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**Ref: General distribution– Further findings on SA’s gold exports in response to the Unctad trade misinvoicing study of July 2016 – 7 February 2017**

Dear Madam, Sir:

We are pleased to release the latest findings of the independent research commissioned by the Chamber of Mines of South Africa on the Unctad study on trade misinvoicing. These findings follow on the report we released in December 2016. That report is available on the websites of Eunomix ([www.eunomix.com/research.php](http://www.eunomix.com/research.php)) and the Chamber of Mines of South Africa (<http://www.chamberofmines.org.za/>).

The findings contained herein focus on further research into the exports of gold from South Africa during the 2000-2014 period covered in the Unctad study. That study claimed that there was a USD 78.2 billion shortfall between South Africa’s reported gold exports and the reported imports of SA gold by our trading partners. This, UNCTAD claimed, was due to deliberate misinvoicing by 100 South African gold producers, involved in largescale illegal “smuggling” of gold in order to reduce their tax liabilities and to bypass South Africa’s exchange control regulations.

There is no evidence of any significant misinvoicing of gold exports from South Africa for the period 2000-2014:

- In our December 2016 report we showed that publicly available data from Statistics SA, SARS and the Chamber of Mines show very similar trends. Through this, we narrowed the gap in measuring exports from SA versus imports from trading partners from USD 78.2 billion to USD 19.5 billion.
- We have now determined that most of the USD 19.5 billion discrepancy can very likely be attributed to errors in the reported gold imports of South Africa’s trading partners, not in South Africa’s reported gold exports. This likely occurs through the fact that SA refines large amounts of gold for certain African (e.g. Ghana or Mali) gold producing countries (currently standing at approximately 50 percent of total refined gold), which is reported as South African gold, instead of from its real origin.

Additional work is being conducted on the country’s exports of platinum and iron ore, also covered in the Unctad study. These results will be released in a report in April.

Unctad released an amended version of its July 2016 in December 2016. In this version, Unctad changes how it accounts for South African gold exports, but maintains that the vast majority of such exports are underinvoiced. We will address the amended Unctad report in a comprehensive manner in our April report.

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Sincerely yours,

A handwritten signature in black ink, appearing to read "Claude Baissac".

Claude Baissac  
Managing Director

In December 2016 Eunomix released an independent study commissioned by the Chamber of Mines of South Africa dedicated to reviewing a report released in July 2016 by Unctad, entitled *Trade Misinvoicing in Primary Commodities in Developing Countries: The cases of Chile, Cote d'Ivoire, Nigeria, SA and Zambia*. The Eunomix report focused on a finding in the Unctad report that South Africa's gold exports had been systematically subjected to underinvoicing amounting to \$78.2 billion between 2000 and 2014. Eunomix conclusively demonstrated that the Unctad report's methodology and findings are flawed. The present report confirms this fact by providing a credible explanation to the remainder of the gold export gap we identified in December.

The present first report summarises the Eunomix independent study of December 2016 to provide context to our latest findings on the allegations made by Unctad on South Africa's gold exports ("Summary of Eunomix December Report"). It then provides our latest findings on these exports ("Latest findings on the USD 19.5 billion gold exports gap").

## **Section 1: Summary of Eunomix December Report**

### **Summary of the UNCTAD July 2016 study**

- In July 2016 UNCTAD released a report entitled *Trade Misinvoicing in Primary Commodities in Developing Countries: The cases of Chile, Cote d'Ivoire, Nigeria, South Africa and Zambia*. The report pointed towards a systematic practice of mis- and underinvoicing among mining companies in these countries.
- The report stated that mining and oil companies have misappropriated as much as 67% of export revenue in the countries studied.
- For South Africa, the report calculated cumulative underinvoicing over the period 2000-2014 to have amounted to USD 102.8 billion (2014 US dollars): USD 600 million for iron ore; USD 24 billion for silver and platinum; and USD 78.2 billion for gold.
- The UNCTAD study used the United Nations Commodity Trade Statistics (UN Comtrade) database. It compared reported exports by product and country of destination with the reported imports of the products by those same countries. So, for example, it compared within the UN Comtrade database South Africa's reported iron ore exports to China with China's reported iron ore imports from South Africa. It did this annually for the period 2000 to 2014.
- The report found substantial and systematic discrepancies between the export values reported by exporting countries and import values reported by importing countries for the same products. In some cases, it found evidence of overinvoicing (e.g. copper from Chile) and of both over- and underinvoicing of the same product in different years (e.g. oil exports from Nigeria, copper from Zambia and silver and platinum from South Africa). But the overwhelming finding was of underinvoicing.
- One of the key conclusions of the report was that misinvoicing is likely to be the result of deliberate illicit action: "(As regards) the puzzling case of gold exports from South Africa, (...) the country's official statistics report very little gold exports while substantial amounts appear in its leading trading partners' records. This does not appear to be a simple matter of undervaluation of the quantities of gold exported, but rather a case of pure smuggling of gold out of the country. (...)" (UNCTAD, page 31)

### **Third party critiques**

- The study has received significant attention, and its findings have been widely reproduced in the press. Critiques have pointed out the fact that the report fails to account for complexities of

reporting destination country in case of re-exporting, of reporting destination country in case of storage, and reporting destination country due to ‘virtual’ trading hubs.

