MERGER THRESHOLD DETERMINATION

Yongama Njisane, Rahma Leuner, Samantha Kee and Sivuyise Mtiki*

Abstract

The objective of this paper is to identify the impact of a competition authority's merger notification thresholds on institutional efficiency and effectiveness. We base our analysis on mergers notified to the Competition Commission of South Africa over the period, 2016 to 2018. We evaluate the impact of the current thresholds in limiting the occurrence of type I error costs (costs that amount to a wasteful use of institutional and third party resources whenever a non-problematic merger is reviewed) as a proxy for institutional efficiency and type II errors (costs related to a loss of consumer welfare whenever a problematic merger transaction goes unnotified) as an indicator of institutional effectiveness. We evaluate the likely impact on South Africa's merger control regime given changes to the current thresholds under a scenario-based benchmarking approach. The findings show that there is not a large reduction in type I errors even after higher incremental threshold increases are made. More concerning, we find that higher incremental increases in thresholds raise the prevalence of type II errors. Given the high levels of market concentration in South Africa (which are likely to worsen following South Africa's recession and Covid-19 crisis) and the permanent structural effects of mergers, the possibility of more type II errors, however small, warrants even greater concern. As such, we consider various ways in which these concerns can be resolved, ranging from how the Commission can divert its resources to focus on more complex, problematic transactions as well as learnings from other jurisdictions setting appropriate thresholds.

KEYWORDS: Merger Policy, Optimal Thresholds, Merger Notification Thresholds, Error Cost Minimisation, South African Merger Control Regime

JEL Classifications: K21, L40

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1. INTRODUCTION

Broadly, the objective of competition policy and enforcement is the prevention of the creation, enhancement and maintenance of market power by firms.[1] Mergers and acquisitions, by their very nature, permanently alter the structure of markets and enable firms to acquire market power, both of which have implications for the competitive outcomes in markets. It is within this context that one of the tools at the disposal of competition authorities is merger control.

An important aspect of a jurisdiction's merger control regime is the appropriate determination of its merger notification threshold. According to the Organisation for Economic Cooperation and Development (OECD), merger thresholds are generally accepted as a useful tool for ensuring that the merger control regime is able to capture those merger transactions that may: (i) have a material impact on competition; and (ii) harm competition through long-lasting changes in the markets in which the firms compete (OECD, 2013, p. 5). In addition, merger thresholds also provide firms with compliance certainty as they become aware of those levels which trigger notification to the competition authorities.

The United Nations Conference on Trade and Development (UNCTAD) also recognises the importance of establishing merger thresholds, particularly for new competition authorities (UNCTAD, 2017). For competition authorities, the main benefits of appropriately set thresholds are to ensure that they are better able to reserve their limited resources (financial and human capital) for cases with greater competition impact. It is crucial to ensure that the competition authority's resources are utilised efficiently (in terms of achieving the most beneficial outcomes with the least possible resources)[2] and effectively (by ensuring that the correct merger decisions are reached).[3]

The primary objective of this paper is to identify the impact, on institutional efficiency and effectiveness, of a competition authority's merger notification thresholds. In this context, we base our study on South Africa's merger thresholds by assessing the mergers notified to the Competition Commission of South Africa (the Commission). First, we consider the efficiency and effectiveness of the Commission's current merger thresholds. Second, we evaluate the likely impact on notifiable mergers if the Commission were to adjust its current thresholds. Lastly, we consider the impact on the Commission's revenues generated from merger filing

[1] See Church and Ware (2000, p. 12), Symeonidis (Undated, p.1), Zimmer (2007, p. 1), Neven and Röller (2005, p. 829) and Kaplow and Shavell (2003, p. 331). Market power is defined as "*the ability of a firm to raise price above some competitive level – the benchmark price – in a profitable way*" (Motta, 2004, p. 68).

[2] An example of efficiency in merger control would be quick turnaround times in the finalisation of merger investigations.

[3] Effectiveness in merger control requires that more time must be devoted to those transactions that give rise to competition and public interest concerns as opposed to non-problematic matters.

fees[4] under the constrained environment of the South African economy which has become more pronounced during the Covid-19 pandemic. Overall, this paper aims to provide further insight on the appropriate determination of merger thresholds using the Commission as our case study.

This paper is structured as follows: section two provides a brief overview on the international best practices used when setting merger notification thresholds and introduces the reader to South Africa's merger thresholds; section three elaborates on the methodologies of the paper; section four presents the analysis and key findings; and section five concludes and provides our recommendations.

2. BACKGROUND OF MERGER NOTIFICATIONS

2.1 International best practice in setting merger thresholds

The setting of appropriate merger thresholds is an inexact art. Academic literature sets out a number of factors that should be considered when setting appropriate merger thresholds. According to Buccirossi, Cervone, and Riviera (2014, p. 169), there are two costs that should be considered when establishing thresholds.

(i) First, it is important to consider the costs imposed on the parties and the competition authority of (respectively) having to file and review the notifiable merger. This cost is commonly referred to as the type I error if these costs amount to a wasteful use of scarce resources whenever a reviewed merger does not lead to anticompetitive effects.

(ii) Second, is the cost related to the loss of consumer welfare from an unnotified merger that has resulted in anticompetitive effects and/or public interest concerns (in the case of South Africa). This is referred to as the type II error.

The probability of the type I error occurring decreases as the merger threshold level increases, however the probability of the type II error occurring increases as the merger threshold level increases. The aim of the competition authority is to set merger thresholds by minimising the sum of the expected costs of type I and type II errors.

[4] In South Africa, the Competition Commission generates a proportion of its institutional budget through merger filing fees. In this regard, merger filing fees are important to ensure the maintenance of the Commission's financial resources to carry out its competition mandate. This has bearing on the institutional effectiveness of the Commission.

According to the International Competition Network's (ICN) international best practices on the recommended setting of merger notification thresholds (ICN, 2008), thresholds ought to be based on an objective metric such as data on sales and/or asset values of the merging parties. In addition, notification thresholds should be clear and understandable and based on information that is readily accessible to the merging parties. Thus, many jurisdictions, including South Africa, use thresholds based on annual turnover and/or asset values. For certain jurisdictions, an alternative or additional merger threshold measure is based on market share. However, this approach is not recommended as it is highly subjective.

Many jurisdictions also include other metrics such as transaction size tests, concentration measures (i.e. the ownership and control structures that will be impacted by the merger) and market share-based tests (as discussed above). Certain jurisdictions also have specific provisions for set industries. The ICN also suggests that the size of economy may affect the determination of appropriate merger thresholds (ICN, 2008).

For the determination of the appropriate levels of merger thresholds, the ICN (2008) recommends the importance of benchmarking activities. One approach is to compare a country's proposed thresholds with thresholds in similar jurisdictions. Another may involve a comparison based on the past experience of the jurisdiction in question. The ICN (2008) notes that this is a useful exercise when adjusting the jurisdiction's merger threshold values. Both these benchmark approaches have been utilised for our analysis.

2.2 An overview of the South African merger thresholds

In South Africa, merger transactions are classified according to size (small, intermediate and large), based on asset and turnover values.[5] Intermediate and large mergers must be notified to the Commission while small mergers are only notified if the Commission calls upon the

[5] The acquiring firm's assets and turnover includes that of the entire group to which it belongs. The target's assets and turnover on the other hand only refers to the firm or assets being sold.

parties to do so should it believe that a transaction may warrant competition scrutiny.[6] In South Africa, merger filing fees are also imposed when large and intermediate mergers are notified.[7]

2.2.1 *Adjustments of merger thresholds over time*

A summary of South Africa's current and previous merger thresholds is presented in Table 1 below.

Table 1: South Africa's merger thresholds overtime

	Intermediate merger		Large merger	
	Combined assets/turnover	Target's assets/turnover	Combined assets/turnover	Target's assets/turnover
24 December 1999[8]	R50m	R5m	R3.5bn	R100m
1 February 2001[9]	R200m	R30m	R3.5bn	R100m
1 April 2009[10]	R560m	R80m	R6.6bn	R190m
1 October 2017[11]	R600m	R100m	R6.6bn	R190m

Source: Competition Commission's Annual Reports (website).

The thresholds for intermediate and large mergers have been changed thrice since the Commission's initial merger thresholds implemented on 24 December 1999. The first adjustment of the merger thresholds was implemented on 1 February 2001.[12] The adjustment to the thresholds was based on the review of merger trends since the inception of the Competition Act in 1998.

The next major adjustment to the merger filing fees was implemented on 1 April 2009.[13] The amended merger thresholds were adjusted based on nominal GDP and market capitalisation to capture the economic activity that had occurred in the economy since the initial thresholds were set in the 1999/00 financial year period. Thereafter, the merger thresholds were adjusted based on the annual percentage change in real GDP (from 2009 to 2016) and implemented

[6] An intermediate merger is one where:
- (i) the combined asset value or annual turnover in, into or from South Africa of the acquiring and target firm amounts to at least R600 million; and
- (ii) the asset value or annual turnover in, into, or from South Africa of the target firm is at least R100 million.

Further, a merger is classified as large where:
- (i) the combined asset value or annual turnover in, into or from South Africa of the acquiring and target firm amounts to at least R6.6 billion; and
- (ii) the asset value or annual turnover in, into, or from South Africa of the target firm is at least R190 million.

