Agyapa Royalties Limited: a brief on potential valuation of the IPO

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(Not for Circulation)

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Summary

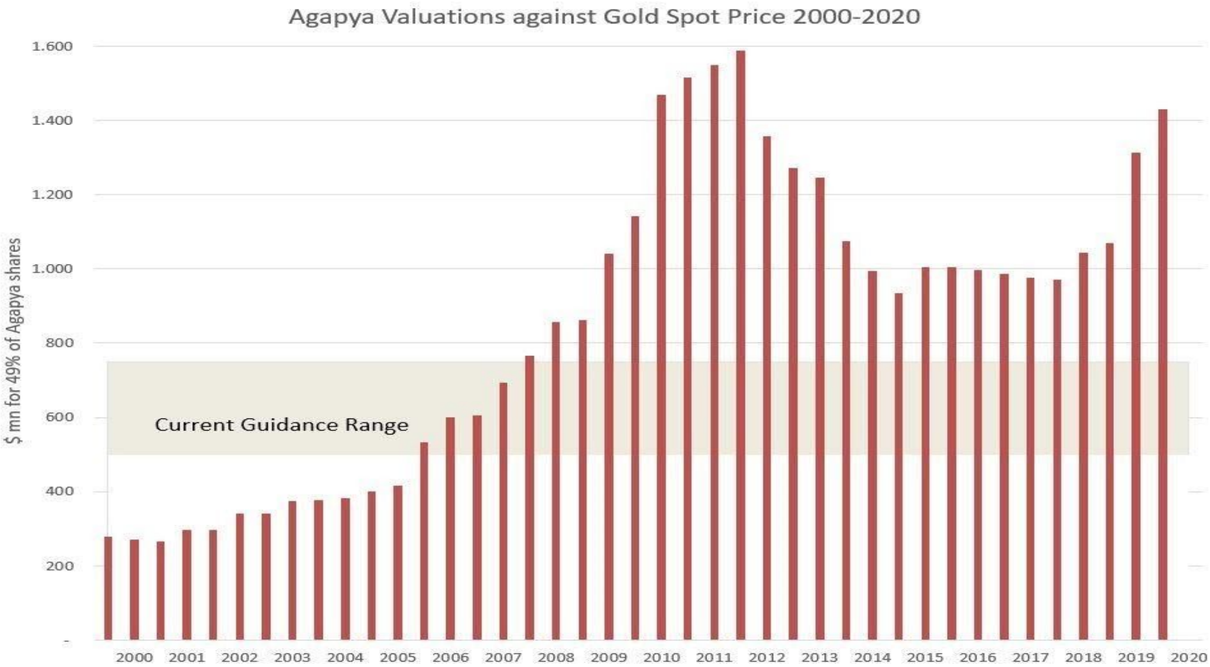
The decision by the government in Ghana to create a royalties company to manage most of its royalties from the industrial gold sector, and float nearly half of it to private investors, has caused a lot of controversy, especially since Parliament decided to approve the agreement in August amid complaints from the opposition and other sectors .

A number of questions have been raised, and much has been written, on issues ranging from valuation to future fiscal policy to transparency. Open Oil's analysis focuses principally on the valuation of shares of Agyapa Royalties Limited and whether it is undervalued, overvalued or the known valuation figures seem to be "fair" for the country.

Based on a discounted cash flow financial model, our analysis concludes that the guidance range for the value of 49% of Agyapa shares, of between \$500 million and \$750 million, looks to be low, and the shares undervalued.

Since the value of the shares in 2020 depends on estimates of future royalties, and the royalties are directly tied to sales, one key metric is what price of gold would trigger what valuation. The model suggests that a valuation of \$500 million is supported by a gold price of \$749 per troy ounce. The upper bound of \$750 million is sustained by a valuation of \$1,086.[1]

Gold, like all commodities, can vary in price over time, and is subject to structural changes in supply and demand. Nevertheless, the spot price of gold has been higher for the last decade.



