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Assessment of Contingent Liabilities and Their Impact on Debt Dynamics in South Africa

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Abstract

The aim of this analysis is to quantify the losses from potential materialization of contingent liabilities by applying a new methodology for the case of South Africa and, to assess their impact on debt dynamics. Accordingly, we bring a novelty to this research by utilizing probabilities of distress, which is a different approach compared to the existing, already applied methodology. The central finding of the simulations conducted is that estimated losses from contingent liabilities, are significantly lower in the first year when they materialize compared to the existing applied methodology, and will gradually add up over time. Accordingly, the solvency and liquidity situation in the country will deteriorate. For example, the largest deterioration will occur in the debt to GDP ratio where the debt accumulation may be higher by 2.1 percent of GDP within three years, compared to the baseline projection. What is more concerning is that the debt trajectory is not stabilizing and losses incurred from materialization of contingent liabilities may become significant driving factor of debt accumulation in medium-term. Ultimately, the current estimates suggest that contingent liabilities may constitute a drag to fiscal policy in medium-term and their long-term accumulation may jeopardize the debt sustainability of the country. In that respect, this analysis suggests remedial measures and building protective buffers by the South African Treasury in the case CLs materialize.

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Assessment of Contingent Liabilities and Their Impact on Debt Dynamics in South Africa[1]

Fritz F. Bachmair, Jane Bogoev

1. Introduction

Sound public finances are critical to enable fiscal policy that promotes economic growth and stabilizes economic activity through the business cycles. Sovereign balance sheets are exposed to significant fiscal risks and may impair governments' ability to exercise good fiscal policy. Contingent liabilities (CLs) are an important type of fiscal risk. The materialization of CLs can have significant impact on government finances, crowd out important spending during economic downturns, or jeopardize fiscal and debt sustainability (International Monetary Fund, 2016).

In South Africa, specifically, CLs may constitute a major risk to government finances. Sluggish economic performance in recent years has contributed to a deterioration of the fiscal balance and a corresponding increase in government debt relative to GDP. At the same time, the profitability of the state-owned corporations (SOCs) has declined. South African government has increasingly supported SOCs not only through issuance of guarantees, but also through loans, subsidies, and equity injections. To manage and mitigate the risks, the National Treasury of South Africa (NTSA) has started implementing reform initiatives to manage such risks, including the assessment of credit risk from exposure to SOCs, the publication of a fiscal risk statement, and SOCs governance reform.

This analysis aims to contribute to the understanding of the potential impact from materialization of CLs on government finances and debt dynamics in South Africa by applying a new methodology. In particular, this includes analysis of the development of the solvency and liquidity indicators such as, the path of public debt relative to GDP and debt service costs relative to government revenues. While South Africa is exposed to CLs from large number of entities, we focus on: *I)* The liabilities of the nine largest SOCs[2] according to their asset size; *II)* Government guaranteed power purchase agreements (PPAs) between Eskom; *III)* The state-owned electric utility and independent power producers (IPPs); *IV)* Guarantees to public-private partnerships (PPPs), and *V)* The Road Accident Fund (RAF).

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[1] Some of the data used in this analysis is obtained from the National Treasury of South Africa (NTSA) for which the authors are highly indebted. In particular, the methodology applied has crucially benefitted from the probabilities of distress calculated by NTSA, and without these, the new methodology applied might not be generally applicable. The World Bank Treasury has supported NTSA in recent years in reviewing and improving its analytical processes for credit risk management. The authors are also indebted to Mathew Verghis, Sebastien Dessus and Marek Hanusch for their comments and suggestions that significantly contributed for improvement of the quality of this paper. The views and opinions reflected in this note do not necessarily reflect that of the Executive Directors of the World Bank Board, or of the countries they represent.

[2] SOCs included, in alphabetical order, are: Denel, the Development Bank of South Africa, Eskom, Landbank, the South African Post Office, the South African National Roads Agency, Telkom South Africa, Transnet, and South African Airlines. These SOCs account for 93 percent of the government's guarantee portfolio.

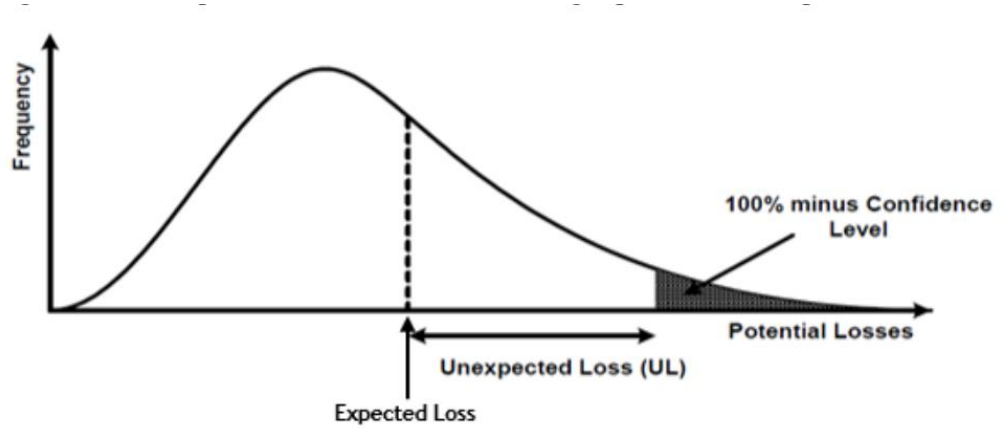
We also considered including subnational (SN) debt in the analysis. However, the debt from 80 districts, local and provincial governments for which we were able to obtain data; amounts to only 0.92 percent of GDP. Hence, we rejected including SN debt. The types of CLs we focus on, have been cited by many observers as the most critical.[3] Accordingly, the focus of the NTSA in risk management efforts[4] and data availability, has narrowed our scope of assessment of CLs.