Although small mergers generally do not need to be notified, parties to the merger may voluntarily do so. In addition, the Commission may require merging parties to notify the Commission of a merger within six months of it having been implemented if in its opinion the merger may substantially prevent or lesson competition or the merger cannot be justified on public interest grounds (see section 13 of the Competition Act).

[7] There are no filing fees involved for the notification of small mergers.

[8] Competition Commission of South Africa Annual Report, FY1999/2000.

[9] Competition Commission of South Africa, Annual Report FY2000/01.

[10] Competition Commission of South Africa, Annual Report FY2008/09.

[11] Competition Commission of South Africa, Annual Report FY2017/18.

[12] Government Gazette, Government Notice No.254 of 1 February 2001.

[13] Government Gazette No. 31957, Government Notice No. 216 of 06 March 2009.

from 1 October 2017.[14] These two adjustments to the merger thresholds were thus adjusted to keep up with changes in the South African economy.

2.2.2 *Adjustments to merger filing fees overtime*

Merger filing fees have also changed, as shown in Table 2 below. Similar to the approach of adjusting the merger thresholds in recent years, the adjustment to the merger filing fee is linked to changes in the South African economy. However, the adjustment is based on a percentage change in headline inflation rather than real or nominal GDP. This was set in order to maintain the revenue of the Commission.

Table 2: Merger filing fees in South Africa

	Intermediate merger	Large merger
24 December 1999	R5 000/R125 000/R250 000	R500 000
1 February 2001	R75 000	R250 000
1 April 2009	R100 000	R350 000
1 October 2017	R150 000	R500 000
1 January 2019	R165 000	R550 000

Source: Own compilation based on (Lutshiti, 2018) and the Commission's website.

In the period 24 December 1999 to 1 February 2001, the filing fee payable for an intermediate mergers varied depending on the value of the assets or annual turnover of the merging parties (Lutshiti, 2018). This was either R5 000, R125 000 or R250 000 for an intermediate merger and a standard fee of R500 000 for a large merger. From 1 February 2001, a two-tier fee structure for intermediate and large mergers was introduced.[15] From 1 February 2001 to 1 April 2009, the filing fees were standardised for intermediate mergers, set at R75 000 and for large mergers the filing fee decreased to R250 000. Thereafter, the fees for intermediate and large mergers increased to R165 000 and R550 000 respectively by January 2019.

3. METHODOLOGY

In conducting our assessment, we have undertaken two sets of analyses. First, we compare South Africa's notification thresholds as a function of the size of the economy relative to the thresholds in other jurisdictions using the same turnover based threshold approach. We also undertook a qualitative cross-jurisdiction comparison of other jurisdictions using a turnover-based threshold approach. This comparison was undertaken to evaluate the differences in the merger notification regimes used by South Africa and other jurisdictions. That is, the precise

[14] Government Gazette No. 41124, Government Notice No. 1003 of 15 September 2017. "Amendment of the Determination of Merger Thresholds as Set Out in General Notice 216 of 2009".
[15] Competition Commission of South Africa, Annual Report FY2000/01.

specifications included in the merger notification thresholds are analysed and compared to South Africa.

Second, we undertake a benchmarking exercise that involves an analysis of the mergers notified and assessed between 2016 and 2018 (from the Commission's historical merger database). This is undertaken to estimate the potential impact on the mergers notified to the Commission given an adjustment to the current merger thresholds under a number of scenarios. In addition to this analysis, we also estimate the likely effect on the Commission's merger revenue given the different proposed scenarios. Ultimately, this exercise will be used to determine what the likely impact would be in terms of the type and magnitude of error costs that may arise from an increase in the merger thresholds.

3.1 International Comparisons

The World Bank Group (WBG) conducted an international benchmarking exercise to determine South Africa's thresholds. This is based on assessing merger thresholds across competition authorities relative to the size of their economies, respectively. The WBG used only the jurisdictions that are similar to South Africa in terms of the type of threshold metric used, i.e. only those jurisdictions which use either or both an annual turnover and/or asset value to determine the threshold level(s). The combined thresholds of annual turnover and/or asset values as well as individual local threshold levels for each of the comparative jurisdictions are assessed. First, the thresholds are converted to a common currency, i.e. United States Dollar (US$). Second, the WBG estimated a linear relationship between the thresholds for each jurisdiction against its GDP (in US$ terms), respectively. Third, it estimated the relationship between GDP and the thresholds to predict a threshold for South Africa (with confidence intervals for a range).

In addition to the WBG comparative assessment above, we also compared South Africa's intermediate and large thresholds with those in other jurisdictions. This includes both thresholds applying to the combined assets and/or turnover of the merging parties as well as thresholds for individual firms. The comparator jurisdictions used were those with similar notification requirements to South Africa, particularly those that use sales and assets in the country (as opposed to worldwide or regional sales and/or assets). Although we included individual firm's assets and/or turnover even if they do not apply to target firms, we noted where thresholds refer to (a) at least two firms' turnover/assets as is often the case in the EU, and (b) the acquiring firm's turnover/assets. We also noted any other requirements for notification that would increase or lesson the standard for notification relative to South Africa.

Lastly, we estimated and compared the number of mergers assessed per merger analyst in South Africa relative to certain other jurisdictions.

3.2 Analysis of the historical database

We examined the impact of raising merger thresholds on: (i) how many intermediate and large mergers would not be notified; and (ii) how many of those mergers that would not be notified under revised thresholds are problematic in terms of South Africa's competition law regime and so ought to be notified (a type II error). The latter was assessed by examining how many unnotified mergers under these scenarios were prohibited, abandoned or withdrawn, or received conditional approval (distinguishing between competition and public interest conditions) and how many of them were Phase III mergers (complex mergers). These analyses were juxtaposed against the number of non-problematic unnotified mergers under these scenarios as well as efficiency measures such as the number of mergers allocated per analyst and the estimated time taken to complete the review of mergers to determine implications for institutional efficiency. Given the potentially long-lasting adverse impact of anticompetitive mergers, on an already concentrated South African economy, we consider the likelihood of type II errors more concerning than type I errors in our consideration of the impact of raising merger thresholds. We also examined the associated reduction to the filing fee revenue given the reduction in notifiable mergers should the existing filing fees be retained.

Based on the above, we considered the possibility of type I and II arising and the implications for the Commission's current merger thresholds and whether adjustments could enable the Commission to improve its efficiency and effectiveness.

4. RESULTS

4.1 International comparison

4.1.1 *WBG benchmarking study*

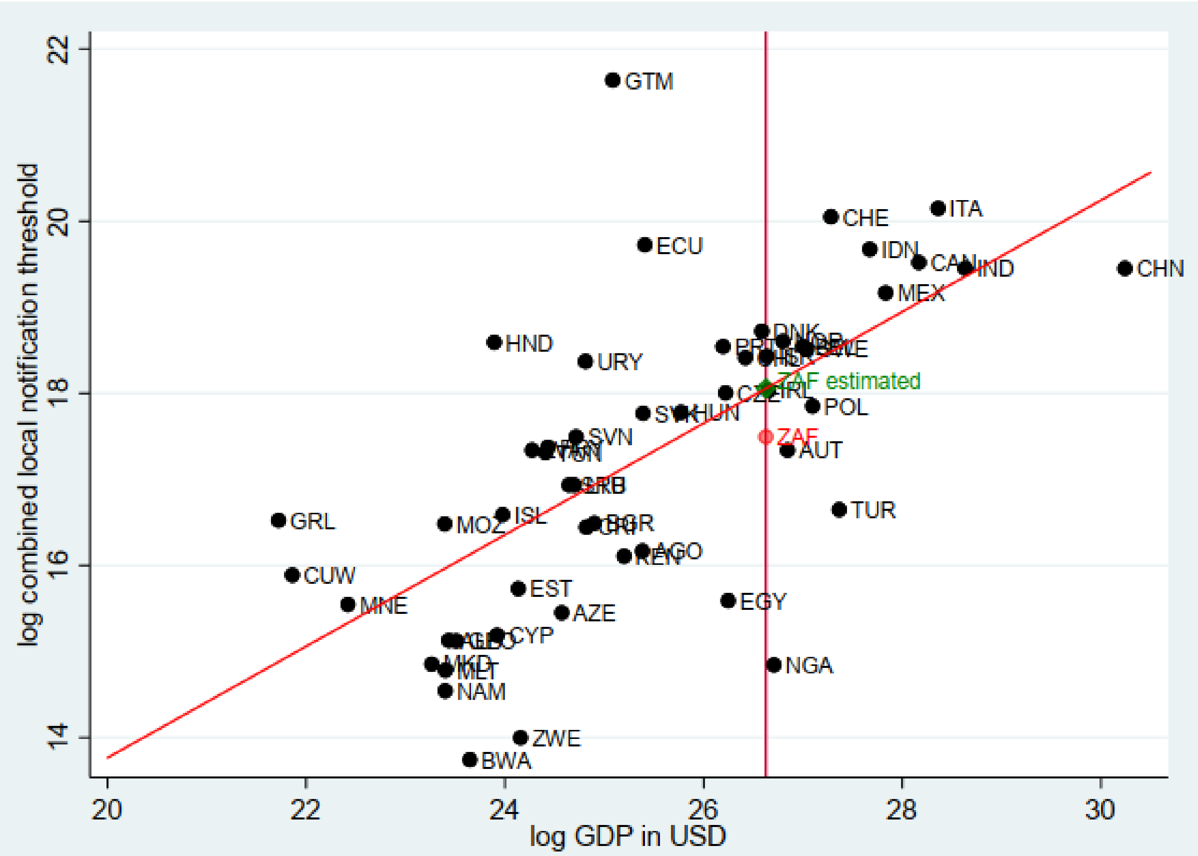
The benchmarking exercise conducted by the WBG used a sample of about 52 countries (including South Africa) with comparative merger thresholds to South Africa. For comparative purposes, the WBG only used the asset and/or turnover values of the combined local thresholds and individual local thresholds.[16] It should be noted that the exact design of each of the assessed jurisdictions' merger threshold regimes may not closely resemble the South African thresholds in terms of the specific structure of the thresholds themselves. For example,

[16] For those jurisdictions that also include the merging parties' worldwide earnings (in terms of asset and/or turnover values earned globally), these thresholds assigned to cover worldwide earnings are not included in the WBG comparative assessment and model estimates.

some jurisdictions may have a different approach to how the asset and/or turnover values must be met,[17] or may include other metrics such as transaction-size tests, industry specific thresholds, or worldwide asset and/or turnover earnings, amongst others.