- In the case of South Africa, SARS and others have pointed out inaccuracies in how the report has accounted for the country’s gold exports.

### *Theoretical review*

- The UNCTAD study’s central theoretical tenet is that discrepancies between reported exports from commodities producing countries and imports from their trade counterparts greater than 10 percent are allocated to misinvoicing. Misinvoicing might be overinvoicing, where the reported exports are greater than the reports imports, or underinvoicing, where imports exceed the value of exports.
- Crucially, the UNCTAD study advances that misinvoicing is not the product of discrepancies in trade data attributable to variations or errors in data reporting. Its main argument in support of this hypothesis is that statistical errors over time for a particular data set correct themselves through probabilistic averages. Since trade discrepancies show either persistency or increase, misinvoicing must be the cause.
- The UNCTAD study does not provide a discussion of alternative theoretical propositions as regards the practice of trade misinvoicing, its prevalence, scale and origins. This leads to the conclusion that the theoretical proposition at the core of the report is undisputed.
- Yet, the subjects of (1) trade misinvoicing, and (2) the relationship between trade misinvoicing and trade discrepancy, have both received meaningful attention and have been the foci of significant debates. Contrary to the impression created by the UNCTAD study, the central proposition of the study is not the subject of consensus:
  - Firstly, there is no consensus, whether theoretical or empirical, that trade data discrepancies correlate with trade misinvoicing, much less that trade misinvoicing would be the primary cause of such discrepancies. Connected to this point, while trade misinvoicing is recognised as being a practice, it may not explain, in whole or in part, trade data discrepancies.
  - Secondly, therefore, there are alternative theoretical and empirical explanations for the existence and resilience of large trade data discrepancies. This point invalidates the notion that discrepancies caused by data error would be self-correcting.

### *Empirical review: limited counterfactual on South Africa’s gold exports*

- A key findings of the UNCTAD report relates to an alleged underinvoicing of USD 78.2 billion in gold exports from South Africa between 2000 and 2014. This claim in particular has garnered widespread international and national attention because, according to the UNCTAD study, this represents the largest instance of misinvoicing documented.
- Determining whether this finding is correct is therefore material for a number of reasons:
  - Firstly, it is material to the South African government, who, if the report is correct, would have been exposed to massive amounts of revenue losses. As discussed previously, SARS has publicly counteracted the UNCTAD study’s findings.
  - Secondly, it is material to the South African mining industry, which has been tarnished by the report’s findings and their wide distribution and reproduction.
  - Thirdly, it is material to the credibility of the UNCTAD study’s itself, its author and this important international organisation.
- The UNCTAD study makes the implicit assertion that because South Africa does not report gold exports by country of origin to Comtrade this means the total value of South Africa’s gold exports is not reported. This implicit assertion is invalid. Gold exports are appropriately and comprehensively

reported elsewhere. And the total value of such exports is known by producer to both the South African tax and customs and excise authorities. It is also known to the relevant statistical authorities.

- Indeed, several alternative ways of recording gold export data are publicly available in South Africa. An examination of some of these different data sources demonstrates that the national revenue and banking authorities in South Africa have a firm grasp on the value of SA gold exports: Statistics South Africa (StatsSA); The South African Reserve Bank (SARB); The Chamber of Mines of South Africa.
- The limited counterfactual produced by Eunomix clearly demonstrates that the UNCTAD study's findings on South Africa's gold exports are in large part invalid, and notably:
  - The loss of gold export revenues amounting to USD 78.2 billion between 2000 and 2014 has been proven incorrect on the basis of alternative, publicly and readily available data. Instead, the amount of discrepancy identified here is USD 19.5 billion.
  - The total reported loss of USD 102.8 billion is by necessity false by at least USD 58.7 billion.
- The UNCTAD study's observation that "there is a perfect correlation between gold export underinvoicing and the volume of exports as reported by the country's trading partners" (page 28) is therefore obviously flawed.
- Furthermore, the presence of a remaining discrepancy in gold exports of USD 19.5 billion does not mean that this amount represents trade misinvoicing. While Eunomix does not reject off hand the possibility of some degree of misinvoicing, it supports the notion that misinvoicing is just one of the possible hypotheses of large trade data discrepancies, rather than the only available theoretical and empirical hypothesis.

