, a \$6.9 million increase in income tax expense, and a \$2.2 million decrease in fair value gain on financial instruments.
- **Adjusted net income attributable to Golden Star shareholders (see “Non-GAAP Financial Measures” section) was \$7.0 million in the third quarter of 2019, compared to adjusted net income attributable to Golden Star shareholders of \$3.0 million for the same period in 2018.** The increase in adjusted net income attributable to Golden Star shareholders for the third quarter of 2019 compared to the same period in 2018 was primarily due to a \$5.5 million increase in mine operating margin, and a decrease in share-based compensation expense compared to the same period in 2018. For the nine months ended September 30, 2019, the adjusted net income attributable to Golden Star shareholders was \$17.2 million compared to \$3.3 million for the same period in 2018. The increase in adjusted net income attributable to Golden Star shareholders was mainly due to a \$17.6 million increase in mine operating margin and decrease in finance expense, offset by an increase in general and administrative expenses (excluding share-based compensation).
- **Cash provided by operations before working capital changes (see “Non-GAAP Financial Measures” section) was \$11.9 million for the third quarter of 2019, compared to \$7.9 million in the same period in 2018.** The increase in cash provided by operations before working capital changes was due primarily to a \$5.5 million increase in mine operating margin. For the nine months ended September 30, 2019, cash provided by operations before working capital changes was \$27.4 million compared to \$19.0 million in the same period in 2018. The increase was primarily due to a \$17.6 million increase in mine operating margin, partially offset by an increase in consolidated general and administrative expense (excluding share-based compensation).
- **Capital expenditures for the third quarter of 2019 totaled \$17.0 million compared to \$9.8 million in the same period in 2018.** Capital expenditures at Wassa during the third quarter of 2019 comprised 81% of total capital expenditures and totaled \$13.8 million, which included \$4.2 million on exploration drilling, \$3.0 million on Wassa Underground capitalized development, \$2.0 million on mobile equipment, \$0.3 million on the construction of a ventilation raise, \$0.7 million related to the tailings storage facility, \$1.5 million on the paste-fill plant and the remainder on other equipment and capital expenditures. Capital expenditures at Prestea during the third quarter of 2019 comprised 19% of total capital expenditures and totaled \$3.2 million, which included \$1.7 million on sustaining capital related to Prestea Underground, \$0.2 million on exploration drilling and \$1.4 million on other equipment and capital expenditures.

OUTLOOK FOR 2019

Production and cost guidance

Consolidated gold production for 2019 is expected to be in the range of 190,000 to 205,000 ounces. Consolidated cash operating cost per ounce is expected to be in the range of \$800 to \$850 for 2019. Consolidated all-in sustaining cost per ounce is expected to be in the range of \$1,100 to \$1,200 for 2019.

Production and cost guidance for 2019:

	Gold production	Cash operating costs	All-in sustaining costs
	thousands of ounces	\$ per ounce	\$ per ounce
Wassa	150 - 160	600 - 650	880 - 940
Prestea	40 - 45	1,450 - 1,650	1,900 - 2,150
Consolidated	190 - 205	800 - 850	1,100 - 1,200

Capital expenditure guidance

Capital expenditure guidance for 2019:

	Sustaining	Development	Total
	\$ millions	\$ millions	\$ millions
Wassa	20.7	18.1	38.8
Prestea	9.5	—	9.5
Exploration	—	13.4	13.4
Consolidated	30.2	31.5	61.7

CORPORATE DEVELOPMENTS

Gold prices

Spot gold prices were \$1,485 per ounce at September 30, 2019, up from \$1,282 per ounce at December 31, 2018. The Company realized an average gold price of \$1,432 per ounce for gold sales during the third quarter of 2019, compared to an average realized gold price of \$1,175 per ounce for the same period in 2018. The spot gold price on October 30, 2019 was \$1,487 per ounce.

Revenue from spot sales during the third quarter of 2019 resulted in an average realized gold price of \$1,483 per ounce whereas revenue recognized from the gold purchase and sale agreement (the “Streaming Agreement”) with RGLD Gold AG, a wholly-owned subsidiary of Royal Gold Inc., resulted in an average realized gold price of \$909 per ounce.

	Three Months Ended September 30, 2019		
	\$'000	Ounces	Realized price per ounce
Revenue - Stream arrangement			
Cash proceeds	\$ 1,273		
Deferred revenue recognized	2,645		
	\$ 3,918	4,309	\$ 909
Revenue - Spot sales	65,586	44,229	1,483
Total	69,504	48,538	\$ 1,432

Relocation of Corporate Office and Changes to Executive Team

On October 22, 2019, the Company announced that it plans to close its Toronto office by April 30, 2020 and that its executive team will be located in London, England. André van Niekerk, Executive Vice President and Chief Financial Officer, has decided not to accept the offer to move to London and expects to leave the Company by April 30, 2020.

In addition to the above changes, two other appointments have been made to the executive team. Nathalie Lion Haddad has recently joined as Executive Vice President, Head of People. Nathalie was previously with Sherritt International Corporation where she was Vice President, Human Resources. Secondly, effective November 1, 2019, Peter Spora will be joining as Executive Vice President, Growth & Exploration. Peter is currently in the role of Head of Discovery at La Mancha and was previously Head of Discovery at Acacia Mining plc.

\$60 Million Secured Credit Facility

On October 17, 2019, the Company reported that it closed the \$60 million senior secured credit facility with Macquarie Bank Limited (the "Credit Facility") previously announced on July 31, 2019.

Golden Star has used the proceeds to repay the Ecobank Loan III, Ecobank Loan IV, and the long-term payable under the Vendor Agreement with Volta River Authority. The remaining balance is available for general corporate purposes.

The Credit Facility is repayable as to \$5 million quarterly, commencing on June 30, 2020. The final maturity date is March 31, 2023. The interest rate is 4.5% plus the applicable USD LIBOR rate. The Credit Facility is subject to normal course financial covenants including a Debt Service Coverage Ratio of greater than 1.20:1 and a Net Debt to EBITDA ratio of less than 3.00:1.

Consent to La Mancha to Acquire Additional Shares

On September 10, 2019, the Company announced that La Mancha Holding S.à.r.l. ("La Mancha") had requested its consent to La Mancha acquiring up to an additional 5% of the issued and outstanding common shares of the Company through ordinary market or block trade purchases.

The Investor Rights Agreement entered into between Golden Star and La Mancha on August 1, 2018 in connection with La Mancha's equity investment of US\$125.7 million to acquire a 30% stake in Golden Star, restricted La Mancha from acquiring any additional common shares beyond 30% until October 2020 without the prior consent of Golden Star. The Company consented to La Mancha acquiring up to an additional 5% of its issued and outstanding common shares.

Ani Markova Appointed to Board of Directors

On September 5, 2019, the Company announced that Ms. Ani Markova, MBA, CFA, CDI.D had been appointed to the Board of Directors. Ms. Markova replaced Graham Crew as a nominee of La Mancha on the Board of Directors following Mr. Crew's appointment as Chief Operating Officer of Golden Star.

Gold Hedging Program

On August 8, 2019, the Company reported that the Company had established a discretionary gold price protection program (the "Hedging Program") to provide gold price protection for the projected production from the Prestea Mine over the next 12 months as the results of the ongoing operational review that has been implemented at the operation.

Zero cost collars, with a \$1,400/oz floor and a \$1,750/oz ceiling, have been put into place for 50,000 ounces of gold over a 12-month period. The gold hedges, arranged through Macquarie Bank Limited, will mature on a monthly basis at a frequency of approximately 4,167 ounces per month.

In the third quarter of 2019, the Company recognized an unrealized gain of \$0.3 million on the non-hedge accounted collar contracts.