[1] Each figure assumes today's price is escalated by inflation, and a discount rate is applied to future earnings to reflect opportunity cost. Details of methodology are included below.

The graph above shows what a valuation of 49% of Agyapa shares would have achieved using the spot price of gold over the last 20 years, adjusted for inflation to today's money. It shows that the current guidance range of $500 million to $750 million could expect to have been exceeded on this basis at any time since the Global Financial Crisis of 2008-9.

The Open Oil model suggests Agyapa 49% valuation, if made on the spot price of gold today[2] , could be worth US$ 1.47 billion, this number is comparable with the valuation known by Parliament members.

Yaw Buaben Asamoa, member of Parliament and communication director of the New Patriotic Party declared in September 2020 "the market capitalisation of Ghana's gold is expected to be between $1.5 – $2 billion[3] ", although it is unknown if his estimations are based on a government internal model or another source of information.

Some civil society organisations[4] have suggested a "value of the royalties for the assets under consideration is between $2.5bn to $3.5bn", without detailing whether their valuation takes into account the 100% of royalties or the 49% that is meant to float in the international market.

There are inevitably margins of uncertainty in the model. Some are based on the need to predict future events such as price and production, some on interpretative questions to which there is no single right answer, and some based on information which is incomplete in the public domain. Nevertheless, resolving such uncertainties to the extent possible is unlikely to change materially the conclusion that the valuation guidance range currently looks low.

The future production profile of the mines is the area where new information could help the most. Production estimates from mines whose royalties would flow to Agyapa, for example, is initially based on historical data provided by the country's EITI reconciliation reports since 2009.

For the future, the base scenario assumes a slow decline in production in the sector as a whole over the next two decades. If decline were faster, the valuation would naturally come down, but the question is by how much. Sensitivity analysis shows the sector would have to suffer a catastrophic collapse and production halve instantly for the valuation to come down to $500 million.

The discount rate used to put the value of future earnings into today's money is 5%, typical for project finance loans, and above rates that would normally accrue on stable securities.

Details of these assumptions are discussed in the methodology section below.

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[2] On Dec 14, 2020 the spot price of gold was $1,830 per troy ounce

[3] https://www.ghanaweb.com/GhanaHomePage/NewsArchive/1bn-Agyapa-Royalties-deal-valuation-was-to-attract-investors-Buaben-Asamoa-1050538

[4] https://www.ghanaweb.com/GhanaHomePage/business/Agyapa-deal-Focus-on-the-valuation-not-corruption-angle-Franklin-Cudjoe-to-Special-Prosecutor-1078468

Since the issue is of such pressing public concern, we recommend that the government provide further precise information, to minimise such uncertainties.

The model which underlies the analysis in this paper is published under a Creative Commons license[5] , so that it can be interrogated, and improved if better information comes to light. We recommend the government does the same with its own modelling for Agyapa.

The model and this brief form part of the library of public interest financial analysis of natural resources offered by OpenOil since 2014[6] .

Agyapa Valuation Methodology

Although the Agyapa offering represents a fairly innovative approach to public financing, it uses a mechanism which is common in the private sector: essentially the share price of any company listed on a public financial change is based on the market's view of its future profitability. Agyapa is only different in the sense that the identity of the majority shareholder being a state-owned entity, and the fact that it captures not all of Ghana's revenue streams from the gold mines that fall into its scope, but only the royalties.

The model therefore uses a standard Discounted Cash Flow approach to assess future revenues and their Net Present Value (NPV) – how much those future streams are worth today. Given the revenue stream which drives Agyapa's value are *ad valorem* royalties based on sales rather than company profits, margins of uncertainty are reduced considerably from what they would be if there were a full fiscal analysis.