## **Section 2: Latest findings on the USD 19.5 billion gold exports gap**

### **Eunomix findings**

Following the release of our December report summarized above, Eunomix was commissioned by the Chamber of Mines of South Africa to complete the gold exports counterfactual and conduct a full counterfactual on platinum and iron ore exports from the country. The two last exercises are still being conducted.

Insofar as gold exports, and in keeping with the hypothesis we formulated in our December report, most of the USD 19.5 billion discrepancy can almost certainly be attributed to errors in the reported gold imports of South Africa's trading partners, not in South Africa's reported gold exports.

The SARS response to the Unctad report noted that one possible cause of discrepancies between gold export and import data might be that South Africa's trading partners sometimes record gold processed at the Rand Refinery in Johannesburg as being imports of gold from South Africa. South Africa, SARS noted, does not record such gold as exports, as the origin and ownership of the gold lies outside South Africa.

A series of discussions between Eunomix and senior personnel from Rand Refinery revealed that Rand Refinery does indeed process gold from other countries, mainly gold produced elsewhere in Africa (e.g. Ghana and Mali). As South Africa's gold production fell over the past decade (from 428 tonnes in 2000 to 159 tonnes in 2014) so the share of non-South African gold it processes has increased.

Details of gold processed are confidential. However, it can be reported that today more than 50 per cent of Rand Refinery's annual production is non-South African gold.

It was noted that the date of physical shipment of gold exported from Rand Refinery may be some time after the date of sale. Rand Refinery may hold the physical gold that it has sold (usually to a bullion bank) for some time until the buyer requests physical shipment.

Payment for gold sold occurs 2 days after the transaction. The value of local sales is then reported and correctly recorded by the Reserve Bank for balance of payments purposes. When Rand Refinery actually ships the gold to a foreign customer, the proportions that are South African and non-South African gold are

carefully recorded. SARS correctly records only the local proportion as South African exports and assigns value to that gold according to the price at date of shipment.

This process creates possible problems for data collection:

- The first is that gold sold towards the end of a year may be held at the Rand Refinery until the following year. Gold recorded in the balance of payments as being exported in, say, 2012 may therefore be physically exported and recorded by SARS as exports only in 2013. Rand Refinery noted that such timing differences across years are common, as buyers typically accumulate stocks to meet increased demand over the Chinese New Year.
- A further problem is that fluctuations in the gold price and the rand exchange rate mean that differences in the rand value received at time of actual sale (recorded in the balance of payment) and the export value reported by SARS at time of actual shipment (recorded in trade data) may be quite large. However, over the period of 15 years covered in the UNCTAD report one would expect such differences to largely cancel out. They are unlikely to account for much of the \$19.5 billion discrepancy.
- A third problem is that the importers of the gold from Rand Refinery may not separate the non-South African from the South African gold in their reported data. While this cannot be verified on a case-by-case basis from the import data, it is very likely that this is the case.

**Table 1: South African annual gold production/exports by source, in constant 2014 USD million**

Year	Average, SARB, StatsSA, CoM	UNCTAD (exports) (partner data)	Annual difference	Cumulative difference
2000	5,092	4,018	1,074	1,074
2001	4,419	3,915	504	1,577
2002	5,129	5,387	(257)	1,320
2003	5,443	5,090	353	1,674
2004	5,492	4,607	885	2,559
2005	4,873	5,402	(529)	2,029
2006	6,088	4,684	1,404	3,433
2007	6,291	6,599	(308)	3,126
2008	6,416	8,444	(2,028)	1,098
2009	6,707	5,091	1,616	2,714
2010	8,268	6,525	1,743	4,457
2011	10,326	12,867	(2,541)	1,916
2012	9,300	14,254	(4,954)	(3,038)
2013	7,282	16,649	(9,367)	(12,405)
2014	6,029	13,123	(7,094)	(19,499)
<b>TOTAL</b>	<b>97,156</b>	<b>116,654</b>	<b>(19,499)</b>	

In Table 1, the difference between the average of the three alternative sources of South African gold export data in the Eunomix report and the reported gold imports from the UNCTAD report are shown on an annual basis. While there are considerable differences in many years the differences from 2011-14 are exceptionally large.

In Table 2 overleaf actual South African gold produced (reported by the Chamber of Mines) and the physical production implied from the Unctad partner data are shown. The discrepancies each year are very large. The amount by which implied SA sales from partner data exceed actual SA gold production are: 2011 = 45%; 2012 = 70%; 2013 = 131%; 2014 = 109%. Cumulatively the difference over the period (2011-2014) is 87% more than actual South African production over the period – 596 tonnes.