Exploration Update

Wassa

During the third quarter, the surface drilling of the Southern extensions of the Wassa Underground mine continued and were completed mid-September. A total of 22 holes were completed in the third quarter with 12,636 metres being drilled. The 2019 drilling programs at Wassa resulted in an additional 59 holes for approximately 45,000 metres. With this year's surface drilling program at Wassa now completed, the Company's geologists and consultants have commenced the geological interpretations. The new geological interpretations will be used for mineral resource estimations that will be updated for year-end resource and reserve statements. The drilling to date at Wassa has three goals, conversion of inferred resources to indicated resources, definition and expansion of current inferred resources. Results have been successful in converting portions of the inferred resources to indicated resources as well as better defining mineralization at depth and within the hanging and footwall of the main B Shoot mineralization. Deeper drilling into the wide zones of mineralization at depth has shown that instead of a single high grade mineralized zone there are now four sub parallel zones. This new understanding will be incorporated into the next resource grade estimation.

Father Brown

Drilling was completed on the Father Brown project in the second quarter of 2019, totaling 28 holes for 14,500 metres. The drill results have been used to update a conceptual resource model which in turn is currently being utilized by consultants to evaluate the potential economics of the project. Should the economics of the concept study demonstrate positive economics, further work on the project would be justified, however further drilling would be required before the project can progress. The results of the concept study are scheduled to be completed in the fourth quarter of 2019.

Prestea Underground

During the third quarter, 8 additional holes were drilled totaling 1,486 metres. Most of this drilling was infill drilling to the North of the existing stopes on 24 level. Upon completion of this drilling a new resource block model has been created and this will be the basis for a new mine plan which is currently being developed with the assistance of a consultant. The updated resources and reserves will be disclosed in the year-end Mineral Resource and Reserve statements.

Independent Operational Review of Prestea

CSA Global were selected to undertake an independent review of the underground operations at Prestea. The initial findings of this review indicated sufficient confidence in the mineral resource, infrastructure and available skills for Prestea to be a sustainable and profitable gold mine in the medium to long term. Following the initial review, Phase 2 was initiated to assess how to incorporate some of the key recommendations into the life of mine, such as introducing a complementary mining method to the Alimak stoping and reducing the height of the Alimak stopes to improve dilution and increase infill drilling. To begin the process of estimating the capital cost and time frame required to implement these changes, CSA and the Prestea site team have designed a conceptual

mine plan (scoping level) including the recommendations above. The conceptual mine plan confirms that Prestea is expected to be a sustainably profitable mine with a combination of the Alimak mining method and sub-level open stoping method, and ore/waste handling system underground and at surface. The Company is now refining this high level mine plan and expects an updated life of mine plan in early 2020.

After the initial stage of CSA's review, Project Okode (Eagle) was established involving the site management and technical and operations personnel to fully plan, prioritize and implement CSA recommended short term operational improvements and site initiatives with a focus on mining and maintenance. A number of low cost initiatives identified in the review have progressed to the planning and implementation stages, including tighter spaced definition drilling, equipment selection for Alimak set up, critical spares analysis, consumables monitoring and reduction, improved communication and planning (for maintenance, mining and inter-departmental), and optimized shaft and personnel scheduling. Overall, the objectives of Project Okode are to improve equipment availability, reduce Alimak cycle time, increase labour utilisation and reduce operating costs.

WASSA OPERATIONS

Through a 90% owned subsidiary, Golden Star (Wassa) Limited, the Company owns and operates the Wassa Complex. Wassa is located in the southwestern region of Ghana, approximately 35 kilometers northeast of the town of Tarkwa. In 2018, Golden Star operated the Wassa Main Pit (an open pit operation) and Wassa Underground (an underground operation). As of February 1, 2018, Wassa became an underground-only operation. Wassa has a non-refractory processing plant (the “Wassa processing plant”) consisting of a carbon-in-leach (“CIL”) system with a capacity of 2.7 million tonnes per annum. In the first half of 2018, ore from both the Wassa Main Pit and Wassa Underground was processed at the Wassa processing plant, while in the first half of 2019 ore from Wassa Underground and stockpiles was processed at the Wassa processing plant.

		Three Months Ended September 30,		Nine Months Ended September 30,	
		2019	2018	2019	2018
WASSA FINANCIAL RESULTS					
Revenue	\$'000	48,384	45,029	150,269	138,969
Mine operating expenses	\$'000	25,040	21,694	72,540	64,872
Severance charges	\$'000	—	—	225	4,970
Royalties	\$'000	2,579	2,309	7,817	7,192
Operating costs (to)/from metals inventory	\$'000	(246)	1,770	713	6,395
Inventory net realizable value adjustment and write-off	\$'000	—	232	—	3,335
Cost of sales excluding depreciation and amortization	\$'000	27,373	26,005	81,295	86,764
Depreciation and amortization	\$'000	3,879	5,284	12,477	16,473
Mine operating margin	\$'000	17,132	13,740	56,497	35,732
Capital expenditures	\$'000	13,768	7,033	38,456	21,522
WASSA OPERATING RESULTS					
Ore mined - Main Pit	t	—	—	—	54,281
Ore mined - Underground	t	406,922	313,369	1,045,784	765,714
Ore mined - Total	t	406,922	313,369	1,045,784	819,995
Waste mined - Main Pit	t	—	—	—	72,538
Waste mined - Underground	t	106,700	73,327	241,143	219,977
Waste mined - Total	t	106,700	73,327	241,143	292,515
Ore processed - Main Pit/Stockpiles	t	27,470	77,386	120,299	433,455
Ore processed - Underground	t	399,910	316,907	1,038,772	765,714
Ore processed - Total	t	427,380	394,293	1,159,071	1,199,169
Grade processed - Main Pit/Stockpiles	g/t	0.64	0.65	0.64	0.80
Grade processed - Underground	g/t	2.84	3.69	3.50	4.33
Recovery	%	95.4	95.8	95.6	95.7
Gold produced - Main Pit/Stockpiles	oz	514	1,580	2,512	10,585
Gold produced - Underground	oz	34,051	36,517	112,319	101,550
Gold produced - Total	oz	34,565	38,097	114,831	112,135
Gold sold - Main Pit/Stockpiles	oz	56	1,778	2,512	10,847
Gold sold - Underground	oz	33,819	36,517	112,087	101,550
Gold sold - Total	oz	33,875	38,295	114,599	112,397
Cost of sales per ounce ¹	\$/oz	923	817	818	919
Cash operating cost per ounce ¹	\$/oz	732	613	639	634
All-in sustaining cost per ounce ¹	\$/oz	1,061	805	909	885

¹ See “Non-GAAP Financial Measures” section for a reconciliation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce to cost of sales excluding depreciation and amortization.

For the three months ended September 30, 2019 compared to the three months ended September 30, 2018

Production

Gold production from Wassa was 34,565 ounces for the third quarter of 2019, a 9% decrease from the 38,097 ounces produced during the same period in 2018. This decrease in production was primarily due to a decrease in grade and recovery compared to the same period in 2018.

Wassa Underground

Wassa Underground produced 34,051 ounces of gold (or approximately 99% of Wassa's total production) in the third quarter of 2019, compared to 36,517 ounces in the same period in 2018 (or approximately 96% of Wassa's total production). This 7% decrease in production was as a result of a 23% decrease in grade due to limited flexibility with the mine plan, offset by a 30% increase in ore tonnes mined and 26% increase in ore tonnes processed, resulting from productivity improvements. Mining rates at Wassa Underground increased to approximately 4,420 tpd on average in the third quarter of 2019 compared to approximately 3,410 tpd in the same period in 2018. Underground ore processed increased 26% to 399,910 tonnes in the third quarter of 2019 compared to 316,907 tonnes in the same period in 2018.