Background

In 2018 the government created the Minerals Income Investment Fund to handle gold revenues[7] . Then in mid-2020 the government announced this fund would create a vehicle, Agyapa Royalties Limited, registered in Jersey and listed on the stock exchanges of London and Accra.

This company was set up in 2019 with share capital of US$5 million. It was first called Assaase Royalties Limited and in August 2020 it changed its name to Agyapa Mineral Royalty Limited.

Signatures in company documents belong to George Mireku Duker (Chairman of the

[5] https://creativecommons.org/licenses/

[6] https://openoil.net/wp/wp-content/uploads/2016/12/Public-Interest-Financial-Modeling-Common-Use-Cases-200209.pdf

[7] https://www.myjoyonline.com/news/national/18-milestones-that-defined-controversial-agyapa-royalties-agreement/

MIIF and Yaw Baah, CEO of Minerals Income Investment Fund. [8]

Agyapa is meant to receive 75.2% of the royalties from Ghana's industrial gold mining sector. The government has also announced that it plans to sell equity in 49% of Agyapa's shares and estimated a market value of those shares of between $500 million and $750 million. Parliament initially approved the controversial deal in August 2020. Ghana is seventh largest gold producer in the world, and the largest in Africa, producing 142 tonnes in 2019[9][10].

Model Assumptions

The main assumptions of the base scenario in the model are as follows:

Parameter	Description
Production Level	3.08 million ounces in 2020, declining slowly to 2.15 million ounces in 2040.
Which Mines	Current production is based on Ahafo, Tarkwa, Akyem, Iduapriem, Asanko, Damang, Chirano, Wassa, Bogoso Prestea, Obuasi and the mines run by Adamus and Perseus.
Reserves Base	34 million ounces in the 12 producing mines listed above.
Royalty Regime	Price-indexed royalties range from 3% to 5% on just under half of production; flat 5% rate on the rest.
Discount Rate	5%
Price	Two options: one is to set the gold price at any constant figure for a 2020 real dollar valuation, which is then escalated by an inflation rate of 2% to a nominal future value. The second is extrapolated from the World Bank Commodities Outlook of April 2020 to 2030, in nominal terms, then held steady.
Duration	All mines until 2040[10].

[8] https://drive.google.com/file/d/1DhczrtE564TKXy91AoELbfT1nw2Sfgx-/view?usp=sharing

[9] https://www.gold.org/goldhub/data/historical-mine-production

[10] Although discussion of the transaction mentions 16 mines, production figures on which to base a future profile are only available for 12.

Future Production Estimates

This is the area where additional information could most help to narrow uncertainty. The model assumes all of Ghana's industrial gold production comes under the Agyapa vehicle. The issue is then to estimate future production. In some cases, plans have been declared by companies[11] .

This is a complex picture which would merit further research. There are likely to be new mines coming to operation, while others decline quite quickly. Production levels may also vary to some extent based on price. If prices are high, companies typically increase production by mining parts of the reserve which under a lower price environment are not economic, because of a lower ore grade or higher production costs relative to the other parts of the license area.

Such continuous and dynamic fluctuation in operational decision making is a core part of optimising profits in the mining sector, and therefore makes the levels and timing of future production difficult to estimate, even against given stated reserves.

The current stated reserves of the 12 mines included in the base scenario are 34 million ounces, considerably less than the production envisaged (58 million ounces). There are three reasons why the model still uses such a production profile. First, many of the figures available for reserves at mine level predate 2020, and the unprecedented rise in the price of gold.

As mentioned above, the price spike will bring more reserves into the market so these figures may now be too conservative. Second, the model anticipates "reserves growth", the replacement of produced gold by other reserves and resources within license areas. Third, new mines.

One proxy indicator of the amount of gold available in the sector is likely to be trends in the artisanal sector. Since ASM miners are widely distributed across the country, and highly responsive to market trends, ASM production levels are likely to correlate to producible gold at the industrial level also.