This paper is structured as follows: Section 2 outlines the methodology and data we employ, and assumptions we make. Section 3 discusses the results. The concluding remarks and policy recommendations for risk management are presented in Section 4.

2. Data and methodology

To assess the impact of the materialization of CLs, we calculate expected and unexpected losses (EL and UL), on the portfolio of CLs in scope of this analysis. Expected losses are an estimate of the average loss that would be expected annually in a well-diversified portfolio (Bank for International Settlements, 2015). The unexpected losses are related to potentially large losses that occur rather seldom. UL are losses, in addition to expected losses, that may be sustained in a deteriorating external environment, assuming a certain confidence interval (Amato and Remolona, 2005). EL and UL are illustrated in Figure 1.

Figure 1: Conceptual loss distribution illustrating expected and unexpected losses



Source: Basel Committee on Banking Supervision (2005)

The distribution in Figure 1 describes the likelihood of losses of a certain magnitude. The area under the entire curve is equal to 100 percent (i.e. it is the graph of a probability density). The

[3] Several rating agencies have cited CLs linked to SOCs as a major cause for recent rating downgrades of South Africa, including Moody's rating action in June 2017: https://www.moodys.com/research/Moodys-downgrades-South-Africas-rating-to-Baa3-and-assigns-negative--PR_367769

[4] See Fiscal Risk Statement in Annexure A in the Budget Review, National Treasury South Africa, February 2018: http://www.treasury.gov.za/documents/MTBPS/2017/mtbps/FullMTBPS.pdf

curve shows that small losses around or slightly below EL occur more frequently than large losses. The likelihood that losses will exceed the sum of EL and UL, equals the shaded area under the right-hand side of the curve. For example, 100 percent minus this likelihood is called the confidence level and the corresponding threshold is sometimes called Value-at-Risk (VaR) at this confidence level, particularly in financial institutions.

We calculate EL on the entity level as the product of: exposure at distress (EAD), the probability of distress (PD)[5] of the respective entities, and loss given distress (LGD). This is presented with the following formula: $EL = EAD \times PD \times LGD$.

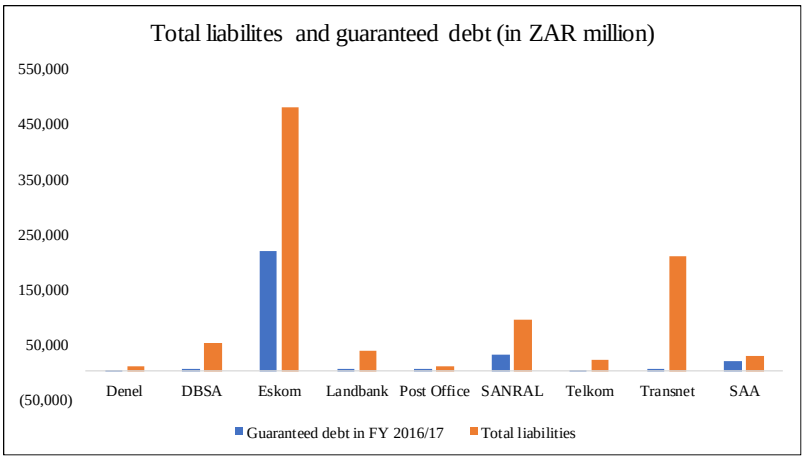
(1)

- Exposure at distress is defined as the amount to which the government is exposed to, if an entity experiences a credit event (i.e. is in distress). Although usually the EAD is defined as the amount outstanding, for SOCs and the RAF we define it as annual payments to service liabilities as currently recorded on their balance sheets. We follow this approach because we assume the government will step-in to undertake payments to creditors in the case of entities' distress. Hence, creditors would not accelerate debts. To estimate annual liability payments for SOCs and the RAF, we obtain the liability stock from their annual financial statements (see Figure 2). We assume an equal maturity profile of guaranteed and non-guaranteed liabilities. For government guaranteed debt, from the 2018 Budget Review of the National Treasury of South Africa; we know that in aggregate SOCs redeem 4.9 percent of the total outstanding debt in FY 2018/19, 5.7 percent in FY 2019/20, and 4.4 percent in FY 2020/21. By accounting for all liabilities, not only for the guaranteed debt, we assume strong implicit support by the government for the non-guaranteed liabilities as well. This seems consistent with market data because the observed spread of the non-guaranteed SOCs' debt securities and government debt is fairly small. In addition, the assessment of the credit rating agencies often significantly notching up SOCs' stand-alone rating to reflect implicit government support, e.g. (Moody's Investor Service, 2018)). For IPPs and PPPs, we follow the more conventional approach. In the case of public party default, we assume the government makes payments equal to the termination values for these events.[6] We use termination values as published by NTSA (National Treasury of South Africa, 2018).

Figure 2: Total liabilities and guaranteed debt in nominal terms (ZAR Million).

[5] We use "probability of distress" as we assume no outright default of entities in scope will occur. Given the government's strong interest in the provision of services these entities perform, we assume the government will step-in and undertake an entity's debt service payment before the entity defaults vis-à-vis a creditor.