Error! Reference source not found. below plots the log of combined local turnover thresholds of the comparative jurisdictions against the log of GDP of each jurisdiction respectively. The log scale implies that if a country's GDP increases, for example, by one percentage point, then one would expect the notification threshold to increase by one percentage point as well.

Figure 1: Combined turnover thresholds to GDP



Source: WBG South African merger threshold benchmarking assessment.

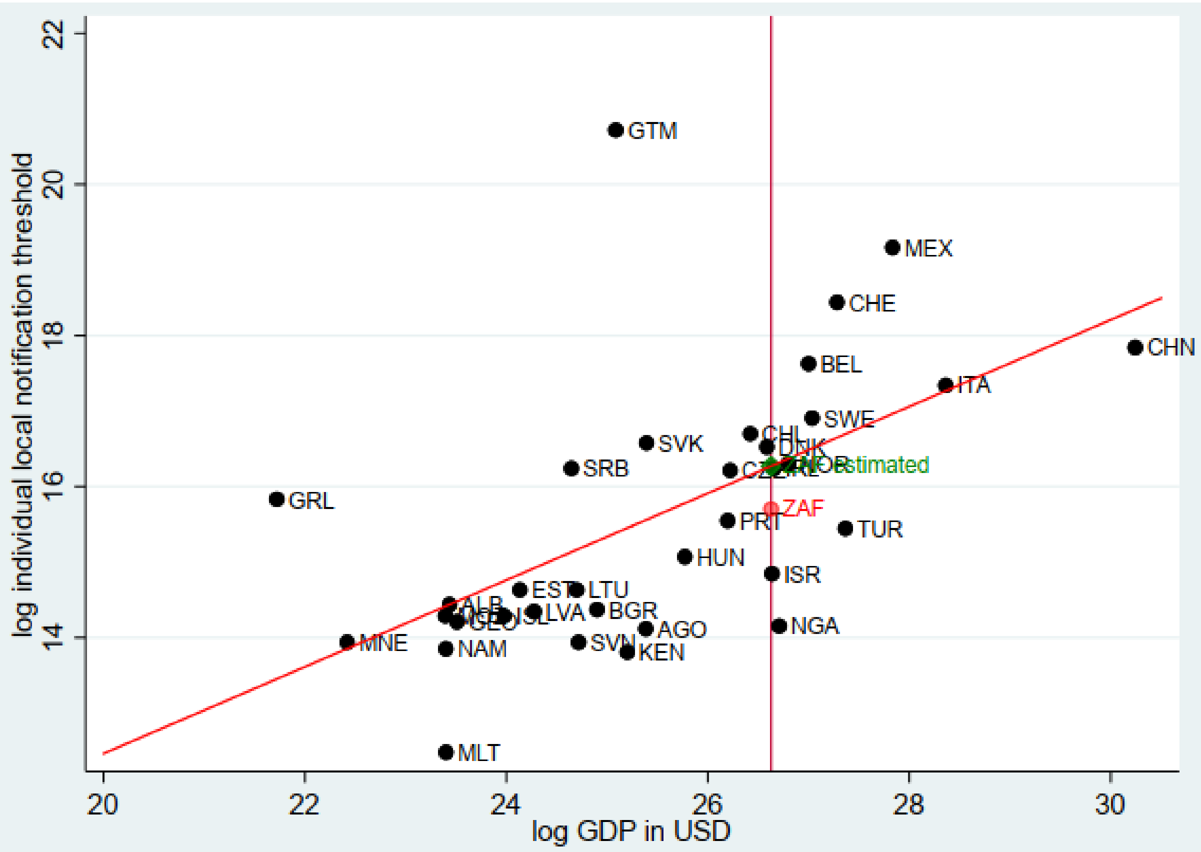
Figure 1 above shows that combined local turnover thresholds have a significant[18] positive relationship with the size of the economy. This is graphically presented by the diagonal red line which represents the fitted line estimated from the data using a simple linear regression

[17] For example, in Mexico (a jurisdiction that forms part of the WBG analysis) the target threshold is based on the target firm having an accumulation of 35% or more of its assets located in Mexico exceeding US$76 million, and the combined accumulation of assets in Mexico or the value of sales of the groups participating in the transaction exceed US$35 million or US$202 million, respectively. In addition, Brazil defines two separate thresholds that must both be met; thus Brazil does not have a combined threshold as both thresholds are based on one of the parties' meeting the threshold.
[18] The significance of this positive relationship is confirmed by a simple regression model which is discussed in Appendix A.

model. For a detailed explanation and output of the regression model which represents the red diagonal line, see Appendix A.

Figure 2 below plots the log of individual local turnover thresholds of the comparative jurisdictions against the log of GDP of each jurisdiction respectively. Similar to the combined local turnover thresholds, the log scale is used to present the cross-country comparison.

Figure 2: Individual local turnover thresholds to GDP



Source: WBG South African merger threshold benchmarking assessment.

Figure 2 above shows a similar positive relationship between local individual thresholds and log of GDP which is presented by the diagonal red line (see Appendix A).

Table 3 below presents the estimated intermediate merger threshold according to the WBG benchmarking exercise. The table below presents the predicted values of the combined and individual (target firm's) intermediate merger thresholds using the estimated positive linear relationship between GDP and thresholds as shown above. A 95% confidence interval was also used to estimate an upper and lower bound threshold from the mid-point model to provide a range for both the combined and target intermediate merger thresholds. A detailed exposition of the calculation is set out in Appendix A.

Table 3: Estimated intermediate merger thresholds for South Africa

	Current thresholds	Model 95% Lower Bound	Model Point Estimate	Model 95% Upper bound
Combined	R600 million	R 666.4 million	R 1,053.5 million	R 1,665.4 million
Individual	R100 million	R 96.7 million	R 176.3 million	R 321.6 million

Source: WBG South African merger threshold comparison study.
Notes: A 95% confidence interval may be interpreted as indicating a range within which we can be 95% certain the true effect lies. Since the confidence intervals in this case are relatively large, this suggests that one cannot estimate the relationship precisely.

From the estimates presented in the table above, the current combined and target firms' intermediate merger threshold (relative to the size of South Africa's economy) is relatively low when compared against a number of other similar jurisdictions. Both the mid-point and upper-bound 95% confidence interval models estimate a much higher turnover/asset threshold for both the combined and target firm. According to the WBG's model estimates, the current combined intermediate merger threshold for South Africa can be increased by between 11% to 178% of its current value. Similarly, the target firm's intermediate merger threshold can be increased by up to 222%, depending on the model estimate relied upon.

4.1.2 *Country comparison*

We also undertake a qualitative comparison of South Africa's merger threshold regime to those of other jurisdictions in which the merger thresholds are also broadly based on asset and/or annual turnover values. Over and above the country comparison undertaken by the WBG, a comparison of thresholds is done in absolute terms (i.e. not taking into account the size of economy – as done by the WBG above). For comparative purposes, each of the merger thresholds have been converted to the currency of the United States (US), i.e. US Dollar (US$).[19]

In summary, the analysis aligns with the findings by the WBG in that it shows that South Africa's combined and target firm's thresholds for intermediate and large mergers are lower than most other jurisdictions.[20] Similarly, South Africa's intermediate merger threshold for the combined firm's asset and/or turnover values is lower than other jurisdictions.[21] Therefore, even in absolute terms (i.e. a direct comparison of merger thresholds set in a common currency), South Africa's thresholds are still lower than a number of comparative jurisdictions.

[19] We used the average 2019 exchange rates for each currency to US$.
[20] South Africa's intermediate and large merger thresholds for the target firm is higher than the other African jurisdictions assessed in which approximately 6 African jurisdictions were assessed. This includes Botswana, Egypt, Kenya, Namibia, Nigeria, and Angola. However, South Africa's target firm thresholds is substantially lower when compared to BRICS countries, other Asian jurisdictions, the North American jurisdictions (i.e. USA and Canada) and a number of EU jurisdictions (with the exception of Austria, Ireland, and Norway).
[21] With the exception of Egypt, Nigeria and Austria. Certain jurisdictions such as Botswana, Brazil, Japan and the US do not specify a combined threshold.