Historical ASM figures cited in EITI reports show production has more than doubled over the last decade, from about 760,000 ounces in 2010 to 1.60 million ounces in 2019 (with a spike of 1.98 million ounces in 2018)[12] .

A study of Ghana's future gold cost and supply curves would be of great benefit in refining Agyapa's valuation.

[11] Newmont´s Ahafo expansion and the reincorporation of AngloAshanti Obuasi.

[12] Although caution should be exercised since ASM production figures may typically have larger margins of uncertainty than the industrial level. Nevertheless, the general direction is clear.

Fiscal Regime Applied

Ghana has two different royalty systems applying to the gold sector. This is not uncommon as governments frequently revise fiscal regimes, but are bound by stabilisation clauses in the contracts to respect the terms in already signed agreements. One regime has a sliding scale of royalties from 3% to 5% based on world prices (the top level of 5% is only reached at prices of $2,000 per ounce). Information suggests this regime is currently applied to three major mines, the two mines held by Newmont (Ahafo and Akyem), and Anglo Ashanti's mine at Iduapriem.

Since in 2018 these constituted about 45% of the industrial sector's production, the model assumes this ratio will be constant over the sector for the length of operation of Agyapa. This then leaves 55% of production subject to the other regime, of a flat 5% ad valorem royalty.

Discount Rate Applied

In order to relate future revenue streams to a value today, which is necessary to create an asset evaluation, investors typically use a discount rate. This is a kind of reverse interest rate which executes the simple logic that an amount of money in 2030, say, is worth less than the same amount of money today. The application of interest alone in the next decade would make today's sum worth more by 2030, but in addition if the future payment depends on something which has not yet happened (gold is produced, the company which produces it does not go bankrupt), then the discount rate will go higher than just the interest rate on a loan, to compensate for the extra level of risk.

How large the discount applied is depends on the perception of risk.

The model's base scenario assumes a discount rate of 5%. This puts it in the middle of a wide spectrum of possible evaluations of risk. Interest rates of 4% to 5%, for example, are not uncommon for finance of large infrastructure projects. At the low end are investments in stable securities, such as US Treasury bonds, where interest rates of 2% to 3% or lower prevail. At the other are highly speculative investments, for example in start-up technologies or frontier provinces in the oil and mining industries, where the so-called "hurdle rate" of discount rates applied to investments up front can be 10%, 12% or even higher.

Consideration of the risk rate is therefore critical to valuation.

Ghana’s Sovereign Borrowing Rate

In the context of Agyapa, the investor’s discount rate against a given valuation for shares today also implicitly represents the government’s negative discount rate in foregoing future revenue earnings. In this sense it becomes directly comparable to interest rates that might be applied forwards from a loan negotiated today.

The government can sell equity shares in future gold royalties for any given value, or it could take a loan with an interest rate attached against the same asset base, which it continues to own. The government has made the argument that one advantage of the Agyapa arrangement is an influx of cash without adding debt burden, in a context in which Ghana has a high degree of debt stress. But it is important to understand that this influx is of capital, which inevitably comes with its own price. As long as Ghana remains able to borrow on international markets, the decision to raise money through an equity placing as opposed to a loan is essentially a policy choice.

Shares and loans are different financial instruments and operate in different ways. The dividend, and share price of Agyapa stock will come under direct influence of the volatility of price on the markets, whereas a loan, even with a floating interest rate, is more likely to have payments and liabilities which are bounded. But precisely because of the volatility of value in the underlying asset, it is not necessarily the case that an equity placement holds lower risk for Ghana over the long-term. The immediate gain of no addition to the debt burden has to be measured over the long-term against loss of earnings. But the amount of those lost earnings is inherently volatile, based as it is on the price of gold.

The model suggests that in order for future royalty earnings to be worth today only what the guidance range for Agyapa’s partial privatisation suggests, investors would have to be applying outlier discount rates, suggesting very high risk. At $500 million, for example, an investor with the same model would have to be applying a discount rate of 27%. Even at a $750 million valuation, this would be 16%, the kind of rate applied to highly speculative venture capital.