[6] In practice, the government would also acquire an asset in the case of termination for public party default. However, the value of the asset may only be recouped over extended periods of time (up to 20 years) and has not been calculated. Hence, we neglect any future cash flows generated from the liquidation or use of assets.



Source: respective companies' websites and authors' calculations.

- Probabilities of distress scores are based on NTSA's internal risk rating for each institution. The Asset and Liability Management (ALM) department at NTSA monitors the entities to which it is exposed to through CLs.[7] To assess the credit quality of beneficiary entities, ALM has developed an internal credit scoring system. To arrive at a credit rating, credit analysts assess entities on various qualitative and quantitative factors. These include an assessment of the operating environment, the regulatory framework, management quality, diversification, profitability, solvency, liquidity, and others. Entities are ordinally ranked on a scale from 1 (low risk) to 9 (high risk). To arrive at PDs, NTSA then matches its internal risk ratings with Moody's rating scale (see Table 1). This allows NTSA to use default frequency statistics published by Moody's to estimate PDs for each rating category (Moody's Investor Service, 2018).

- Loss given distress is estimated to be 100 percent for all entities. Hence, we assume that in the case of distress, NTSA will undertake the full annual payment to service liabilities with no contributions from beneficiary entities themselves. Furthermore, we do not assume any recovery of undertaken payments by NTSA in subsequent years. This assumption seems to be consistent with the experience of many governments which find it difficult to recover the payments made, either due to the strained financial position of beneficiaries that necessitated a government step-in in the first place, and potentially institutional arrangements and policy signals that reduce entities incentive to repay the government after already having received support.

[7] No risk assessment of individual entities will be published here, which is in line with NTSA policy.

Table 1: Mapping internal risk ratings with Moody's rating scale in South Africa

INTERNAL RISK RATINGS	MOODY'S RATINGS	MEANING OF RATING
1	Aaa	Highest credit quality, with the smallest degree of risk
2	Aa2	High credit quality and are subject to low credit risk
3	A2	Upper-medium grade and are subject to moderate credit risk
4	Baa2	Medium grade and are subject to moderate credit risk
5	Ba2	Obligations have questionable credit quality
6	B2	Obligations are speculative and subject to high credit risk
7	Caa2	Obligations are of poor standing and are subject to very high credit risk
8	Ca	Obligations are highly speculative and are usually in default on their obligations
9	C	Obligations are lowest rated class and are in default

Source: National Treasury of South Africa and Moody's

Table 2: Method to estimate EAD, PD, and LGD by type of CL

Type of CL	Exposure	PD	LGD
SOCs	Annual liability payments	Based on NTSA internal risk rating	100 percent
IPPs	Termination values (for public party default)	Based on NTSA internal risk rating	100 percent
PPPs	Termination values (for public party default)	Based on NTSA internal risk rating	100 percent
Road Accident Fund	Annual liability payments	Based on NTSA internal risk rating	100 percent

Source: Authors.

Next, we calculate unexpected losses to estimate the potential impact of the materialization of CLs in a negative scenario. We first calculate UL on the entity level and define UL as a loss at one standard deviation from EL. We assume outcomes to be represented by a binomial distribution. A binomial distribution represents a binomial experiment with two potential outcomes, in this case distress and non-distress. The probability of distress is represented by PD, as above when calculating EL. Assuming a binomial distribution, the standard deviation of PD is $\sqrt{PD \times (1 - PD)}$. Exposure at distress and LGD are defined equally as above when calculating EL. EAD equals either the annual liability payments or the termination values, depending on the type of the entity (see Table 2), and LGD remains 100 percent. Hence, $UL = EAD \times \sqrt{PD \times (1 - PD)} \times LGD$. To arrive at total losses if negative scenarios materialize, as it is assumed here (i.e. at one standard deviation from EL), we add up expected and unexpected losses.

When aggregating entity level UL to the portfolio level, we simply sum them up. We do not estimate inter-entity correlations, because we do not have sufficient quality of the data to undertake such an estimation. Hence, we implicitly assume that distress scenarios are perfectly correlated across entities. If distress scenarios were not perfectly correlated, we would achieve diversification

effects, and portfolio level ULs would be smaller than the sum of entity level ULs. This may overestimate actual correlations. However, given that all entities' operations are predominantly focused in South Africa and mostly in the utility and infrastructure sectors, and all of them are state-owned, then assuming a strong correlation between them may be reasonable.

This analysis of the impact of CL materialization is based on a number of assumptions:

- Any materialization of CLs will increase the borrowing requirement in equal amounts. We assume that any materialization of CLs requires an equal amount of cash to be provided by the government in the same year as CLs materialize. Also, we assume the government raises this amount of cash by engaging in marginal borrowing, not raising additional revenues or cutting expenditures.

- EL and UL are statistical concepts. Given the small portfolio of entities, the short time horizon (three years), and the potentially significant correlation of distress among entities, actual outcomes may deviate significantly from our statistical measures. The statistical measures used may be a much better approximation of the outcomes if the CL portfolio was large in scope, and well-diversified.

- We know the redemption profile of guaranteed SOC debt in aggregate. We do not know the liability payment schedule for individual entities. We assume that each entity's liability payment schedule will exhibit annual payments that are proportional to SOCs' guaranteed debt redemptions.

- We do not assume new borrowing by entities. Only liabilities currently on entities' balance sheets are included in our exposure measures.

- We do not distinguish between implicit and explicit government support. We assume government will step-in to save entities from default of guaranteed and non-guaranteed liabilities in equal measure.