**Table 2: Implied and actual SA gold production, 2011-14, in tonnes**

Year	SA gold production, CoM (actual)	Implied SA gold production UNCTAD (partner data)	Annual difference (tonnes)	Annual difference (%)
2011	191	277	86	45.0
2012	167	284	117	70.1
2013	167	386	219	131.1
2014	159	333	174	109.4
<b>TOTAL</b>	<b>684</b>	<b>1280</b>	<b>596</b>	<b>87.1</b>

While there may be small amounts of South African gold exported by illegal miners, it is impossible that gold producers could have consistently concealed almost half, and in some year more than half, of their production from the authorities, their shareholders and auditors.

There is however a very logical explanation for these discrepancies: it is that importers of gold from South Africa have been recording almost all the gold exported via Rand Refinery as South African gold. They do so despite the fact that about half of the gold in these years originated outside South Africa's borders (from other Africa countries), and so was not recorded as exports by the SA authorities.

Such reporting "errors" by SA's trading partners are unsurprising. They have little interest in the origin of gold imported from South Africa. For customs and excise, as well as trade statistics purposes, they wish to accurately record imports and the country from which goods were imported. They should not be concerned that gold imported from South Africa originated in a third party country.

#### **A note on Unctad's December 2016 amended report**

This new report has not yet been fully reviewed by Eunomix. However, we note that the report maintains its overall position of the validity of the theory and the data for the countries covered in the study.

Insofar as South African gold exports, the authors now distinguish between reported non-monetary and non-monetary gold exports from SA for the period 2000-2010. It assumes that only the non-monetary gold is relevant for comparison with trading partner data. Non-monetary gold is considered a separate product from monetary gold and presumably would have had to be reported elsewhere in trading partner data.

This is clearly wrong. SA trade data did not distinguish between monetary and non-monetary gold on the basis of gold's intended use. The "monetary gold" in our data was not going into countries' gold reserves and only "non-monetary gold" into jewellery. Rather, the reporting was done that way because gold as a product was defined in trade reporting guidelines as money. It was therefore mainly reported by SA as monetary, even if it was intended to be used by the buyers for non-monetary purposes.

What this means is SA gold exports continue to be massively underreported by UNCTAD, as only reported non-monetary gold is compared with our trading partners. The methodology is clearly flawed, but is nonetheless used to claim that there is *prima facie* evidence of misinvoicing.

If monetary gold is included then SA reported exports mostly exceed the reported imports of our trading partners. But this is not something UNCTAD wishes to acknowledge.

In a blog published on 6 January 2017 on the website of the Center for Global Development, Forstater<sup>1</sup>, a visiting fellow of the respected institution, demonstrated in a useful chart that under the new Unctad estimates a staggering 96 percent of the gold exported by South Africa (non-monetary) would be underinvoiced. Stated differently, only 4 percent of SA's non-monetary gold would be properly invoiced. This is entirely implausible.

<sup>1</sup>[http://www.cgdev.org/blog/gaps-trade-data-criminal-money-laundering?utm\\_source=170110&utm\\_medium=cgd\\_email&utm\\_campaign=cgd\\_weekly&utm\\_&&](http://www.cgdev.org/blog/gaps-trade-data-criminal-money-laundering?utm_source=170110&utm_medium=cgd_email&utm_campaign=cgd_weekly&utm_&&)

## Conclusion

Our investigation confirms our initial findings that:

- The methodology used in the Unctad report is fatally flawed as far as South Africa's gold exports are concerned, because:
  - South Africa for much of the period 2000-14 did not report gold exports by country of destination. It reported gold exports, but not in a manner which UNCTAD's flawed methodology could incorporate.
  - It is very likely that South Africa's trading partners record gold bought from the Rand Refinery in Johannesburg as imports from South Africa. They do this even though more than half the Rand Refinery's sales are gold that did not originate in SA and is therefore not considered by South Africa to be an export.
- There is therefore no evidence of any significant misinvoicing of gold exports from South Africa as alleged by UNCTAD.
- The gold case validates the school of thought that does not posit a connection between trade discrepancy and misinvoicing. It also reaffirms the call for prudence in trade data analysis using one database emitted by numerous authors and institutions – Comtrade's custodian included (UNStats). As concerning with the Unctad study is the fact that alternative sources of data which would have proven the findings to be incorrect – insofar at least as South Africa's gold exports are concerned – are readily and publicly available. The Unctad study, it appears, made no effort to verify whether such data existed.
- Equally concerning is the fact that the Unctad study did not seek to provide alternative hypotheses to explain its findings beyond the proposition that trade discrepancy is the product of misinvoicing. One such obvious hypothesis would have been to question the accuracy of data. But, as discussed above, the Unctad study pre-emptively eliminated this hypothesis. Clearly this has proven to be a fundamental theoretical and empirical flaw.



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