If Ghana’s gold sector is considered to be more stable, then these high discount rates are another indicator that the current guidance range seems undervalued.

Royalty Companies in the private sector

Despite it being an innovative approach from a government perspective, royalty companies are widely present in the extractive industry and have been growing during the last decade, especially in the gold sector.

The way these companies work is simple: in exchange for financial investment, the royalty company ensures to receive either a percentage revenue (royalty) or actual gold (also called "stream") at a significant discount to the spot price

Given gold royalty companies pay for the royalty rights upfront, this represents an interesting alternative to mining companies who are looking to access capital in order to finance the development of their mines.

The two most common types of royalties are Net Smelter Returns ("NSR") and A Net Profits Interest ("NPI"). The NSR agreement provides the royalty owner a percentage of the revenue less refining costs while an NPI provides a percentage of the profit of the mine.

Since royalties typically cover the life of a mine, gold royalty companies benefit from all activities and exploration that may extend the life of the mine incurring no additional cost.

The overwhelming amount of investments present in the portfolio of the biggest five royalty companies are in North America, while activities in Africa from these companies has been limited.

Franco Nevada, one of the biggest royalty companies in the world, has only eight investments in mines in Africa (11% of its portfolio) while its portfolio in North America represents 70%.

Among its African investments, there are two in Ghana: a 1.5% NSR royalty on Perseus Mining Limited in the Edikan gold mine and a 2% NSR royalty of Newmont's Ahafo.

Return on investment

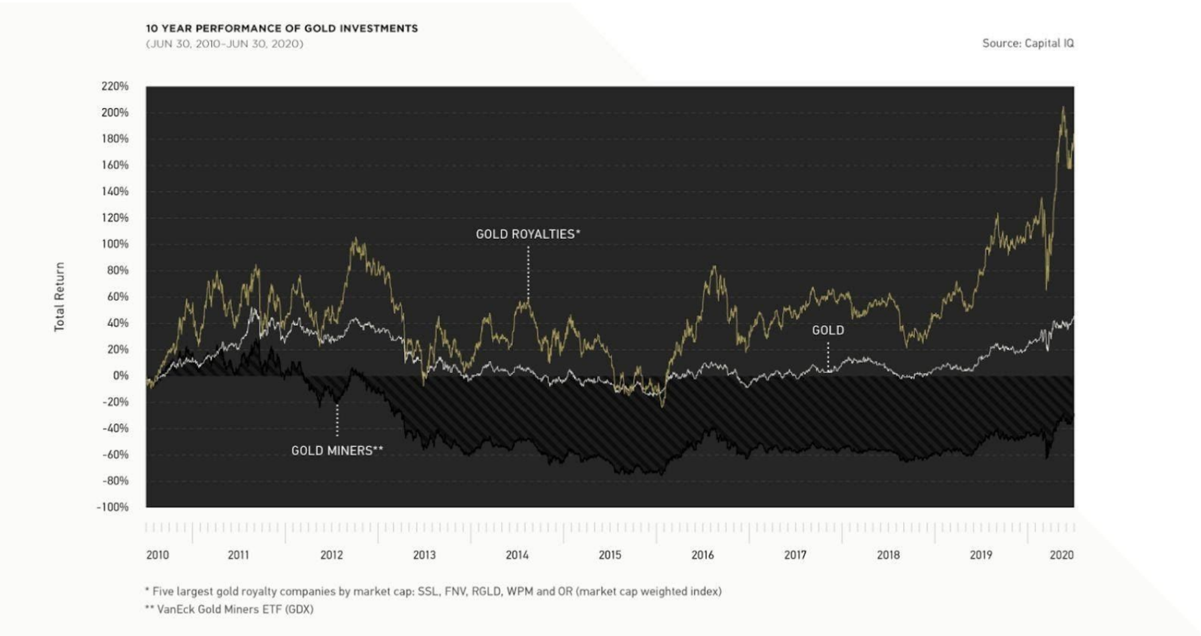
According to Sandstorm Gold, one of the big five royalty companies, the total return on investment has been four times bigger for royalty companies than for the gold sector itself.[13]

Mining royalty company shares have risen 31% in the past year, as a sector.