- We only model CLs from the entities in scope (nine SOCs, PPAs to IPPs, PPPs, and RAF).

- We rely on NTSA's internal risk ratings to provide an accurate reflection on credit risk.

- We do not account for the potential effect of government taking ownership of assets if CLs materialize. Particularly, in the case of IPPs, termination may lead to the government taking ownership of power producers' assets. These assets may be liquidated over time or generate revenues. If this was the case, future government revenues may increase and will lower the borrowing requirements in subsequent years.

The assessment of the impact of the losses from CLs on debt burden indicators and debt dynamics is done though simulations in the well-established debt sustainability tool designed by the IMF

(Market Access Country Debt Sustainability Analysis (MAC DSA))[8]. The rationale for conducting the simulations with the MAC DSA tool is because it enables approximate quantification of the development of debt burden indicators in case when costs related to contingent liabilities materialize in a consistent macro framework. Accordingly, this tool quantifies how costs arising from materialization of contingent liabilities will affect the overall gross financing needs, government debt and debt dynamics of the country in a three-year horizon, by preserving the consistency in the macro framework. The major novelty in our approach is that we quantify the annual amounts of expected plus unexpected losses from the possible materialization of contingent liabilities based on the current probability of distress estimates. Additionally, we include both explicit and implicit CLs in our analysis.

Box 1: Differences with the IMF approach of quantifying contingent liabilities presented in Article IV, July 2017

Our approach of quantifying the CLs in South Africa differs substantially from the methodology applied by the IMF in their latest Article IV for South Africa published in July 2017. Those differences are as follows:

I) Differences in the scope of liabilities included in the calculations: the IMF takes into account only explicit CLs such as the government guaranteed debt of the SOCs. In our computations we take the total liabilities (explicitly and implicitly guaranteed) of the largest SOEs that are much wider than size of the government guaranteed debt. Furthermore, in our analysis we also include the IPPs which are not included in the IMF approach.

II) The IMF, in their shock scenario, assumes that all contingent liabilities in scope will materialize in the first year of the analysis. Furthermore, the IMF assumes all guaranteed debt will be accelerated and will lead to an equal increase in government debt. Our approach differs in two respects: First, we assume beneficiary entities only default on annual liability payments and the government will step-in to undertake these payments. Hence, creditors would not perceive a default on their loans and credits, and will not accelerate debt. This assumption seems consistent with past action by the South African government, aimed at avoiding outright defaults of SOCs and the negative macro-economic effects. To reflect our assumption, we define exposure at distress to be annual liability payments, not total liabilities outstanding. Second, we use a risk-based and statistical approach. The IMF does not differentiate credit quality of various entities. We do. Based on NTSA's internal risk ratings, we infer distress probabilities and apply them

[8] The MAC DSA tool is developed by the IMF and is regularly used as part of the Article IV reports for the emerging and advanced economies in the world. More details can found on: https://www.imf.org/external/pubs/ft/dsa/mac.htm and the IMF 2013 Staff Guidance Note for Public Debt Sustainability Analysis in Market-Access Countries.

to calculate expected and unexpected losses. While the IMF bases their calculations on the worst case scenario possible (all entities will default in year 1), we construct a scenario based on expectations (expected losses) and a negative scenario (expected plus unexpected losses).

The simulations in the MAC DSA template are conducted based on the latest macro, fiscal and borrowing assumptions presented in the Budget Review from National Treasury by South African Republic in February 2018 (Table 3). Accordingly, the structure of the new borrowing as a result of the materialization of the contingent liabilities, preserves the same structure of the stock of debt.

Table 3: Major assumptions used for the MAC DSA template[9].

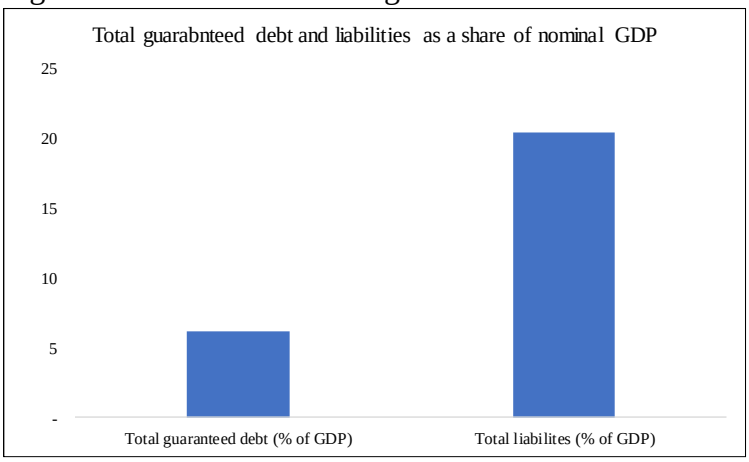
	2017	2018	2019	2020
Real GDP growth	1	1.5	1.9	2.3
Nominal GDP growth	6.0	7.3	7.2	7.7
Budget balance % of GDP	-4.3	-3.6	-3.6	-3.5
Debt-to-GDP ratio	53.3	55.1	55.3	56.0
Structure of the stock of debt (% of total debt stock)				
Short-term domestic	12%			
Medeium and long-term domestic	79%			
Foreign medium and long-term debt	9%			

Source: Budget Review, National Treasury South Africa, February 2018

We take the nominal amount for the liability size of the nine largest SOEs from their latest financial statements published online on the respective companies' web-sites. As presented in Figure 3, the total nominal amount of debt summed across all nine SOEs equals 6.2 percent of Nominal GDP, whereas the nominal amount of their total liabilities equals 20.4 percent.