Given the comparatively low thresholds for merger notification in South Africa, we also evaluated the number of mergers reviewed per analyst and the duration of review for those transactions that require in-depth analysis. We use these as proxies for institutional efficiency. The comparator jurisdictions are a mix of mature and developing agencies globally. The results are presented in Table 4 below.

Table 4: Comparison of mergers reviewed for 2019/20

Jurisdiction	No. of merger analysts	No. of mergers	Mergers per analyst*	Require in-depth review	Avg. length of in-depth reviews
South Africa	27	312	12	161	47
France	35	280	8	3	-
Canada	57	230	4	57	36
Brazil	109[22]	442	4	13	202.5
Mexico	75[23]	153	2	3	83
Sweden	31[24]	74	2	4	118
UK	174	57	0.33	15	125

Source: GCR, Rating Enforcement 2020.[25]
**Note: Rounded to the nearest whole number where possible.*

It is evident from Table 4 above that, relative to the other jurisdictions, South Africa had a higher merger-to-analyst ratio, i.e. a ratio of 12 mergers per analyst in the 2019/20 period. France's competition authority is the second highest, with approximately 8 mergers per analyst. Apart from Brazil, South Africa also received a relatively higher number of mergers. In terms of mergers requiring in-depth review, South Africa is by far the highest, reviewing approximately 161 mergers, whilst Canada had 57 that lead to an in-depth review. In terms of the average length of time taken to investigate mergers requiring in-depth review, South Africa is surprisingly one of the lowest in this regard, which could either point to higher levels of efficiency or incorrectly classifying mergers that require in-depth review.

The foregoing shows that owing to low merger thresholds, South Africa has a comparatively higher merger review burden, in terms of the number of mergers per analyst and those transactions that require in-depth analysis. This may indicate a potential risk in terms of institutional efficiency and effectiveness as less time is afforded to an in-depth consideration of potentially problematic transactions. As will become clear further below, the low levels of merger thresholds potentially give rise to the type I error cost in that the Commission's resources are expended on a significantly high number of unproblematic mergers. While this reduces the likelihood of the type II error cost arising, it does have implications for the

[22] CADE's General Superintendence has eight units, five of them responsible for analysing both mergers and dominance-related issues; and three responsible for anti-cartel investigations. Furthermore, CADE's leniency, intelligence and cartel screening units are part of the general superintendence's cabinet.
[23] Some NAC staff work in more than one area of competition enforcement.
[24] Staff work on both mergers and cartels.
[25] Global Competition Review (GCR), Rating Enforcement 2020. Available at: https://globalcompetitionreview.com/survey/rating-enforcement/2020

Commission's merger control mandate insofar as these resources could be utilised to improve effectiveness on more complex merger cases.

4.2 Potential impact on institutional efficiency and effectiveness

To further assess the likely impact on the Commission's institutional efficiency and effectiveness if the current thresholds were adjusted, we assessed the mergers notified to the Commission over the period 2016 to 2018.[26] Over this three year period, approximately 1 080 merger cases were assessed.

The analysis conducted is broadly divided into three parts. The first part presents the descriptive statistics of the mergers that were notified over the 2016-2018 period. This includes, *inter alia*, the number of mergers notified per year with respect to size, phase classification, merger outcome, the average duration taken to investigate, and the average number of mergers assessed per the Commission's merger analysts. We also approximate the merger revenue that would have been earned by the Commission over this period.

The second part presents our assessment on the efficacy of the current merger thresholds which were implemented from 01 October 2017 to date. In this regard, we assess whether this last adjustment lead to the occurrence of type I and type II errors based on the observed impact on the mergers notified over the 2016-2018 period. The findings of this assessment are used to determine: (i) whether any future adjustments could lead to the same observed error costs; and (ii) whether any future adjustments to the current merger thresholds will be based on the correct 'foundation'. The findings of this analysis are used as the comparator for our last assessment on the likely impact to the Commission's merger control regime given further adjustments to the notification thresholds.

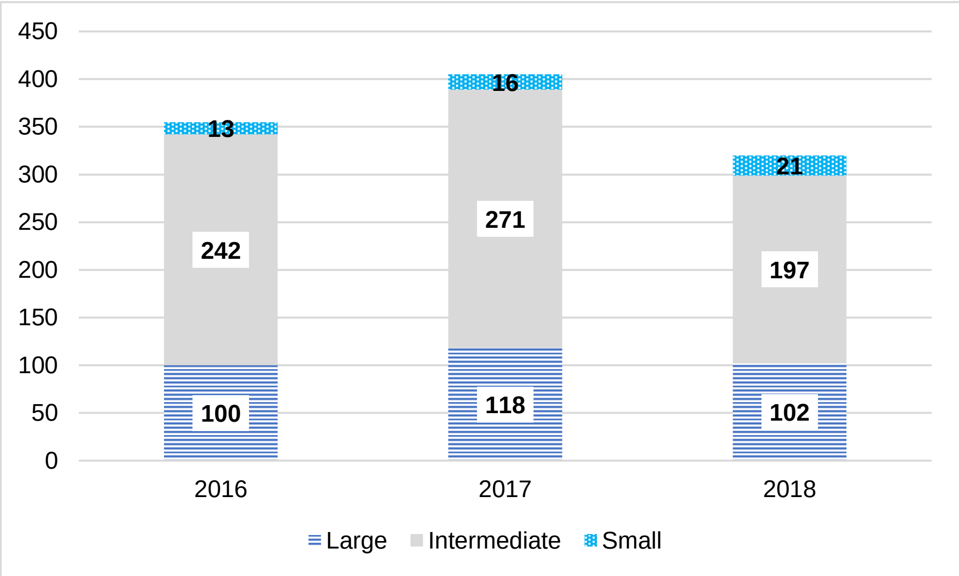
In the final part, we determine whether there are grounds to adjust the current merger thresholds to some extent as to limit the occurrence of any potential type I and type II error costs to the Commission's merger control regime. We estimate the number and type of mergers that would not be notifiable over the 2016-2018 period given an increase to the current merger thresholds. We also estimate the impact on the Commission's merger filing fee revenue. A number of different scenarios are considered in this regard.

[26] This study makes use of the merger database compiled by the Commission which captures detailed information on notified mergers in South Africa between the calendar years, 2011 and 2018.

4.2.1 *Descriptive statistics of the mergers notified over the period 2016 to 2018*

As a starting point, we summarise the mergers notified over the period 2016 to 2018. Figure 3 below illustrates the number of small, intermediate, and large mergers that have been filed at the Commission for each respective year.

Figure 3: Number of large, intermediate, and small mergers filed with the Commission, 2016-2018



Source: Authors' own compilation based on the Commission's merger database.

From Figure 3 above, it is apparent that there was a large drop in merger notifications in 2018. This may be the result of an upward adjustment in the merger notification thresholds but also an artefact of a 'depressed' economy. Intermediate mergers consistently make up the bulk of the transactions reviewed by the Commission, followed by large mergers and a handful of small mergers.

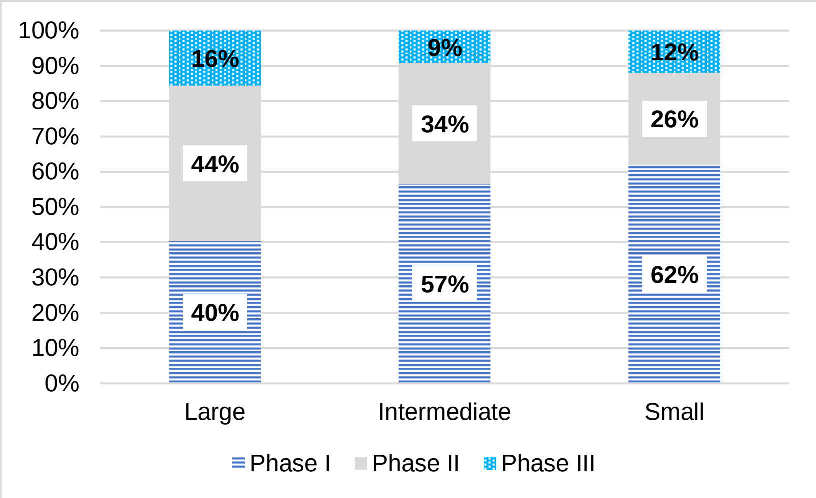
Apart from the size classification of notified mergers, the Commission also classifies mergers in each size category by the level of complexity likely to arise during the merger investigation. The complexity of merger cases is classified into three distinct phases where, Phase I mergers raise no serious competition or public interest concerns;[27] Phase II mergers require further analysis to establish whether they give rise to serious competition or public interest concerns;[28]

[27] Categorisation of mergers as Phase I is based on the overlaps between the merging parties' activities in South Africa. Under Phase I, the initial merger screening shows that there is no or insignificant overlap in the merging parties' activities with respect to expected market shares and closeness of competition between the parties. Public interest concerns may still be found as a cause for concern in Phase I mergers.

[28] Phase II mergers represent those mergers which have an overlap in the merging parties' activities and potential closeness of competition between the parties and warrant a more complex analysis into the competitive effects.

and Phase III[29] mergers require in-depth and complex analyses as they may raise serious competition or public interest concerns. Figure 4 below shows the proportion of mergers (by size) that were categorised as Phase I, Phase II and Phase III mergers.