[13] https://www.sandstormgold.com/our-royalties/

Royalty and streaming majors such as Franco Nevada Corp saw an increase of up 71% in the value of its share in the last 12 months, similar to Wheaton Precious Metals Corp with a 95% and Sandstorm Gold, up 71%.

The “big three” royalty names—Wheaton Precious Metals, Franco-Nevada and Royal Gold—collectively generated $402 million in positive free cash flow, in the first quarter of 2020, despite the covid crisis.



There was no information available for public companies or national companies incurring in this type of investment.

Recommendations

Given the one-off nature of the Agyapa transaction, which will have policy implications for decades to come, and the unfamiliar nature of the deal in the public sector, we make the following recommendations to increase confidence among the Ghanaian public and decision makers:

- **The government should release its own modeling.** The OpenOil financial model is designed to advance public discussion by presenting one possible analysis of the Agyapa transaction. But the analysis which really counts is that of the government. The government of Ghana should publish the financial analysis it has used for decision making and setting the guidance range. Key interpretative elements are: what discount rate has the government used to arrive at an asset evaluation, and the price scenario (s)?
- **Study of the future gold production of Ghana:** Ghanian CSOs have engaged already in analysis of natural resource assets. A CSO study which consolidates current insights into

Ghana's future gold production, both in existing projects and possible new ones, can reduce uncertainty in this key element. Such a study could contribute to an adjustment of the government's expected valuation from the transaction. The government should also consider publishing regular updates of expected future gold production and sales revenues at mine level. This would provide valuable insight to help forward planning in terms of revenues from the sector.

- **Clarification of the IPO process:** The EITI Standard of 2019 states that goods and services which are obtained by a member government in return for part of the value of oil or mining production should be subject to the same broad transparency requirements as other major transactions in the extractives sector[14]. This provision does not explicitly address the Agyapa transaction, since the exchange of future state revenues is cash. It is, however, an unprecedented case of a state embarking on a royalty's equity arrangement, and certainly falls within the scope of the spirit of transparency. We therefore recommend that the government publishes details of the IPO process to avoid a situations where private shareholders become enriched at the expense of the Ghanaian state due to initial subscribers cashing out at a short notice.

- **Comparison with new debt obligations.** The government has stated one reason to promote the Agyapa transaction is to raise capital without adding to Ghana's debt burden. But as seen, the selling of public assets decreases the state's ability to meet existing debt obligations, and there is a possibility that new funds from further debt are effectively cheaper than selling future revenue streams at a low price. The government should publish a formal Debt Sustainability Analysis with a direct comparison between funds raised through the Agyapa flotation on the one hand, and further sovereign debt on the other.

- **GHEITI Coordination with government agencies.** Like many MSGs, GHEITI is a trusted partner of both government and civil society. It is therefore in a good position to work closely with government agencies to ensure the publication of the government's financial model used in arriving at the Agyapa valuation and the data published through this paper.

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[14] EITI Standard 2019, 4.3: "The multi-stakeholder group is required to consider whether there are any agreements, or sets of agreements involving the provision of goods and services (including loans, grants and infrastructure works), in full or partial exchange for oil, gas or mining exploration or production concessions or physical delivery of such commodities. To be able to do so, the multi-stakeholder group needs to gain a full understanding of: the terms of the relevant agreements and contracts, the parties involved, the resources which have been pledged by the state, the value of the balancing benefit stream (e.g. infrastructure works), and the materiality of these agreements relative to conventional contracts."