[9] The macro-economic baseline data are by calendar year and they are adjusted to fiscal year data that starts April 1st. This adjustment does not affect the assumptions about the macro data presented in Table 3. The exposure data for CLs are by fiscal year which is consistent with the overall framework. Nevertheless, the adjustment of calendar to fiscal year is not expected to impose distortions because the fiscal year closely overlaps with the calendar year.

Figure 3: Total liabilities and guaranteed debt as a share of nominal GDP.

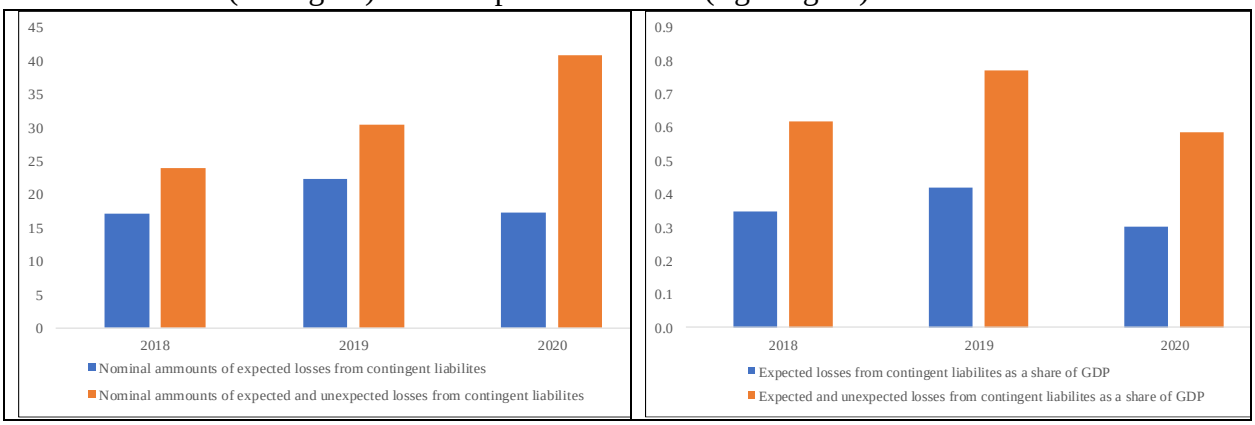


Source: respective companies' websites and authors' calculations.

3. Results

The estimations of the expected and expected plus unexpected losses from CLs in nominal amounts and as a share of GDP, spread over a three-year horizon, are smooth and not very large according to the current PD scores (Figure 4). In nominal amounts, they range between ZAR 17.3 billion and ZAR 22.3 billion for the expected losses. Scaled in terms of nominal GDP, they equal 0.4 percent respectively. The estimated nominal amounts of expected plus unexpected losses ranges between ZAR 30.5 billion and ZAR 40.1 billion, and in terms of nominal GDP are between 0.6 and 0.8 percent, respectively. The estimated amounts of expected plus unexpected losses from CLs will materialize gradually over the years of projection. Accordingly, their gradual materialization will constitute a drag on the fiscal policy due to the higher fiscal transfers to the SOEs, because their access to markets will be restricted. In contrast, in the most recent contingent liability shock scenario simulated in Article IV published by the IMF in July 2017, the size of the contingent liability shock is imposed as ZAR 610.4 billion or 12.3 percent of GDP in a single year. We argue that this shock is not realistic because it assumes that SOEs will actually go bankrupt and creditors will accelerate all liabilities. As argued, we assume the government will step-in to undertake periodic debt service payments if entities are in distress, rather than allowing entities to fail. Hence, a key driver in limiting the size of the CL shock is the long-term repayment schedule for guaranteed debt (with between four and six percent of the current debt stock being redeemed annually in the three-year period that we analyze.

Figure 4: Estimates of expected and expected plus unexpected losses from contingent liabilities - in nominal terms (left figure) and as a percent of GDP (right figure)[10]



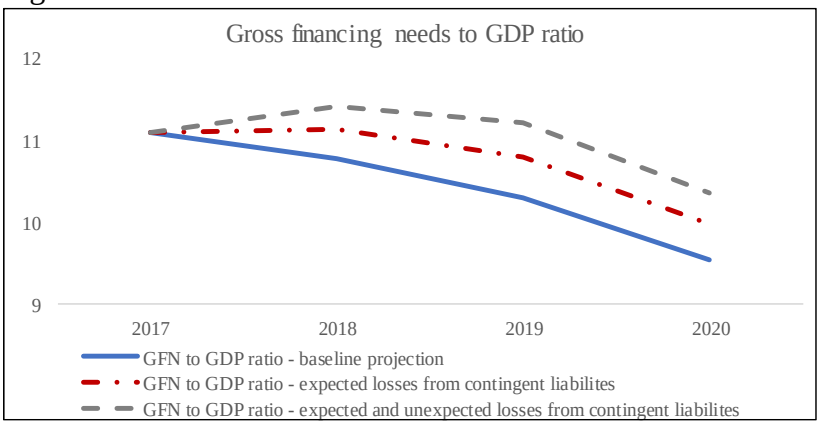
Source: authors' calculations based on data from SA treasury, budget bulletins and other national sources.

In order to assess how the materialization of CLs will affect the annual marginal borrowing requirements by the government, we compare the major debt burden indicators: debt and gross financing needs (GFN) to GDP ratios as solvency indicators, and debt service to revenue ratio as a liquidity indicator. We also compare the debt dynamics decomposition between the baseline projection and the ones that incorporate the expected plus unexpected losses from CLs. This will help us to derive conclusions which factors contribute mostly to the debt accumulation.