Wassa Main Pit/Stockpiles

Wassa Main Pit produced 514 ounces in the third quarter of 2019, compared to 1,580 ounces in the same period in 2018. This decrease in production is a result of a 65% decrease in stockpile ore tonnes processed as well as a 2% decrease in stockpile ore grade processed compared to the same period in 2018.

Gold revenue

Gold revenue for the third quarter of 2019 was \$48.4 million, an increase of 7% from \$45.0 million in the same period in 2018 due to a 21% increase in average realized gold price, offset by a decrease in gold sold. The average realized gold price was \$1,428 per ounce for the third quarter of 2019 compared to \$1,176 per ounce in the same period in 2018. Gold sold decreased 12% to 33,875 ounces for the third quarter of 2019, compared to 38,295 ounces in the same period in 2018. The decrease was primarily due to a decrease in grade and recovery compared to the same period in 2018.

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$27.4 million for the third quarter of 2019, compared to \$26.0 million for the same period in 2018. The increase was due primarily to a \$3.3 million increase in mine operating expenses, resulting from an increase in total tonnes mined, as Wassa Underground has steadily increased its mining rates, and a \$0.3 million increase in royalty expense due to higher gold revenue. Partially offsetting these increases was a \$2.0 million decrease in operating costs from metals inventory, and a \$0.2 million decrease in inventory net realizable value adjustment and write-off as materials and supplies inventories related to open pit mining were written off in the same period in 2018.

Depreciation and amortization

Depreciation and amortization expense decreased to \$3.9 million for the third quarter of 2019, compared to \$5.3 million for the same period in 2018 due mainly to an increase in the total recoverable gold ounces over the life of mine of Wassa Underground.

Costs per ounce

Cost of sales per ounce increased 13% to \$923 for the third quarter of 2019 from \$817 in the same period in 2018. Cash operating cost per ounce increased 19% to \$732 from \$613 for the same period in 2018. The higher cash operating costs per ounce in the third quarter of 2019 compared to the same period in 2018 were primarily a result of a decrease in gold sold and an increase in mine operating expenses. All-in sustaining cost per ounce increased 32% to \$1,061 from \$805 for the same period in 2018 mainly due to an increase in sustaining capital expenditures.

Capital expenditures

Capital expenditures for the third quarter of 2019 totaled \$13.8 million compared with \$7.0 million incurred during the same period in 2018. The increase in capital expenditures was due primarily to an increase of \$2.8 million in exploration drilling, a \$0.3 million increase related to the construction of a ventilation raise, a \$0.7 million increase related to the tailing storage facility and a \$1.5 million increase related to the paste-fill plant. Offsetting these increases was a \$0.1 million decrease in capitalized development related to a decrease in development meters compared to the same period in 2018.

For the nine months ended September 30, 2019 compared to the nine months ended September 30, 2018

Production

Gold production from Wassa was 114,831 ounces for the nine months ended September 30, 2019, a 2% increase from the 112,135 ounces produced in 2018. This increase in production was due to the Wassa Underground mine as tonnes mined and processed increased compared to the same period in 2018. As of February 1, 2018, Wassa became an underground-only mining operation, however, open pit stock piled ore continued to be processed throughout the year.

Wassa Underground

Wassa Underground produced 112,319 ounces of gold (or approximately 98% of Wassa's total production) for the nine months ended September 30, 2019, compared to 101,550 ounces in 2018 (or approximately 91% of Wassa's total production). This 11% increase in production was related to increased tonnes mined and processed, resulting from productivity improvements. This was partially offset by a 19% decrease in grade due to limited flexibility with the mine plan. Mining rates at Wassa Underground increased to approximately 3,830 tpd on average for the nine months ended September 30, 2019, compared to approximately 2,800 tpd in the same period in 2018. Ore processed increased 36% for the nine months ended September 30, 2019 to 1,038,772 tonnes compared to 765,714 tonnes in the same period in 2018.

Wassa Main Pit/Stockpiles

Wassa Main Pit produced 2,512 ounces for the nine months ended September 30, 2019, compared to 10,585 in the same period in 2018. This decrease in production is a result of a 72% decrease in stockpile ore tonnes processed and a 20% decrease in stockpile ore grade processed compared to the same period in 2018.

Gold revenue

Gold revenue for the nine months ended September 30, 2019 was \$150.3 million, an increase of 8% from \$139.0 million in 2018 due mainly to an increase in gold sold and average realized price. Gold sold increased 2% to 114,599 ounces for the nine months ended September 30, 2019 compared to 112,397 ounces in 2018. The increase was primarily a result of increased gold production from Wassa Underground. The average realized gold price was \$1,311 per ounce for the nine months ended September 30, 2019 compared to \$1,236 per ounce in 2018.

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$81.3 million for the nine months ended September 30, 2019 compared to \$86.8 million in 2018. The decrease was due primarily to a \$4.7 million decrease in severance charges as suspension of the Wassa surface mining operation was completed in early 2018, a \$3.3 million decrease in inventory net realizable value adjustment and write-off as materials and supplies inventories related to open pit mining were written off in the same period in 2018, and a \$5.7 million decrease in operating costs from metals inventory due to a reduction in drawdown of ore stockpiles compared to the same period in 2018. Partially offsetting these decreases were a \$7.7 million increase in mine operating expenses, resulting from an increase in total tonnes mined, as Wassa Underground has steadily increased its mining rates and a \$0.6 million increase in royalty expense due to higher gold revenue.

Depreciation and amortization

Depreciation and amortization expense decreased to \$12.5 million for the nine months ended September 30, 2019 compared to \$16.5 million in 2018 due mainly to an increase in the total recoverable gold ounces over the life of mine of Wassa Underground.

Costs per ounce

Cost of sales per ounce decreased 11% to \$818 for the nine months ended September 30, 2019 compared to \$919 in 2018. Cash operating cost per ounce increased 1% to \$639 for the nine months ended September 30, 2019 from \$634 in 2018. All-in sustaining cost per ounce increased 3% to \$909 for the nine months ended September 30, 2019 from \$885 in 2018.

Capital expenditures

Capital expenditures for the nine months ended September 30, 2019 totaled \$38.5 million compared to \$21.5 million during the same period in 2018. The increase in capital expenditures is due primarily to an increase of \$12.3 million in exploration drilling, a \$1.9 million increase related to the construction of a ventilation raise and a \$2.3 million increase related to the tailing storage facility. Offsetting these increases was a \$1.8 million decrease in capitalized development related to a decrease in development meters compared to the same period in 2018.

PRESTEA OPERATIONS

Through a 90% owned subsidiary, Golden Star (Bogoso/Prestea) Limited, the Company owns and operates the Prestea Complex located near the town of Prestea, Ghana. The Prestea complex consists of Prestea Underground (an underground operation), the Prestea Open Pits (neighboring open pits formed from oxide deposits) and associated support facilities. Prestea has a CIL processing facility with capacity of up to 1.5 million tonnes per annum, located 14 km away at Bogoso, which is suitable for treating non-refractory gold ore (the “non-refractory plant”). Ore from both Prestea Underground and the Prestea Open Pits is processed in the non-refractory plant. Prestea Underground achieved commercial production on February 1, 2018.