Figure 4: Complexity of large, intermediate, and small mergers, 2016-2018



Source: Authors' own compilation based on the Commission's merger database.

The majority of the notified transactions are classified as Phase I or Phase II mergers. This implies that most notified mergers do not necessarily require in-depth and complex analysis. Notably, small mergers are largely assessed as Phase I transactions.

The percentage of mergers that are classified as Phase III is highest among large mergers at 16%.This makes sense from a concentration perspective as large firms are generally those that operate in highly concentrated markets and the impact of such an acquisition would cause a greater concern in terms of competition and public interest. This has implications for the optimal use of the Commission's resources which, if deployed appropriately, can assist to improve the institution's effectiveness.

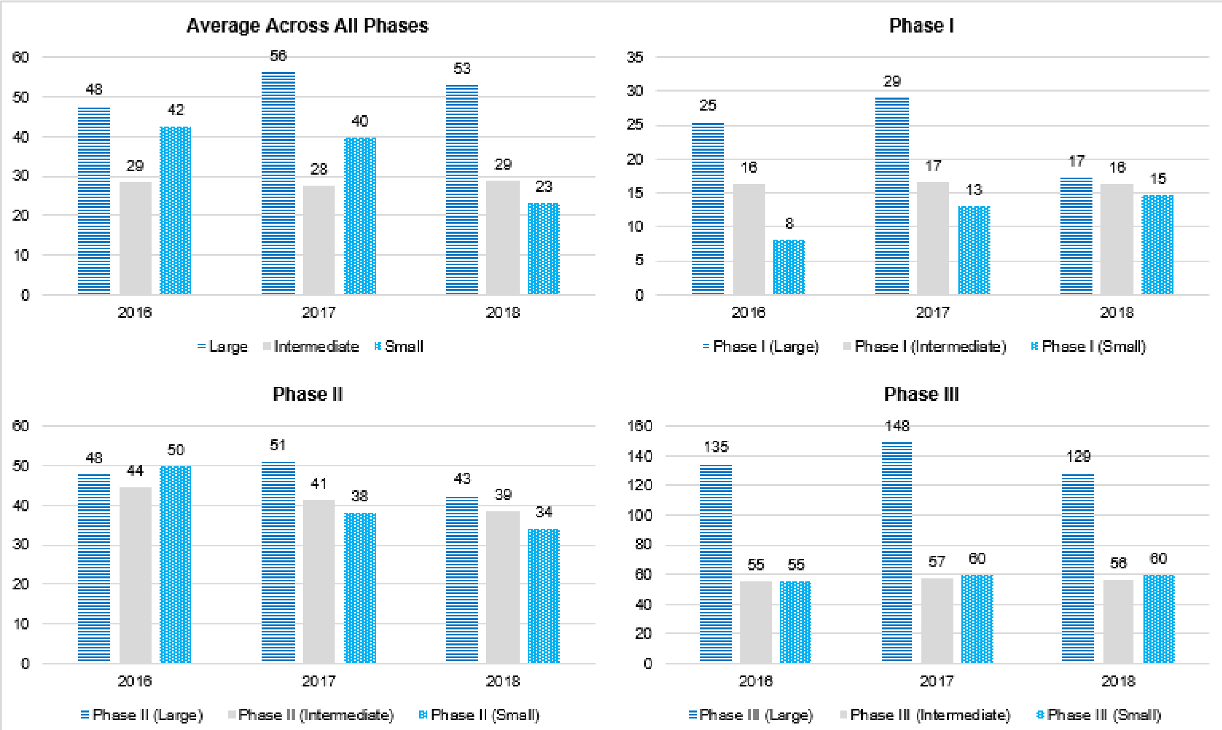
To consider the efficiency implications of the findings above, we used the average number of days taken to investigate (and finalise) a merger based on the size and complexity (phase) of the merger as a proxy. The total number of days granted for the evaluation of notified mergers differs by size of merger. The Competition Act stipulates that the Commission is given 20 business days to assess intermediate and small mergers, with the possibility of extending by 40 business days for an intermediate merger.[30] For large mergers, it is given 40 business days

[29] Mergers are generally categorised as Phase III when there is an overlap in the merging parties' activities and potentially high market shares and the transaction may involve close competitors which warrants a very complex analysis to assess the likelihood of serious competition effects arising from the merger.
[30] See Section 13(5)(a) and Section 14(1)(a) of the Act.

to assess and may extend this indefinitely by no more than 15 business days at a time given agreement by the parties to the transaction.[31]

Figure 5 below presents the average number of days taken to complete different types of mergers both by size and by complexity (phase) based on the mergers notified to the Commission over the period 2016-2018.

Figure 5: Number of days taken to complete merger cases notified over 2016-2018



Source: Authors' own computation based on merger database.

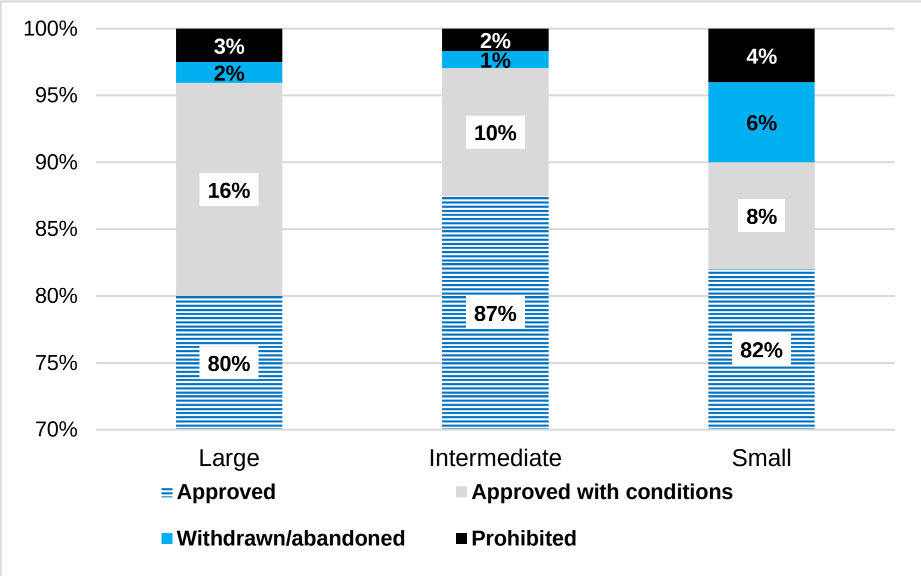
Overall, the figure above shows that Phase III mergers (or very complex mergers) take longer than less complex mergers (across all size mergers). Phase I merger assessments tend to occur within the statutorily prescribed initial investigation days for all mergers. In contrast, Phase II and III intermediate and small mergers generally require the 40-day extension allowance. In addition, the average time taken to complete large Phase II mergers exceeds the initial 40-day allowance and are finalised within the first extension limit (i.e. 15 days). Finally, large Phase III mergers require, on average, more than six 15-day extensions (i.e. an additional 97 days to finalise).

Next, we assessed the proportion of the notified mergers (by size) that were approved, approved with conditions, withdrawn or abandoned, and prohibited after the Commission's

[31] See Section 14A(2) of the Act.

investigation. The figure below shows the outcome of the investigated mergers (i.e. the Commission's final decision)[32] by size classification.

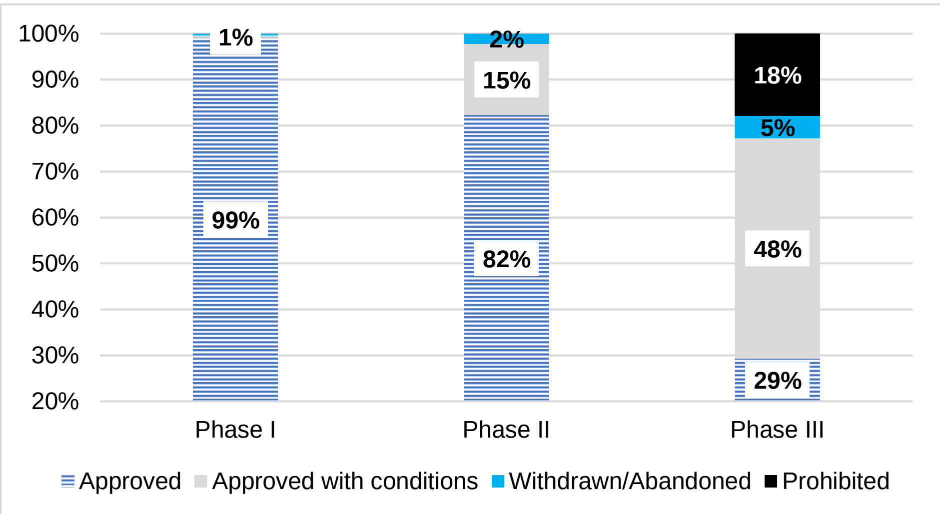
Figure 6: Merger outcomes by size, 2016-2018



Source: Authors' own compilation based on the Commission's merger database.

Broadly, Figure 6 above shows that the Commission approves a large number of the mergers it reviews, consistently approving more than 80% of these across all size categories. Conditional approvals make up the next largest category of merger outcomes. Figure 7 below shows the merger outcome by the phase of the merger.