The development of GFN to GDP ratio, with incorporated expected and expected plus unexpected losses from CLs, indicates that GFN will be higher by 0.8 percent of GDP until 2020 compared to the baseline (Figure 5). The GFN will be between 10 and 10.4 percent of GDP by 2020 including the expected and expected plus unexpected losses from contingent liabilities, respectively, compared to 9.6 percent with the baseline. This increase of the GFN is a result of increased fiscal costs triggered by distress of the companies in form of capital and liquidity support, which needs to be covered by additional borrowing.

[10] The macro-economic baseline data are by calendar year and they are adjusted to fiscal year data. This adjustment does not affect the assumptions about the macro data presented in Table 2. The exposure data for CLs are by fiscal year which is consistent with the overall framework. Nevertheless, the adjustment of calendar to fiscal year is not expected to impose distortions because the fiscal year most closely overlaps with the calendar year.

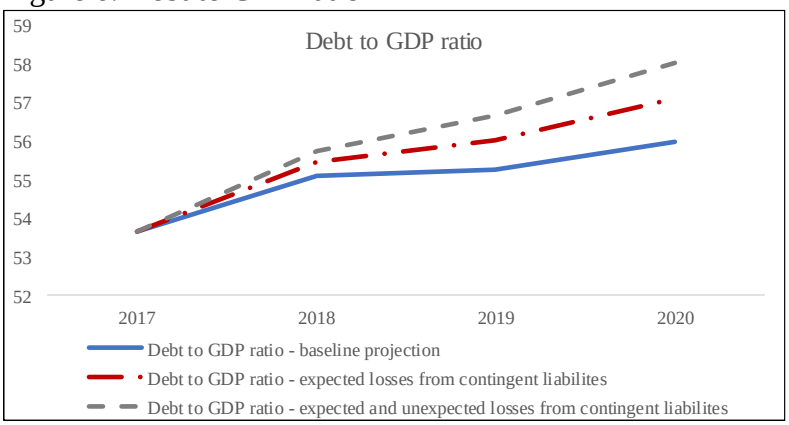
Figure 5: GFN to GDP ratio



Source: Authors' calculations based on data from Budget Review, National Treasury South Africa, February 2018and other national sources.

The projected debt trajectory indicates that in cumulative terms, debt to GDP ratio will increase by 1.2 and 2.1 percent of GDP by year 2020 for the expected and expected plus unexpected losses, respectively. Accordingly, the debt to GDP ratio will reach between 57.1 and 58 percent in 2020 compared to the baseline projection of debt-to-GDP ratio of 56 percent (Figure 6). Although the increase of the debt-to-GDP ratio is not large according to the two scenarios of contingent liabilities, what is most concerning is that debt level as a share of GDP has a tendency of growing further and will be harder to stabilize, compared to the baseline projection where debt stabilizes. In order for the debt level as a share of GDP to stabilize with the contingent liability shock scenarios, either GDP growth needs to be higher than the baseline scenario, and/or the government needs to run lower budget deficits than predicted in the baseline and/or the new borrowing needs to be done by lower interest rates. Nevertheless, all of these options would not be feasible in the case contingent liabilities materialize because markets' confidence will deteriorate and risk aversion of the markets will increase.

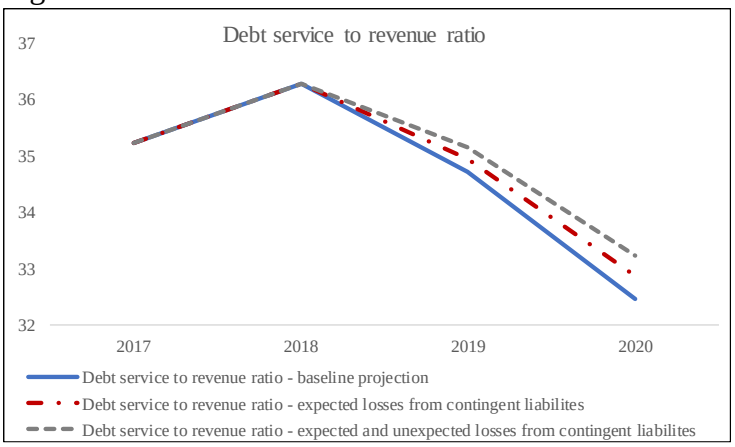
Figure 6: Debt to GDP ratio



Source: Authors' calculations based on data from Budget Review, National Treasury South Africa, February 2018 and other national sources.

The liquidity indicator: debt service to revenue ratio, shows increase of debt service between 0.5 and 0.8 percentage points of revenues by 2020, for the expected plus unexpected losses of contingent liabilities compared to the baseline (Figure 7). Accordingly, the debt service to revenue ratio is expected to reach between 32.9 and 33.2 percent by 2020, compared to 32.5 percent with the baseline projection.