		Three Months Ended September 30,		Nine Months Ended September 30,	
		2019	2018	2019	2018
PRESTEA FINANCIAL RESULTS					
Revenue	\$'000	21,120	22,709	48,407	76,709
Mine operating expenses	\$'000	17,709	21,706	52,878	68,130
Severance charges	\$'000	13	6	112	6
Royalties	\$'000	1,096	1,154	2,497	4,101
Operating costs from/(to) metals inventory	\$'000	607	(211)	(725)	5,713
Inventory net realizable value adjustment and write-off	\$'000	—	213	1,051	1,450
Cost of sales excluding depreciation and amortization	\$'000	19,425	22,868	55,813	79,400
Depreciation and amortization	\$'000	3,100	3,375	8,113	9,642
Mine operating loss	\$'000	(1,405)	(3,534)	(15,519)	(12,333)
Capital expenditures	\$'000	3,182	2,751	8,629	10,032
PRESTEA OPERATING RESULTS					
Ore mined - Open pits	t	178,498	67,238	381,505	341,493
Ore mined - Underground	t	42,071	34,575	117,904	98,394
Ore mined - Total	t	220,569	101,813	499,409	439,887
Waste mined - Open pits	t	288,701	182,103	542,338	834,416
Waste mined - Underground	t	5,113	2,184	8,335	4,395
Waste mined - Total	t	293,814	184,287	550,673	838,811
Ore processed - Open pits	t	179,343	307,482	449,715	994,400
Ore processed - Underground	t	42,071	34,575	117,904	98,394
Ore processed - Total	t	221,414	342,057	567,619	1,092,794
Grade processed - Open pits	g/t	1.62	1.12	1.60	1.24
Grade processed - Underground	g/t	5.00	10.39	5.21	10.69
Recovery	%	86.9	84.0	85.6	87.0
Gold produced - Open pits	oz	8,415	8,148	18,641	32,991
Gold produced - Underground	oz	6,412	10,868	17,626	30,812
Gold produced - Total	oz	14,827	19,016	36,267	63,803
Gold sold - Open pits	oz	8,251	8,496	18,551	33,369
Gold sold - Underground	oz	6,412	10,868	17,626	30,812
Gold sold - Total	oz	14,663	19,364	36,177	64,181
Cost of sales per ounce ¹	\$/oz	1,536	1,355	1,767	1,433
Cash operating cost per ounce ¹	\$/oz	1,249	1,110	1,442	1,188
All-in sustaining cost per ounce ¹	\$/oz	1,630	1,367	1,852	1,424

¹ See “Non-GAAP Financial Measures” section for a reconciliation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce to cost of sales excluding depreciation and amortization.

For the three months ended September 30, 2019 compared to the three months ended September 30, 2018

Production

Gold production from Prestea was 14,827 ounces in the third quarter of 2019, a 22% decrease from the 19,016 ounces produced during the same period in 2018. This decrease in production was due primarily to lower than planned head grade at Prestea Underground due to a combination of excessive dilution and ore loss.

Prestea Open Pits

The Prestea Open Pits produced 8,415 ounces in the third quarter of 2019, compared to 8,148 ounces in the same period in 2018. The Prestea Open Pits was expected to complete gold production in 2019, however mining has continued into the third quarter of 2019 with additional ore being sourced from the pits close to Bogoso.

Prestea Underground

Prestea Underground produced 6,412 ounces in the third quarter of 2019 compared to 10,868 ounces in the same period in 2018. Production decreased 41% in the third quarter of 2019 compared to the same period in 2018, as a result of a 52% decrease in ore grade processed, offset partially by a 22% increase in ore tonnes processed. Production during the quarter was affected by available stopes still impacted by stope failures and waste zones as reported in the second quarter. Production was delayed by secondary break activities and additional waste haulage (as a result of stope failures and waste zones). Stopes in production during the quarter were also modeled to be lower grade than the same period in 2018 as stoping has progressed to the South. Development work was prioritized on 17 and 24 levels to open up new stoping areas and new stopes on 24 level. In-fill drilling 25 metre spaced was completed in the current mining blocks during the quarter and Quality Assurance and Quality Control ("QAQC") of production drilling accuracy was implemented.

Gold revenue

Gold revenue for the third quarter of 2019 was \$21.1 million, a decrease of 7% from \$22.7 million in the same period of 2018 due mainly to a decrease in gold sales offset by an increase in average realized price. Gold sold decreased 24% to 14,663 ounces for the third quarter of 2019, compared to 19,364 ounces in the same period of 2018, primarily as a result of a decrease in gold production from Prestea Underground. The average realized gold price increased 23% to \$1,440 per ounce for the third quarter of 2019 compared to \$1,173 per ounce for the same period in 2018.

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$19.4 million for the third quarter of 2019, compared to \$22.9 million for the same period in 2018. The decrease was due primarily to a \$4.0 million decrease in mine operating expenses related to less ore processed from Prestea Open Pits, and a \$0.2 million decrease inventory net realizable value adjustment and write-off, offset by a \$0.8 million increase in operating costs from metals inventory.

Depreciation and amortization

Depreciation and amortization expense decreased to \$3.1 million for the third quarter of 2019, compared to \$3.4 million for the same period in 2018 due mainly to a decrease in gold production.

Costs per ounce

Cost of sales per ounce increased 13% to \$1,536 for the third quarter of 2019 from \$1,355 in the same period in 2018. Cash operating cost per ounce of \$1,249 increased 13% from \$1,110 for the same period in 2018. All-in sustaining cost per ounce increased 19% to \$1,630 from \$1,367 for the same period in 2018. The increase in costs per ounce were primarily due to lower gold sales in the period, offset partially by lower mine operating expenses and operating costs from metals inventory.

Capital expenditures

Capital expenditures for the third quarter of 2019 totaled \$3.2 million compared to \$2.8 million incurred during the same period in 2018. The increase relates primarily to an increase in plant upgrade costs.

For the nine months ended September 30, 2019 compared to the nine months ended September 30, 2018

Production

Gold production from Prestea was 36,267 ounces for the nine months ended September 30, 2019, a 43% decrease from the 63,803 ounces produced in 2018. This decrease in production was due primarily to the planned reduction from the Prestea Open Pits and the slower than expected ramp up at Prestea Underground.

Prestea Open Pits

The Prestea Open Pits produced 18,641 ounces for the nine months ended September 30, 2019, compared to 32,991 ounces in 2018. This decrease in production was planned, as the Prestea Open Pits were expected to complete gold production in 2018. Mining has continued into the third quarter of 2019 with additional ore being sourced from the pits close to Bogoso.

Prestea Underground

Prestea Underground produced 17,626 ounces for the nine months ended September 30, 2019, compared to 30,812 ounces in 2018. Production decreased 43% compared to the same period in 2018, as a result of a 51% decrease in ore grade processed, offset partially by a 20% increase in ore tonnes processed. Production was affected by lower grade as a result of unplanned waste zones within the stopes and unplanned dilution.

Gold revenue

Gold revenue for the nine months ended September 30, 2019 was \$48.4 million, a decrease of 37% from \$76.7 million in 2018 due to a decrease in gold sold, offset by an increase in average realized gold price. Gold sold decreased 44% to 36,177 ounces for the nine months ended September 30, 2019 compared to 64,181 ounces in 2018, as a result of a decrease in gold production from the Prestea Open Pits and Prestea Underground. The average realized gold price increased 12% to \$1,338 per ounce for the nine months ended September 30, 2019 compared to \$1,195 per ounce in 2018.

Cost of sales excluding depreciation and amortization

Cost of sales excluding depreciation and amortization was \$55.8 million for the nine months ended September 30, 2019, compared to \$79.4 million in 2018. The decrease was due primarily to a \$15.3 million decrease in mine operating expenses related to less production, a \$6.4 million decrease in operating costs to metals inventory, and a \$1.6 million decrease in royalties resulting from lower gold sales.

Depreciation and amortization

Depreciation and amortization expense decreased to \$8.1 million for the nine months ended September 30, 2019, compared to \$9.6 million in 2018 due mainly to a decrease in gold production, offset partially by the commencement of depreciation of Prestea Underground assets as commercial production was achieved on February 1, 2018.