Figure 7: Merger outcomes by phase of merger, 2016-2018

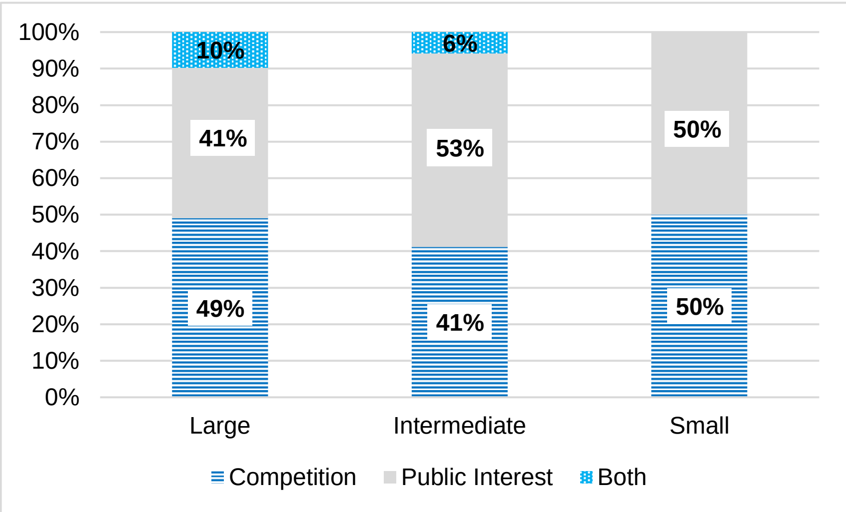


Source: Authors' own compilation based on the Commission's merger database.

[32] This only reflects the decision made by the Commission and may not include the final outcome of the merger should it have been further evaluated by the Tribunal or CAC.

Over the period 2016 to 2018, 99% of Phase I mergers were approved whilst only 1% were conditionally approved. For Phase II mergers, 82% were approved, 15% approved with conditions and 2% withdrawn or abandoned. In terms of Phase III mergers, it is not surprising that the majority were either approved with conditions (48%), with 18% prohibited and 5%, abandoned or withdrawn. The types of merger conditions contained in conditionally approved mergers are shown, by transaction size, in Figure 8 below.

Figure 8: Types of conditions in conditionally approved large, intermediate, and small mergers, 2016-2018



Source: Authors' own compilation based on the Commission's merger database.

Figure 8 above shows that a greater proportion of conditionally approved large mergers had purely competition related conditions (i.e. 49%). Approximately 41% of intermediate mergers were approved with only competition related conditions. There were just four small mergers which were subject to conditional approval, half of which had conditions addressing only competition concerns.

To determine the Commission's usage of resources to mergers investigations, we assessed the number of mergers allocated to merger analyst between 2016 and 2018. This was obtained by essentially summing the leading merger analysts that were assigned to notified mergers for each year between 2016 and 2018.[33] These numbers were weighted by the amount of time each merger analyst spent within the mergers and acquisitions division in each calendar year.[34] Table 5 below represents the number of mergers per analyst for the period.

[33] We acknowledge there are other more senior resources who oversee each merger case and that additional resources may be allocated (from the M&A division and/or from other divisions at the Commission, such as the Economic Research Bureau and the Legal Services Division) in the case of complex mergers (i.e. Phase III mergers). We focus on leading analysts because they are the Commission's primary resources tasked with the review of mergers and transactions.

[34] This information was obtained from Human Resources at the Commission.

Table 5: Number of mergers per merger analyst, 2016-2018

	2016	2017	2018
No. of mergers	360	405	320
No. of analysts	18	22	20
Mergers per analyst	20	18	16

Source: Authors' own compilation based on the Commission's merger database and employment data.
Notes: We acknowledge that these values differ from those obtained from the GCR for the period 2019/20. The differences may be due to the weighting exercise that we performed (based on the length of time each analyst worked as a merger analyst each year) as well as the inclusion of only lead analysts assigned to investigate a merger.

Table 5 above shows that there was a decrease in the number of mergers per merger analyst over the 2016-2018 period. This was due to the increased number of merger analysts in 2017 and fewer notified mergers in 2018.

We also estimated the Commission's merging filing fee revenue based on the size of mergers notified during the period 2016-2018, presented in Table 6 below. Merger filing fee revenue is an important component of the Commission's overall budget expenditure and thus a crucial component of its effectiveness.

Table 6: Merger filing fee revenue generated by the Commission over the period 2016-2018

	2016	2017	2018
Large	R35.0 million	R45.5 million	R51.0 million
Intermediate	R24.2 million	R30.15 million	R29.55 million
Small	0	0	0
Total	**R59.2 million**	**R75.65 million**	**R80.55 million**

Source: Authors' own calculations and estimates.
Note: The filing fees for large and intermediate mergers were R350 000 and R100 000 respectively before 1 October 2017. They were R500 000 and R150 000 from 1 October 2017 until 31 December 2018.
Note: These figures may differ from the Commission's records as it is based on the authors' own calculations.

The adjustments made on merger filing fees is imperative to safeguard the Commission's overall revenue to avoid a reduction in its financial resources, especially in an environment where there is a government-wide programme to cut institutional budgets. Therefore, frequent adjustments are important to maintain adequate financial resources as to not hamper institutional effectiveness especially with respect to merger control.

4.2.2 *The efficacy of the current merger thresholds*

To evaluate the effectiveness of the current merger thresholds implemented from 1 October 2017 to date, we assessed the impact of the current merger thresholds on the mergers notified before the increase. This allowed us to test the extent to which the most recent revision to the merger thresholds may have given rise to type I and II error costs. If the findings are to show that the increase did not significantly give rise to these costs, we assumed that the thresholds were appropriately set. This is important insofar as it informs whether any future revisions to merger thresholds are set on the correct foundation.

Table 7 below shows the change in the number of notifiable mergers as a result of applying the October 2017 thresholds to the mergers notified between the period, 1 January 2016 to 31 September 2017. Specifically, the table below shows the number of large mergers that would be reclassified as intermediate, and intermediate mergers as small mergers.

Table 7: Comparison of the number of large, intermediate, and small mergers under historical and October 2017 thresholds, 2016-2018

	2016	2017	2018	2016-2018
Mergers under historical thresholds				
Large	100	118	102	320
Intermediate	242	271	197	710
Small	13	16	21	50
Mergers under October 2017 thresholds				
Large	100	118	102	320
Intermediate	217	243	197	657
Small	38	44	21	103
Total	**355**	**405**	**320**	**1080**

Source: Authors' own approximations based on the Commission's merger database.

Table 7 shows that had the October 2017 thresholds applied to the first part of the 2016-2018 period, there would have been 25 fewer notifiable mergers in 2016 (a 7.3% decrease) and 28 fewer notifiable mergers in 2017 (a 7.2% decrease). Overall, there would be 53 or 7.2% fewer notifiable mergers over the 2016-2018 period. Notably, the number of large mergers is not impacted and thus remains the same.

Given that the impact is only on intermediate mergers, we also assess the changes on the phase classification of these mergers. This is presented in Table 8 below.

Table 8: Comparison of phase classification of intermediate, small and non-notifiable mergers under historical and October 2017 thresholds, 2016-2018

	Phase I	Phase II	Phase III	Total
Number of mergers classified as intermediate mergers				
Historical Thresholds	402	241	67	**710**
October 2017 Thresholds	365	227	65	**657**
Number of mergers classified as small mergers				
Historical Thresholds	31	13	6	**50**
October 2017 Thresholds	68	27	8	**103**
Total number of intermediate mergers reclassified as small mergers	**37**	**14**	**2**	**53**

Source: Authors' own approximations based on the Commission's merger database.

The phase classification of the intermediate mergers that would not be notified (a total of 53 mergers) is as follows: 37 (69.8%) Phase I mergers, 14 (26.4%) Phase II, and two (3.8%) Phase III. This shows that even if such mergers were reclassified to not require mandatory notification, there is a low risk of missing problematic mergers (estimated at 3.8% based on the Phase III classification).[35]

For a more in-depth assessment on the impact of the October 2017 threshold changes, we assessed the outcomes of these non-notifiable intermediate mergers. Table 9 below compares the outcomes of non-notifiable mergers under the historical thresholds and after the October 2017 thresholds are applied to the mergers over the 2016-2018 period.

Table 9: Comparison of outcomes of small (or non-notifiable intermediate mergers) under historical and October 2017 thresholds, 2016-2018

	Historical thresholds	October 2017 thresholds	Difference
Approved	41 (82.0%)	90 (87.4%)	49 (92.5%)
Approved with conditions	4 (8.0%)	7 (6.8%)	3 (5.7%)
Withdrawn/abandoned	3 (6.0%)	3 (2.9%)	
Prohibited	2 (4.0%)	3 (2.9%)	1 (1.9%)
Total	**50 (100%)**	**103 (100%)**	**53 (100%)**

Source: Authors' own approximations based on the Commission's merger database.