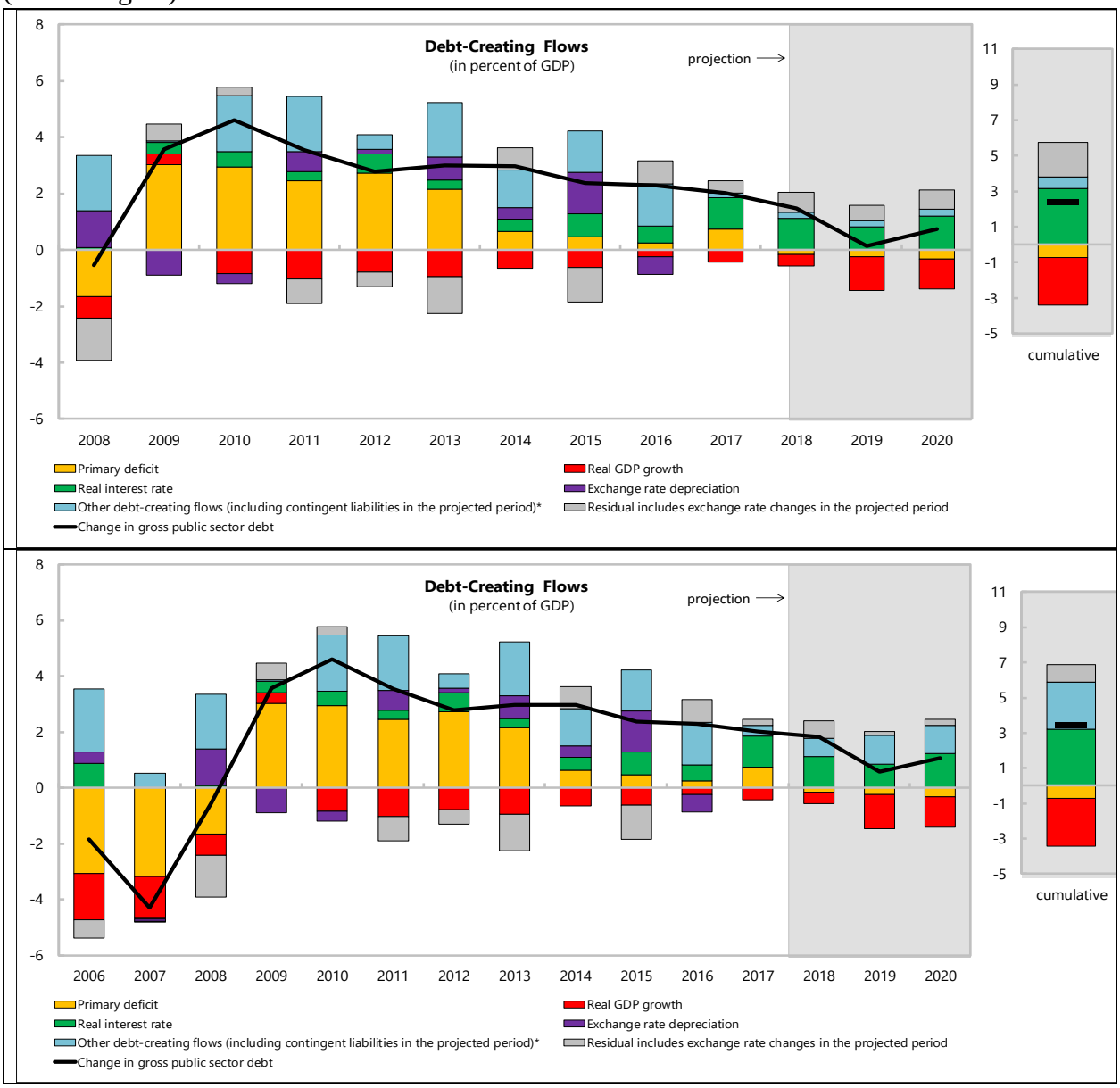
Figure 7: Debt service to revenue ratio

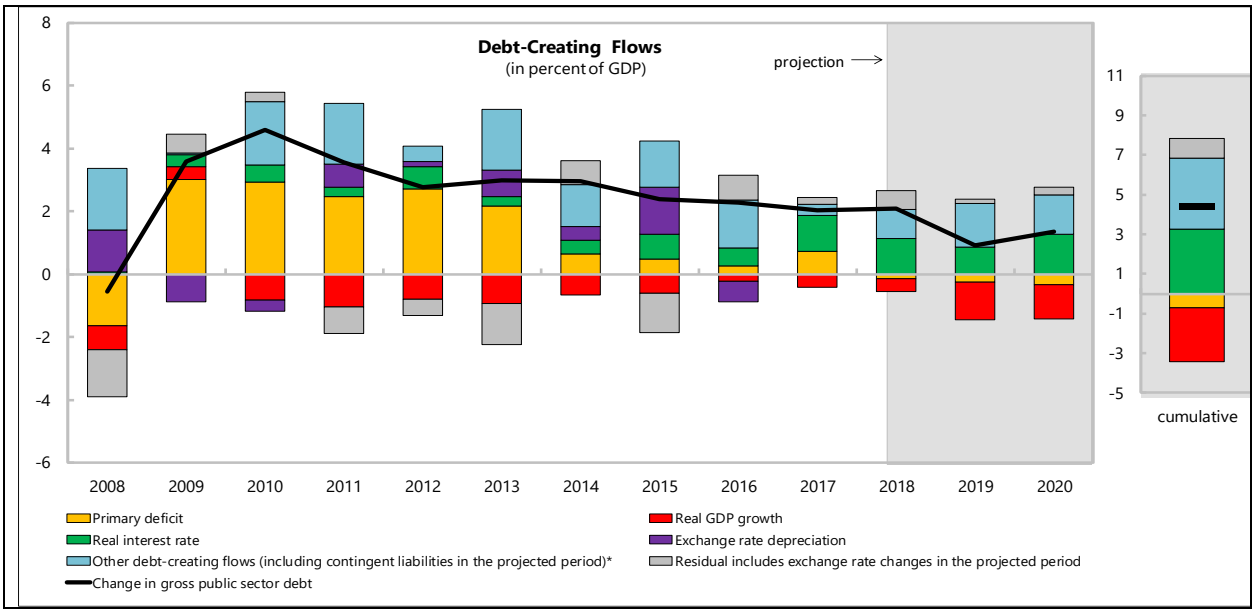


Source: Authors' calculations based on data from Budget Review, National Treasury South Africa, February 2018and other national sources.