Costs per ounce

Cost of sales per ounce increased 23% to \$1,767 for the nine months ended September 30, 2019, compared to \$1,433 in 2018. Cash operating cost per ounce increased 21% to \$1,442 for the nine months ended September 30, 2019 compared to \$1,188 in 2018. All-in sustaining cost per ounce increased 30% to \$1,852 for the nine months ended September 30, 2019 compared to \$1,424 in 2018. The increase in cost per ounce was primarily due to the decrease in ounces sold for the nine months ended September 30, 2019 compared to 2018.

Capital expenditures

Capital expenditures for the nine months ended September 30, 2019 totaled \$8.6 million, compared to \$10.0 million incurred in 2018. The decrease relates primarily to a \$0.6 million decrease in capitalized borrowing costs relating to Prestea Underground which achieved commercial production on February 1, 2018. In addition, there was a \$0.5 million decrease in capital expenditures related to the Prestea Open Pits and Mampon, as some of these deposits ceased production during 2018, and a \$0.9 million decrease in exploration drilling.

SUMMARIZED QUARTERLY FINANCIAL RESULTS

(Stated in thousands of U.S dollars except per share data)	Three Months Ended,							
	Q3 2019	Q2 2019	Q1 2019	Q4 2018 ²	Q3 2018 ²	Q2 2018 ²	Q1 2018 ²	Q4 2017 ²
Revenues	\$ 69,504	\$ 61,915	\$ 67,257	\$ 57,339	\$ 67,738	\$ 77,121	\$ 70,819	\$ 81,845
Cost of sales excluding depreciation and amortization	46,798	46,506	43,804	57,565	48,873	57,717	59,574	66,401
Net income/(loss)	4,926	(10,882)	(2,659)	(11,894)	(4,222)	(7,560)	(395)	13,825
Net income/(loss) attributable to shareholders of Golden Star	5,960	(9,036)	(1,924)	(9,318)	(3,178)	(6,642)	1,015	12,601
Adjusted net income/(loss) attributable to Golden Star shareholders ¹	6,961	872	9,394	(5,211)	3,011	2,408	(2,124)	10,701
Net income/(loss) per share attributable to Golden Star shareholders - basic	0.05	(0.08)	(0.02)	(0.09)	(0.04)	(0.09)	0.01	0.17
Net income/(loss) per share attributable to Golden Star shareholders - diluted	0.02	(0.08)	(0.02)	(0.09)	(0.04)	(0.09)	(0.03)	0.16
Adjusted income/(loss) per share attributable to Golden Star shareholders - basic ¹	0.06	0.01	0.09	(0.05)	0.04	0.03	(0.03)	0.14

¹ See "Non-GAAP Financial Measures" section for a reconciliation of adjusted net income attributable to Golden Star shareholders and adjusted income per share attributable to Golden Star shareholders (basic) to net income/(loss) attributable to Golden Star shareholders.

² Per share quarterly financial information has been re-stated to reflect the share consolidation that was implemented on October 30, 2018.

LIQUIDITY AND FINANCIAL CONDITION

The Company held \$56.8 million in cash and cash equivalents as at September 30, 2019 compared to \$96.5 million in cash and cash equivalents at December 31, 2018. During the nine months ended September 30, 2019, operations provided \$9.7 million, investing activities used \$42.3 million and financing activities used \$7.1 million of cash.

Before working capital changes, operations provided \$27.4 million of operating cash flow during the nine months ended September 30, 2019, compared to \$19.0 million in the same period in 2018. Cash provided by operations before working capital changes increased primarily due to an increase in consolidated mine operating margin related to Wassa, as Wassa Underground gold sold increased compared to the same period in 2018.

Working capital used \$17.7 million during the nine months ended September 30, 2019, compared to \$1.9 million in the same period in 2018. The working capital changes included a \$1.7 million decrease in accounts payable and accrued liabilities, a \$6.4 million decrease in other liability as the final amount owing on the PSU liability was paid in April 2019, a \$3.6 million decrease in current income tax liabilities, a \$3.2 million increase in inventory, a \$2.5 million increase in accounts receivable, and a \$0.3 million increase in prepaids and other. Accounts payable and accrued liabilities increased slightly from \$78.5 million at December 31, 2018 to \$80.9 million at September 30, 2019.

Investing activities used \$42.3 million during the nine months ended September 30, 2019, which included \$16.8 million on exploration drilling, \$17.6 million on the development of Wassa Underground, \$6.0 million on the development of Prestea Underground and \$6.6 million on equipment purchases and other. Offsetting these capital expenditures was a \$4.8 million increase in accounts payable and deposits on mine equipment and material.

Financing activities used \$7.1 million during the nine months ended September 30, 2019, compared to \$4.3 million in the same period in 2018. Financing activities was comprised of \$8.3 million in principal repayments of debt, offset by \$1.1 million received on exercise of options.

LIQUIDITY OUTLOOK

As at September 30, 2019, the Company had \$56.8 million in cash and a working capital deficit of \$28.1 million, compared to \$96.5 million in cash and working capital of \$5.9 million at December 31, 2018. The Company expects Prestea to incur losses for the remainder of 2019, however this is expected to be offset by cash flow generated from the Wassa mine.

The Company expects to incur \$14.7 million on capital expenditures during the remainder of 2019 of which \$4.2 million is expected to be development capital and \$10.5 million is expected to be sustaining capital.

Subsequent to the quarter, on October 17, 2019, the Company closed the \$60 million senior secured credit facility with Macquarie Bank Limited (the "Credit Facility") previously announced on July 31, 2019. Golden Star has used the proceeds to repay the Ecobank Loan III, Ecobank Loan IV, and the long-term payable under the Vendor Agreement with Volta River Authority. The

remaining balance is available for general corporate purposes. The Credit Facility is repayable as to \$5 million quarterly, commencing on June 30, 2020. The final maturity date is March 31, 2023. The interest rate is 4.5% plus the applicable USD LIBOR rate.

Based on the Company's cash balance together with the operating cash flow that the Company anticipates generating and the proceeds from the Credit Facility, the Company expects to have sufficient cash available to support its operations and mandatory expenditures for the next twelve months.

TABLE OF CONTRACTUAL OBLIGATIONS

As at September 30, 2019, the Company is committed to the following:

(Stated in thousands of U.S dollars)	Payment due by period				
	Less than 1 Year	1 to 3 years	4 to 5 years	More than 5 Years	Total
Accounts payable and accrued liabilities	\$ 80,895	\$ —	\$ —	\$ —	\$ 80,895
Debt ¹	27,977	69,325	3,903	—	101,205
Interest on long-term debt	6,255	7,010	211	—	13,476
Current income tax liabilities	2,235	—	—	—	2,235
Purchase obligations	17,318	—	—	—	17,318
Rehabilitation provisions ²	9,340	20,999	25,392	14,679	70,410
Total	144,020	97,334	29,506	14,679	285,539

¹ Includes the outstanding repayment amounts from the 7% Convertible Debentures maturing on August 15, 2021, Ecobank Loan III, Ecobank Loan IV, finance leases and the Vendor Agreement. Subsequent to the quarter, the Company closed the \$60 million secured credit facility with Macquarie Bank Limited which was used to repay Ecobank Loan III, Ecobank Loan IV and the Vendor Agreement and as a result will affect the timing of debt repayments. Refer to Corporate Developments section above.

² Rehabilitation provisions indicates the expected undiscounted cash flows for each period.

RELATED PARTY TRANSACTIONS

There were no material related party transactions for the three and nine months ended September 30, 2019 and 2018 other than compensation of key management personnel which is presented in Note 18 of the condensed interim consolidated financial statements for the three and nine months ended September 30, 2019 and September 30, 2018. Key management personnel are defined as members of the Board of Directors and certain senior officers. Compensation of key management personnel are made on terms equivalent to those prevailing in an arm's length transaction.