Table 9 above shows that a total of 53 mergers or 5.2% of the overall mergers would not have been notifiable under the October 2017 thresholds. It is notable that even though the vast majority of these mergers were or would have been approved without any competition concerns (approximately 49 or 92.5%), a total of four (7.5%) mergers with significant competition concerns would not have been notifiable. This presents a potential type II error cost. Of these mergers that would have been non-notifiable, three were conditionally approved mergers[36] subject to competition related conditions (with one of the three also subject to public interest conditions) and would otherwise have a direct impact on the affected industries.[37]

[35] In addition, there is just a 3% reduction in the number of Phase III intermediate mergers and a 0.9% reduction in notifiable (large and intermediate) Phase III mergers.

[36] This change constituted a 4.4% reduction in the number of intermediate mergers with conditional approval and a 2.5% decline in the number of notifiable mergers with conditional approval.

[37] These affected industries would have involved: the manufacturing industry for specific technological products with behavioural conditions relating to pricing methodology and supply terms (Reutech (Pty) Ltd/Nanoteq (Pty) Ltd – Phase II); the grain milling industry which was subject to both competition and public interest related conditions concerning information exchange and retrenchments (VKB Milling (Pty) Ltd/Progress Milling (Lydenburg) (Pty) Ltd – Phase III); and the mattress manufacturing industry which was subject to a behavioural condition relating to the revision of the restraint of trade term applied (KAP Bedding (Pty) Ltd/Support a Paedic cc and RME Components cc – Phase II).

There was also a prohibited merger that would not be notifiable under these revised thresholds.[38] This would have impacted on competition in the mining industry.[39]

Overall, the efficacy of the October 2017 threshold adjustment appears to have resulted in few, although still concerning, negative consequences in terms of type II error cost occurrences. Based on just the number of intermediate mergers that would not be notified, four would pose competition concerns. In absolute terms, four problematic mergers escaping scrutiny may appear unsubstantial. However, on the other hand, if one were to look at the substantive impact of these four mergers not being notified, there may be a case to be made that merger thresholds resulted in too high an increase in Type II error cost as we discuss in our findings further below.

4.2.3 The impact of raising merger thresholds

Having established that the previous revisions to the thresholds were set appropriately in terms of balancing error cost occurrences, we evaluate the number of notified mergers that would be impacted by a change in the current thresholds. We focus our analyses mainly on intermediate mergers as an increase in the thresholds would mostly affect the number of intermediate mergers notified. However, we have also included an analysis on the number of large mergers notified (under certain threshold scenarios) where some would be categorised as an intermediate merger instead. As mentioned in the sections above, large mergers have the benefit of unlimited extension in the number of days allocated for investigation. Therefore, certain large mergers that would be categorised as an intermediate merger may lose the benefit of an extended window for investigation.

The point of the analysis is to determine the most appropriate thresholds that would likely result in the reduction of notifiable mergers to the Commission without limiting the number of mergers with competition and/or public interest concerns from escaping merger control. Therefore, we pay close attention to reducing the prevalence of type I and type II error costs and equally ensuring that the Commission's ability to enforce effective merger policy measures in South Africa is not impacted as a result.

[38] This change constituted an 8.3% reduction in the number of prohibited intermediate mergers and a 5.0% decline in the number of prohibited notifiable mergers.

[39] The merging parties specifically dealt with supplying mining bags to the mining industry, see Competition Tribunal Case no.: IM100Jul17 in the reconsideration of the intermediate merger between Timrite (Pty) Ltd and the Mining Bag Division of Tufbag (Pty) Ltd (Phase III). The Competition Tribunal ultimately reversed the Commission's prohibition decision and approved the merger subject to competition and public interest conditions instead. The competition findings related to vertical foreclosure concerns and the remedies included: (i) removal of any exclusivity clauses contained in existing and future manufacturing agreements and third parties would not be precluded from manufacturing competing products subject to Timrite's IP protections; and (ii) the provision of a general condition to address inducement relating to inducing any input supplier to not deal with any of the merged entity's competitors in the industry. The public interest condition related to a two-year moratorium on retrenchments.

We have set the thresholds according to a number of pre-specified scenarios to ultimately assess the best level at which the thresholds could be changed by the Commission in future. The number of notified mergers in this section is based on the mergers notified to the Commission over the period 2016 to 2018.[40] The following merger thresholds scenarios are assessed in this section:

(i) An increase to only the target firm's thresholds for intermediate and large merger;

(ii) An increase to only the combined firms' thresholds for intermediate and large merger;

(iii) An increase to both the target and combined firms' thresholds for intermediate and large merger; and

(iv) An increase as proposed under the WBG study on only the intermediate merger thresholds.

An increase to only the target firm's thresholds

We assess the impact on the number of intermediate mergers that would be affected given an increase to only the target firm's thresholds. The Commission's current intermediate and large merger thresholds for the target firm is increased by 5%, 10%, 15% and 20%. The results are shown in Table 10 below.

Table 10: Impact on intermediate and large mergers given an increase to only the target firm's thresholds, 2016-2018

	Current	5%	10%	15%	20%
Target firm's thresholds (intermediate and large)	R100m R190m	R105m R199.5m	R110m R209m	R115m R218.5m	R120m R228m
Total no. of large mergers	320	314	310	306	296
Total no. of intermediate mergers	657	648	639	633	620
No. of large mergers changed to an intermediate merger	-	6	10	14	24
No. of intermediate mergers changed to a small merger	-	15	28	38	61
Outcome of intermediate mergers		**Outcome of the dropped intermediate mergers**			
Approved	572	13	26	36	55

[40] The merger categories have already been changed in the 2016 to 2018 observation period in accordance with the current merger thresholds that was implemented 1 October 2017. This is to allow for an easier comparison of the impact on the number of notifiable mergers given the various scenarios assessed.

Approved with conditions	65	2	2	2	6
Phase of intermediate mergers		**Phase of the dropped intermediate mergers**			
Phase I	365	7	16	21	33
Phase II	227	7	11	15	22
Phase III	65	1	1	2	6

Source: Authors' own compilation based on the Commission's merger database.

The impact on the large and intermediate notifiable mergers over the period 2016-2018 given a 5%, 10%, 15% and 20% increase in the target firm's intermediate and large merger thresholds are as follows:

(i) If the target firm's thresholds **increased by 5%**, 15 intermediate mergers would be reclassified as small mergers (2.3% decrease in all notifiable mergers) whilst six large mergers would become intermediate mergers. A total of seven Phase I mergers, seven Phase II mergers and one Phase III merger would be lost.

(ii) If the target firm's thresholds **increased by 10%**, 28 intermediate mergers would not be notifiable (4.3% reduction) whilst ten large mergers would be reclassified as intermediate. A total of 16 Phase I mergers, 11 Phase II mergers and one Phase III merger would be lost.

(iii) If the target firm's thresholds **increased by 15%**, 38 intermediate mergers would not be notifiable (5.8% reduction) whilst 14 large mergers would be reclassified as intermediate. A total of 21 Phase I mergers, 15 Phase II mergers and two Phase III mergers would be lost.

(iv) Regardless of whether the target's thresholds increased by 5%, 10% or 15%, most of the mergers would have been approved, with the exception of only two mergers approved with conditions that would not have required mandatory notification. would not have required mandatory notification. The conditions of the first merger related to both competition and public interest related concerns[41] and the other related to only public interest concerns.[42]

[41] The merger impacts the market for the sale of building materials, hardware and related products (merger between Cashbuild South Africa (Pty) Ltd and Buffalo Building Supplies (Pty) Ltd, etc. – Phase II). The public interest conditions relate to retrenchments and continued procurement from local suppliers within reasonable commercial terms. The competition related condition relates to the reduction in the period of the restraint of trade terms applied.
[42] The merger impacts the market for non-specialised wholesale trade, in particular the market for the distribution of industrial fasteners. The Commission approved the merger subject to conditions to address public interest concern in respect of retrenchments. (Merger between Hudaco Trading (Pty) Ltd and the business of Boltworld (Pty) Ltd – Phase III).

(v) If the target firm's thresholds **increased by 20%**, 61 intermediate mergers would not have been notifiable (9.3% reduction) whilst 24 large mergers would have been assessed as an intermediate merger. Six of the 61 intermediate mergers that would not face mandatory notification were approved with conditions. Two of the six conditionally approved mergers included conditions related to competition concerns,[43] one relating to both public interest and competition related concerns, and the other three included conditions related to public interest concerns.[44] A total of 33 Phase I mergers, 22 Phase II mergers and six Phase III mergers would be lost.

Although these adjustments have resulted in a reduction in type I errors, these reductions have been relatively small under the 5 to 15% scenarios. There would be 1.6%. 3.2% and 4.3% reduction in the number of notifiable mergers that were approved without conditions under a 5%, 10% and 15% respectively. Similarly, there would be a 1.6%, 3.1% and 4.2% reduction in the number of notifiable Phase I or Phase II mergers under each of the scenarios

If we measure complexity by the number of Phase III mergers as well as the number of conditional approvals that would be non-notifiable under higher thresholds, the risk of the type II errors occurring under 5-15% threshold increases is low. Most of these non-notifiable intermediate mergers were mostly classified as Phase I and II, with very low numbers of Phase III. Furthermore, most of these mergers were approved with no conditions, further confirming the low likelihood of the type II error occurring.

If we took a more conservative approach to complexity such that both Phase II[45] and Phase III mergers are a proxy to limit error costs, we may infer that there could be a higher likelihood of type II errors arising under 5 - 15% higher thresholds (as opposed to where complexity is measured by Phase III mergers only).