The final part of this analysis discusses the differences in the debt dynamics between the baseline projection and the ones that incorporate the expected plus unexpected losses from contingent liabilities. As presented in Figure 8, the major noticeable difference is that, in the simulations that incorporate the CLs, one of the significant drivers of debt accumulation will be the losses from materialization of contingent liabilities.

Figure 8: Debt dynamics decomposition – baseline scenario (top figure), expected losses from contingent liabilities (middle figure), expected plus unexpected losses from contingent liabilities (bottom figure).





*Other debt creating flows, apart from including the contingent liabilities, also include privatization receipts and other stock-flow adjustment. In the past period, they include mostly privatization receipts, whereas in the projected period they include dominantly contingent liabilities.

Source: authors' calculations based on data from Budget Review, National Treasury South Africa, February 2018, IMF Article IV July 2017 and national sources.

The materialization of the losses from the contingent liabilities will become a significant factor that will drive the debt accumulation in the medium-term future. Furthermore, these losses will be even higher if the overall macro and financial conditions deteriorate in South Africa compared to the baseline and also if the financial strength of the analyzed companies weakens for any other reason. This urges the issue of required remedial measures by the government that will be discussed in the next section.

4. Conclusions and policy implications

This analysis has quantified the losses from materialization of contingent liabilities and incorporated in the debt dynamics in South Africa from specific sectors of the economy by utilizing PD scores. The results indicate that the solvency and liquidity situation in the country may deteriorate if the contingent liabilities materialize. The solvency and liquidity deterioration in the country may be more severe if the contingent liability shock is much stronger than what is estimated with the PD scores. Ultimately, the current estimates suggest that CLs may constitute a drag to fiscal policy in medium term. Gradual materialization of CLs would require further fiscal effort to keep debt sustainable as the current estimates suggest limited cost per year that may

accumulate in medium-term and long-term. Their gradual accumulation in long-term future may jeopardize the debt sustainability of the country.

Largest deterioration will occur in the debt to GDP ratio. The debt accumulation, including the expected plus unexpected losses from contingent liabilities, will be higher by 2.1 percentage points of GDP within three years, compared to the baseline projection. What is more concerning is that the debt level will be more difficult to stabilize if the contingent liabilities materialize, which is not the case with debt trajectory in the baseline. The losses incurred from the contingent liabilities may become significant driving factor of debt accumulation in medium term future.

Nevertheless, the results of this analysis should be taken with caution, having in mind the limitations of the quantitative approach conducted. For example, the MAC DSA template works mostly in partial equilibrium where it analyzes the impact of one factor, while it keeps other factors unaffected. In this case, the materialization of CLs does not assume lower GDP growth, higher interest rates and exchange rate depreciation as could be the case if they materialize in reality. Another limitation of this analysis is that it is focused on narrow area of assessment of CLs. For instance, it does not include the financial sector that is large in South Africa and related to almost any other sector in the economy. CLs originating from the financial sector may trigger significantly higher losses beyond those modeled here.

Overall, this analysis, regardless of the size of the CL shock, urges for remedial measures and building protective buffers in the case CLs materialize, which may happen in the medium-term future. We commend NTSA for recent actions taken to strengthen CL risk management, including improving risk assessment, the publication of a fiscal risk statement, and reform initiatives to improve SOC governance. Based on international sound practice, further risk management tools may be considered (Bachmair, 2016). On a portfolio level, limits may be set on the flow or stock of exposure, such as a limit on guarantee issuance relative to economic aggregates. For individual guarantee agreements, NTSA may implement specific eligibility criteria (e.g. a minimum credit rating, or no arrears with government) before a guarantee can be issued. NTSA may also charge risk-based fees to entities to compensate for (part of) the support government is providing. Fees could be based on the economic value of a guarantee. Expected and unexpected losses estimated in this note can discounted to the time of guarantee issuance and applied as a proxy for the value of a guarantee. To reduce fiscal volatility, the government may consider designing a contingency reserve account as a buffer for potential materialization of CLs. We acknowledge that a strained fiscal stance increases the political will required to implement such an account. Resources in the reserve account may be generated from fees, budget provisions, investment income, etc. A reserve account may be actual or notional. In an actual account, the government would set up a fund and manage these funds. In a notional account, funds in the account may be used to pay down government debt. An example of notional account, as used in Sweden, requires a high degree of budgetary discipline, to ensure resources in the fund are not used for competing budgetary expenditures. Furthermore, monitoring, account for, and reporting of risks is an important function. The government will have to decide what information is published or used only for internal purposes (e.g. risk reporting on a portfolio level may be appropriate for publication, while risk

assessment of individual entities may not). All these risk mitigation and monitoring measures tackle the proximate causes of contingent liabilities. The ultimate cause may lie in the performance of SOCs themselves. Initiatives to ensure sustainable profitability of SOCs may hold the key to reducing CLs. These initiatives can include corporate governance reform, financial management reform, and regulatory and sector reforms.

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