OFF-BALANCE SHEET ARRANGEMENTS

The Company has no material off-balance sheet arrangements.

NON-GAAP FINANCIAL MEASURES

In this MD&A, we use the terms “cash operating cost”, “cash operating cost per ounce”, “all-in sustaining costs”, “all-in sustaining costs per ounce”, “adjusted net income attributable to Golden Star shareholders”, “adjusted income per share attributable to Golden Star shareholders - basic”, “cash provided by operations before working capital changes”, and “cash provided by operations before working capital changes per share - basic”.

“Cost of sales excluding depreciation and amortization” as found in the statements of operations includes all mine-site operating costs, including the costs of mining, ore processing, maintenance, work-in-process inventory changes, mine-site overhead as well as production taxes, royalties, severance charges and by-product credits, but excludes exploration costs, property holding costs, corporate office general and administrative expenses, foreign currency gains and losses, gains and losses on asset sales, interest expense, gains and losses on derivatives, gains and losses on investments and income tax expense/benefit.

“Cost of sales per ounce” is equal to cost of sales excluding depreciation and amortization for the period plus depreciation and amortization for the period divided by the number of ounces of gold sold (excluding pre-commercial production ounces sold) during the period.

“Cash operating cost” for a period is equal to “cost of sales excluding depreciation and amortization” for the period less royalties, the cash component of metals inventory net realizable value adjustments, materials and supplies write-off and severance charges, and “cash operating cost per ounce” is that amount divided by the number of ounces of gold sold (excluding pre-commercial production ounces sold) during the period. We use cash operating cost per ounce as a key operating metric. We monitor this measure monthly, comparing each month's values to prior periods' values to detect trends that may indicate increases or decreases in operating efficiencies. We provide this measure to investors to allow them to also monitor operational efficiencies of the Company's mines. We calculate this measure for both individual operating units and on a consolidated basis. Since cash operating costs do not incorporate revenues, changes in working capital or non-operating cash costs, they are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. Changes in numerous factors including, but not limited to, mining rates, milling rates, ore grade, gold recovery, costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. We believe that these measures are similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance.

“All-in sustaining costs” commences with cash operating costs and then adds the cash component of metals inventory net realizable value adjustments, royalties, sustaining capital expenditures, corporate general and administrative costs (excluding share-based compensation expenses and severance), and accretion of rehabilitation provision. For mine site all-in sustaining costs, corporate general and administrative costs (excluding share-based compensation expenses and severance) are allocated based on gold sold by each operation. “All-in sustaining costs per ounce” is that amount divided by the number of ounces of gold sold (excluding pre-commercial production ounces sold) during the period. This measure seeks to represent the total costs of producing gold from current operations, and therefore it does not include capital expenditures attributable to projects or mine expansions, exploration and evaluation costs attributable to growth projects, income tax payments, interest costs or dividend payments. Consequently, this measure is not representative of all of the Company's cash expenditures. In addition, the calculation of all-in sustaining costs does not include depreciation expense as it does not reflect the impact of expenditures incurred in prior periods. Therefore, it is not indicative of the Company's overall profitability. Share-based compensation expenses are also excluded from the calculation of all-in sustaining costs as the Company believes that such expenses may not be representative of the actual payout on equity and liability-based awards.

The Company believes that “all-in sustaining costs” will better meet the needs of analysts, investors and other stakeholders of the Company in understanding the costs associated with producing gold, understanding the economics of gold mining, assessing the operating performance and the Company's ability to generate free cash flow from current operations and to generate free cash flow on an overall Company basis. Due to the capital intensive nature of the industry and the long useful lives over which these items are depreciated, there can be a disconnect between net earnings calculated in accordance with IFRS and the amount of free cash flow that is being generated by a mine. In the current market environment for gold mining equities, many investors and analysts are more focused on the ability of gold mining companies to generate free cash flow from current operations, and consequently the Company believes these measures are useful non-IFRS operating metrics (“non-GAAP measures”) and supplement the IFRS disclosures made by the Company. These measures are not representative of all of Golden Star's cash expenditures as they do not include income tax payments or interest costs. Non-GAAP measures are intended to provide additional information only and do not have standardized definitions under IFRS and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. These measures are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. The table below reconciles these non-GAAP measures to the most directly comparable IFRS measures and, where applicable, previous periods have been recalculated to conform to the current definition.

The table below reconciles consolidated cost of sales excluding depreciation and amortization to cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
(Stated in thousands of U.S dollars except cost per ounce data)				
Cost of sales excluding depreciation and amortization	46,798	48,873	137,108	166,164
Depreciation and amortization	6,979	8,659	20,590	26,115
Cost of sales	<u>53,777</u>	<u>57,532</u>	<u>157,698</u>	<u>192,279</u>
Cost of sales excluding depreciation and amortization	46,798	48,873	137,108	166,164
Severance charges	(13)	(6)	(337)	(4,976)
Royalties	(3,675)	(3,463)	(10,314)	(11,293)
Inventory net realizable value adjustment and write-off	—	(445)	(1,051)	(4,785)
Cash operating costs	<u>43,110</u>	<u>44,959</u>	<u>125,406</u>	<u>145,110</u>
Royalties	3,675	3,463	10,314	11,293
Inventory net realizable value adjustment and write-off	—	445	1,051	4,785
Accretion of rehabilitation provision	181	173	546	518
General and administrative costs, excluding share-based compensation and severance ¹	4,554	4,002	12,439	11,438
Sustaining capital expenditures	8,330	4,271	21,423	14,762
All-in sustaining costs	<u>59,850</u>	<u>57,313</u>	<u>171,179</u>	<u>187,906</u>
Ounces sold²	48,538	57,659	150,776	174,529
Cost of sales per ounce	\$ 1,108	\$ 998	\$ 1,046	\$ 1,102
Cash operating cost per ounce	\$ 888	\$ 780	\$ 832	\$ 831
All-in sustaining cost per ounce	\$ 1,233	\$ 994	\$ 1,135	\$ 1,077

¹ Severance charges are termination costs related to the change in senior management in 2019.

² Ounces sold used in the calculation of cost of sales per ounce, cash operating cost per ounce and all-in sustaining cost per ounce excludes 2,049 pre-commercial production ounces sold at Prestea Underground in January 2018.

The tables below reconcile cost of sales excluding depreciation and amortization to cash operating cost per ounce for each of the operating mines:

	For the Three Months Ended September 30, 2019		
	Wassa	Prestea	Combined
(Stated in thousands of U.S dollars except cost per ounce data)			
Cost of sales excluding depreciation and amortization	27,373	19,425	46,798
Depreciation and amortization	3,879	3,100	6,979
Cost of sales	31,252	22,525	53,777
Cost of sales excluding depreciation and amortization	27,373	19,425	46,798
Severance charges	—	(13)	(13)
Royalties	(2,579)	(1,096)	(3,675)
Cash operating costs	24,794	18,316	43,110
Royalties	2,579	1,096	3,675
Accretion of rehabilitation provision	48	133	181
General and administrative costs, excluding share-based compensation and severance ¹	3,178	1,376	4,554
Sustaining capital expenditures	5,343	2,987	8,330
All-in sustaining costs	35,943	23,907	59,850
Ounces sold	33,875	14,663	48,538
Cost of sales per ounce	\$ 923	\$ 1,536	\$ 1,108
Cash operating cost per ounce	\$ 732	\$ 1,249	\$ 888
All-in sustaining cost per ounce	\$ 1,061	\$ 1,630	\$ 1,233

¹ Severance charges are termination costs related to the change in senior management in 2019.

**For the Nine Months Ended
September 30, 2019**

(Stated in thousands of U.S dollars except cost per ounce data)

	Wassa	Prestea	Combined
Cost of sales excluding depreciation and amortization	81,295	55,813	137,108
Depreciation and amortization	12,477	8,113	20,590
Cost of sales	<u>93,772</u>	<u>63,926</u>	<u>157,698</u>
Cost of sales excluding depreciation and amortization	81,295	55,813	137,108
Severance charges	(225)	(112)	(337)
Royalties	(7,817)	(2,497)	(10,314)
Inventory net realizable value adjustment and write-off	—	(1,051)	(1,051)
Cash operating costs	<u>73,253</u>	<u>52,153</u>	<u>125,406</u>
Royalties	7,817	2,497	10,314
Inventory net realizable value adjustment and write-off	—	1,051	1,051
Accretion of rehabilitation provision	143	403	546
General and administrative costs, excluding share-based compensation and severance ¹	9,454	2,985	12,439
Sustaining capital expenditures	13,497	7,926	21,423
All-in sustaining costs	<u>104,164</u>	<u>67,015</u>	<u>171,179</u>
Ounces sold	114,599	36,177	150,776
Cost of sales per ounce	\$ 818	\$ 1,767	\$ 1,046
Cash operating cost per ounce	\$ 639	\$ 1,442	\$ 832
All-in sustaining cost per ounce	\$ 909	\$ 1,852	\$ 1,135

¹ Severance charges are termination costs related to the change in senior management in 2019.

**For the Three Months Ended
September 30, 2018**

(Stated in thousands of U.S dollars except cost per ounce data)

	Wassa	Prestea	Combined
Cost of sales excluding depreciation and amortization	26,005	22,868	48,873
Depreciation and amortization	5,284	3,375	8,659
Cost of sales	<u>31,289</u>	<u>26,243</u>	<u>57,532</u>
Cost of sales excluding depreciation and amortization	26,005	22,868	48,873
Severance charges	—	(6)	(6)
Royalties	(2,309)	(1,154)	(3,463)
Inventory net realizable value adjustment and write-off	(232)	(213)	(445)
Cash operating costs	<u>23,464</u>	<u>21,495</u>	<u>44,959</u>
Royalties	2,309	1,154	3,463
Inventory net realizable value adjustment and write-off	232	213	445
Accretion of rehabilitation provision	41	132	173
General and administrative costs, excluding share-based compensation	2,658	1,344	4,002
Sustaining capital expenditures	2,133	2,138	4,271
All-in sustaining costs	<u>30,837</u>	<u>26,476</u>	<u>57,313</u>
Ounces sold	38,295	19,364	57,659
Cost of sales per ounce	\$ 817	\$ 1,355	\$ 998
Cash operating cost per ounce	\$ 613	\$ 1,110	\$ 780
All-in sustaining cost per ounce	\$ 805	\$ 1,367	\$ 994

**For the Nine Months Ended
September 30, 2018**

(Stated in thousands of U.S dollars except cost per ounce data)

	Wassa	Prestea	Combined
Cost of sales excluding depreciation and amortization	86,764	79,400	166,164
Depreciation and amortization	16,473	9,642	26,115
Cost of sales	103,237	89,042	192,279
Cost of sales excluding depreciation and amortization	86,764	79,400	166,164
Severance charges	(4,970)	(6)	(4,976)
Royalties	(7,192)	(4,101)	(11,293)
Inventory net realizable value adjustment and write-off	(3,335)	(1,450)	(4,785)
Cash operating costs	71,267	73,843	145,110
Royalties	7,192	4,101	11,293
Inventory net realizable value adjustment and write-off	3,335	1,450	4,785
Accretion of rehabilitation provision	122	396	518
General and administrative costs, excluding share-based compensation	7,281	4,157	11,438
Sustaining capital expenditures	10,220	4,542	14,762
All-in sustaining costs	99,417	88,489	187,906
Ounces sold¹	112,397	62,132	174,529
Cost of sales per ounce	\$ 919	\$ 1,433	\$ 1,102
Cash operating cost per ounce	\$ 634	\$ 1,188	\$ 831
All-in sustaining cost per ounce	\$ 885	\$ 1,424	\$ 1,077

¹ Ounces sold used in the calculation of cost of sales per ounce and cash operating cost per ounce in the nine months ended September 30, 2018 excludes 2,049 pre-commercial production ounces sold at Prestea Underground in January 2018.

“Cash provided by operations before working capital changes” is calculated by subtracting the “changes in working capital” from “net cash provided by operating activities” as found in the statements of cash flows. “Cash provided by operations before working capital changes per share - basic” is “Cash provided by operations before working capital changes” divided by the basic weighted average number of shares outstanding for the period.

We use cash operating cost per ounce and cash provided by operations before working capital changes as key operating metrics. We monitor these measures monthly, comparing each month's values to the values in prior periods to detect trends that may indicate increases or decreases in operating efficiencies. These measures are also compared against budget to alert management of trends that may cause actual results to deviate from planned operational results. We provide these measures to investors to allow them to also monitor operational efficiencies of the mines owned by the Company.

Cash operating cost per ounce and cash provided by operations before working capital changes should be considered non-GAAP financial measures as defined in Canadian securities laws and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. There are material limitations associated with the use of such non-GAAP measures. Since these measures do not incorporate revenues, changes in working capital or non-operating cash costs, they are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. Changes in numerous factors including, but not limited to, mining rates, milling rates, ore grade, gold recovery, costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. We believe that these measures are similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance.

Adjusted net income attributable to Golden Star shareholders

The table below shows the reconciliation of net income/(loss) attributable to Golden Star shareholders to adjusted net income attributable to Golden Star shareholders and adjusted income per share attributable to Golden Star shareholders:

(Stated in thousands of U.S dollars except per share data)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
Net income/(loss) attributable to Golden Star shareholders	5,960	(3,178)	(5,000)	(8,805)
Add back/(deduct):				
Share-based compensation expense	614	2,164	2,618	2,746
(Gain)/loss on fair value of financial instruments	(4,793)	629	(1,344)	(3,512)
Severance charges ¹	336	6	4,381	4,976
(Gain)/loss on change in asset retirement obligations	140	(384)	727	(1,505)
Income tax expense	5,244	4,151	17,724	10,825
	7,501	3,388	19,106	4,725
Adjustments attributable to non-controlling interest	(540)	(377)	(1,879)	(1,430)
Adjusted net income attributable to Golden Star shareholders	6,961	3,011	17,227	3,295
Adjusted income per share attributable to Golden Star shareholders - basic	\$ 0.06	\$ 0.04	\$ 0.16	\$ 0.04
Weighted average shares outstanding - basic (millions) ²	109.1	76.2	108.9	76.2

¹ Severance charges includes termination costs related to the change in senior management in 2019.

² Weighted average shares outstanding - basic has been re-stated to reflect the share consolidation that was implemented on October 30, 2018.

The Company uses “Adjusted net income attributable to Golden Star shareholders” for its own internal purposes. Management’s internal budgets and forecasts and public guidance do not reflect the items which have been excluded from the determination of adjusted net income attributable to Golden Star shareholders. Consequently, the presentation of adjusted net income attributable to Golden Star shareholders enables shareholders to better understand the underlying operating performance of our core mining business through the eyes of management. Management periodically evaluates the components of adjusted net earnings based on an internal assessment of performance measures that are useful for evaluating the operating performance of our business and a review of non-GAAP measures used by mining industry analysts and other mining companies.

“Adjusted net income attributable to Golden Star shareholders - basic” is calculated by adjusting net income/(loss) attributable to Golden Star shareholders for share-based compensation expenses, gain/loss on fair value of financial instruments, severance charges, loss/gain on change in asset retirement obligations and income tax expense. “Adjusted income per share attributable to Golden Star shareholders” for the period is “Adjusted net income attributable to Golden Star shareholders” divided by the weighted average number of shares outstanding using the basic method of earnings per share.

Adjusted net income attributable to Golden Star shareholders and adjusted income per share attributable to Golden Star shareholders should be considered non-GAAP financial measures as defined in the Canadian securities laws and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with GAAP. There are material limitations associated with the use of such non-GAAP measures. Since these measures do not incorporate all non-cash expense and income items, changes in working capital and non-operating cash costs, they are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. Changes in numerous factors including, but not limited to, our share price, risk-free interest rates, gold prices, mining rates, milling rates, ore grade, gold recovery, costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. The Company believes that these measures are similar to the measures of other gold mining companies, but may not be comparable to similarly titled measures in every instance.

OUTSTANDING SHARE DATA

As of October 30, 2019, there were 109,244,620 common shares of the Company issued and outstanding, 3,855,805 stock options outstanding, 1,274,597 deferred share units outstanding, 971,295 share units of 2017 PRSUs outstanding and 7% Convertible Debentures which are convertible into an aggregate of 11,444,000 common shares.

CRITICAL ACCOUNTING JUDGMENTS, ESTIMATES AND ASSUMPTIONS

For a full list of judgments, estimates and assumptions, please refer to Note 4 of the 2018 Annual Financial Statements.

CHANGES IN ACCOUNTING POLICIES

The Company has adopted the following new and revised standards, effective January 1, 2019. These changes were made in accordance with the applicable transitional provisions.

IFRS 16 *Leases* specifies how an IFRS reporter will recognize, measure, present and disclose leases. The standard provides a single lessee accounting model, requiring lessees to recognize assets and liabilities for all leases unless the lease term is twelve months or less or the underlying asset has a low value. Lessors continue to classify leases as operating or finance, with IFRS 16's approach to lessor accounting substantially unchanged from its predecessor, IAS 17. IFRS 16 was issued in January 2016 and applies to annual reporting periods beginning on or after January 1, 2019.

On January 1, 2019, the Company adopted the requirements of IFRS 16 *Leases*. As a result, the Company updated its accounting policy for leases to align with the requirements of IFRS 16. The Company elected to use the modified retrospective approach to initially adopt IFRS 16 which resulted in recognizing the cumulative effect of prior period amounts as an adjustment to the opening balance sheet through opening deficit on January 1, 2019.

Under IFRS 16, the Company recognized lease liabilities in relation to leases which had previously been classified as 'operating leases' under the principles of IAS 17 *Leases*. These liabilities were measured at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate as of January 1, 2019. The weighted average lessee's incremental borrowing rate applied to the lease liabilities on January 1, 2019 was 7.5%.

The associated right-of-use assets for property leases were measured on a retrospective basis as if the new rules had always been applied. The change in accounting policy affected the following items in the balance sheet on January 1, 2019:

- Mining interests (plant and equipment) - increase of \$0.7 million
- Long term debt (finance leases) - increase of \$0.5 million

The net impact on retained earnings on January 1, 2019 was a decrease of \$0.1 million.

IFRIC 23 *Uncertainty over income tax treatments* clarifies how the recognition and measurement requirements of IAS 12, Income Taxes, are applied where there is uncertainty over income tax treatments effective for years beginning on or after January 1, 2019. There was no accounting impact to the financial statements on adoption of this standard.

FINANCIAL INSTRUMENTS

(Stated in thousands of U.S dollars)	Fair value at		Basis of measurement	Associated risks
	September 30, 2019			
Cash and cash equivalents	\$ 56,812	Amortized cost		Interest/Credit/Foreign exchange
Accounts receivable	5,681	Amortized cost		Foreign exchange/Credit
Trade and other payables	70,537	Amortized cost		Foreign exchange/Interest
Finance leases	1,088	Amortized cost		Interest
Ecobank Loan III	15,844	Amortized cost		Interest
Ecobank Loan IV	14,750	Amortized cost		Interest
7% Convertible Debentures	46,369	Amortized cost		Interest
Vendor Agreement	17,325	Amortized cost		Interest/Foreign exchange
Long-term derivative liability	3,138	Fair value through profit and loss		Market price
Non-hedge derivative asset	304	Fair value through profit and loss		Market price

Amortized cost - Cash and cash equivalents, accounts receivable, trade and other payables, the 7% Convertible Debentures, the Ecobank Loan III, the Ecobank Loan IV, the Vendor Agreement and the finance leases approximate their carrying values as the interest rates are comparable to current market rates. Carrying value of the Vendor Agreement has been discounted to reflect its fair value.

Fair value through profit or loss - The fair value of the long-term derivative liability relating to the 7% Convertible Debentures is estimated using a convertible note valuation model. For the nine months ended September 30, 2019, a total gain of \$1.0 million

was recorded to the statement of operations. The non-hedge derivative asset relating to collar contracts is estimated using pricing models that utilize a variety of observable inputs that are a combination of quoted prices, applicable yield curves and credit spreads. For the nine months ended September 30, 2019, the Company recognized an unrealized gain of \$0.3 million.

DISCLOSURES ABOUT RISKS

The Company's exposure to significant risks include, but are not limited to, the following risks: change in interest rates on our debt, change in foreign currency exchange rates, commodity price fluctuations, liquidity risk and credit risk. In recognition of the Company's outstanding accounts payable, the Company cannot guarantee that vendors or suppliers will not suspend or deny delivery of products or services to the Company.

During the third quarter of 2019, the Company continued to undertake a review of the Prestea mining operations with a third party consultant to re-define the mine plan and operating activities. This plan is being further reviewed and should the review result in unfavourable financial outcomes for the operations the Company would consider this an indicator of impairment and will test for the cash generating units recoverable amount at that time. The recoverable amount would be most sensitive to changes in, amongst other things, discount rates, future production and sales volumes, metal prices, reserves and resource quantities, metal grades, future operating and capital costs and reclamation costs to the end of the mine's life. The carrying value of the Prestea mine is \$132.6 million as at September 30, 2019.

For a complete discussion of the risks, refer to the Company's Annual Information Form for the year ended December 31, 2018 available on the SEDAR website at www.sedar.com.

CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

The Company's management, with the participation of its President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures. Based upon the results of that evaluation, the Company's President and Chief Executive Officer and Executive Vice President and Chief Financial Officer have concluded that, as of September 30, 2019, the Company's disclosure controls and procedures were effective to provide reasonable assurance that the information required to be disclosed by the Company in reports it files is recorded, processed, summarized and reported, within the appropriate time periods and is accumulated and communicated to management, including the President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Report on Internal Control Over Financial Reporting

The Company's management, with the participation of its President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, are responsible for establishing and maintaining adequate internal control over financial reporting. Under the supervision of the President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, the 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 IFRS. The Company's internal control over financial reporting includes policies and procedures that:

- pertain to the maintenance of records that accurately and fairly reflect, in reasonable detail, the transactions and dispositions of assets of the Company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS and that the Company's receipts and expenditures are made only in accordance with authorizations of management and the Company's directors; and
- 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 Company's consolidated financial statements.

The Company's management, including the President and Chief Executive Officer and Executive Vice President and Chief Financial Officer, believes that any disclosure controls and procedures or internal control over financial reporting, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, they cannot provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been prevented or detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by unauthorized override of the control. The design of any control system also is based in part upon certain assumptions

about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Accordingly, because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Changes in Internal Control Over Financial Reporting

There has been no change in the Company's design of internal controls and procedures over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting during the period covered by this MD&A.

RISK FACTORS AND ADDITIONAL INFORMATION

Additional information regarding the Company, including the Company's Annual Information Form for the year ended December 31, 2018, is available under the Company's profile on SEDAR at www.sedar.com.