Given the high levels of concentration in South Africa and the permanent nature in which mergers can alter market structures, it may be permissible to have a more conservative

[43] These mergers impact the market for the supply of advertising and listing of property on online platforms (merger between CTP Limited and Private Property South Africa (Pty) Ltd – Phase II) and the market for the manufacture and supply of specific medical devices (merger between Abbott Laboratories and St. Jude Medical Inc. – Phase III). One being subject to a behavioural condition relating to information exchange and the other a structural remedy relating to a divestiture. In addition to the Cashbuild/Buffalo Building merger, above.

[44] These mergers impact the carpet manufacturing and supply industry (merger between Like Wise Trading (Pty) Ltd and Selborne Carpet Wholesalers cc – Phase II) and the cement industry (merger between Imerys SA and Kern Tech 1 – Phase III). Both mergers subject to public interest concerns relating to retrenchments. In addition to merger case no.: Hudaco Trading/Boltworld and Cashbuild/Buffalo Builing mergers, above.

[45] As shown in the descriptive statistics section, 15% of Phase II mergers that were reviewed by the Commission were approved with conditions over the period 2016 to 2018. In addition, several the mergers that would not be notifiable and approved with conditions were categorised as Phase II mergers. This is similar for the other scenarios that we have considered in our assessment. Hence, we also consider Phase II mergers with respect to the complexity considerations of mergers reviewed by the Commission.

merger threshold regime. That is, it may be more advisable to err on the side of caution and consider the impact, not just on Phase III mergers, but also on Phase II mergers to avoid incurring type II error costs – i.e. complex mergers that may not be notified to the Commission. This concern is likely to be more pronounced than in October 2017 following South Africa's decline into recession and then the Covid-19 Crisis.

An increase to only the combined firms' thresholds

We assess the number of intermediate and large mergers that would be affected given an increase of only the combined firms' thresholds. The Commission's current intermediate and large merger thresholds for the combined firms are increased by 10%, 20%, 30%, 40% and 45%. For this assessment, the combined firms' thresholds are increased by a larger percentage because fewer 'problematic' mergers are likely to escape competition scrutiny compared to if the thresholds for the target firm are raised by the same amount. The results are presented in Table 11 below.

Table 11: Impact on intermediate and large mergers given an increase to only the combined firms' thresholds, 2016-2018

	Current	10%	20%	30%	40%	45%
Combined firms' threshold (intermediate and large)	R600m R6.6bn	R660m R7.26bn	R720m R7.92bn	R780m R8.58bn	R840m R9.24bn	R870m R9.57bn
Total large mergers	320	309	292	278	263	258
Total no. of intermediate mergers	657	649	660	651	653	646
No. of Large mergers to change to Intermediate	-	11	28	42	57	62
No. of non-notifiable intermediate mergers	-	19	25	48	61	73
Outcome of intermediate mergers		**Outcome of the dropped intermediate mergers**				
Approved	572	17	23	45	58	67
Approved with conditions	65	1	1	2	2	5
Withdrawn/Abandoned	9	1	1	1	1	1
Phase of intermediate mergers		**Phase of the dropped intermediate mergers**				
Phase I	365	14	19	38	49	52
Phase II	227	4	5	8	10	17
Phase III	65	1	1	2	2	4

Source: Authors' own compilation based on the Commission's merger database.

The impact on the large and intermediate notifiable mergers over the period 2016-2018 given a 10%, 20%, 30%, 40% and 45% increase in the combined firms' thresholds for intermediate and large mergers are as follows:

(i) If the combined firms' thresholds **increase by 10%**, 19 intermediate mergers would not be notifiable (2.9% reduction) whilst 11 large mergers would be reclassified as intermediate. A total of 14 Phase I mergers, four Phase II mergers and one Phase III merger would be lost.

(ii) If the combined firms' thresholds **increase by 20%**, 25 intermediate mergers would not be notifiable (3.8% reduction) whilst 28 large mergers would be reclassified as intermediate. A total of 19 Phase I mergers, five Phase II mergers and one Phase III merger would be lost.

(iii) If the combined firms' thresholds **increase by 30%**, 48 intermediate mergers would not be notifiable (7.3% reduction) whilst 42 large mergers would be reclassified as intermediate. A total of 38 Phase I mergers, eight Phase II mergers and two Phase III mergers would be lost.

(iv) If the combined firms' thresholds **increase by 40%**, 61 intermediate mergers would not be notifiable (8.7% reduction) whilst 57 large mergers would be assessed as an intermediate merger. A total of 49 Phase I mergers, ten Phase II mergers and two Phase III mergers would be lost.

(v) Regardless of whether the thresholds are increased by 10% or 20%, we find that there would only have been one conditionally approved merger (subject to public interest conditions)[46] and one 'withdrawn/abandoned' merger that would not have been notified.[47] If the threshold is increased by 30% or 40%, then two conditionally approved mergers would not be notified, one subject to public interest related conditions and the other subject to competition related conditions.[48]

(vi) If the combined firms' thresholds **increase by 45%**, 73 intermediate mergers would not be notifiable (11.1% reduction) whilst 62 large mergers would be assessed as an intermediate merger. A total of 52 Phase I mergers, 17 Phase II mergers and four Phase III mergers would be lost. A further three conditionally approved mergers would not have been notified, amounting to a total of five conditionally approved mergers not

[46] The merger between Lambda Corporation and C.R. Bard Incorporated (Phase III), affecting the market for the supply of biopsy needles, contained conditions addressing public interest concerns relating to a moratorium on merger-specific retrenchments.
[47] The abandoned merger relates to the merger between Firmenich (Pty) Ltd/Flavoursome (Pty) Ltd (Phase I).
[48] The additional conditionally approved merger that would not be notifiable under a 30% and 40% increase is the merger between Abbott Laboratories and St. Jude Medical Inc merger (Phase III), affecting the market for the manufacture of certain medical devices, was subject to competition-related conditions in which a divestment remedy was implemented.

subject to mandatory notification. Two of these were subject to public interest related conditions[49] and one subject to competition related conditions.[50]

Similar to the findings from Table 10, the overall findings from Table 11 above also show a small reduction in type I errors. There would be small reductions in the number of unconditionally approved and Phase I notifiable mergers under combined thresholds that are 10% or 20% higher than current levels. In particular, there would be a 2.1% - 2.8% reduction in the number of approved notifiable mergers and a 2.8% - 3.8% reduction in the number of Phase I notifiable mergers (and a 2.1% - 2.8% reduction in Phase I and II notifiable mergers). Therefore, a 10% or 20% higher threshold would lead to a negligible reduction in Type I error costs.

There would slightly larger reductions in the number of non-problematic notifiable mergers (and so Type 1 error costs) under 30%, 40% and 45% increases in the combined merger thresholds. Specifically, there would be between a 5.4% - 8.1% decline in the number of notifiable approved mergers and a 7.7% - 10.5% decline in the number of notifiable Phase I mergers (5.3% - 8.0% decline) if Phase I and Phase II notifiable mergers are considered.

Unlike the findings from Table 10, an increase of 20% to only the combined firms' thresholds does not increase the number of complex mergers (Phase II and Phase III intermediate mergers) nor the number of conditionally approved mergers that would be non-notifiable to such a significant extent.[51] A slightly higher prevalence of incurring type II error costs occurs if thresholds are raised to 30% or 40% (one additional conditionally approved merger would escape notification) although this coincides with higher reductions in Type I error costs. Type II error costs only appear to become more pronounced from increases of over 45% to the combined firms' thresholds when the number of non-notifiable mergers without unconditional approval doubles.

An increase to both the target and combined firms' thresholds

[49] These mergers impact the markets for the manufacture of wearable apparel (merger between Boardriders Inc. and Billabong International Limited – Phase III), and the market consisting of industrial machinery and equipment (merger between Konecranes PLC and Terex Material Handling and Port Solutions – Phase II). Both mergers involved public interest related conditions concerning a moratorium on merger-specific retrenchments. This also includes the conditionally approved mergers that would not be notifiable under the 10% to 40% thresholds increase.
[50] The merger that was approved with competition-related conditions impacted the broader market for line haul transportation services. The implemented remedies related to conditions involving the exchange of competitively sensitive information (merger between SEMA Holdings Ltd and CWT-Aquarius Shipping International (Pty) Ltd – Phase III).
[51] Whereas a 20% increase in target thresholds raised the number of non-notifiable complex mergers (Phase II and III) by 28 and the number of non-notifiable conditionally approved mergers by 6, raising the combined thresholds by 20% only resulted in 6 more non-notifiable complex mergers and 2 mergers that were not unconditionally approved.

We also estimate the impact on the number of intermediate and large mergers notified if the intermediate and large merger thresholds for both the target firm and combined firms are increased. We use two scenarios: if the intermediate and large merger thresholds of the target firm are increased by 15% and the combined firms' intermediate and large merger thresholds are increased by either 20% or 40%. This is summarised in Table 12 below.

Table 12: Impact on intermediate and large mergers given an increase in both thresholds, 2016-2018

	Current	15% target, 20% combined	15% target, 40% combined
Target firm threshold (intermediate and large)	R100m R190m	R115m R218.5m	R115m R218.5m
Combined firm threshold (intermediate and large)	R600m R6.6bn	R720m R7.92bn	R840m R9.24bn
Total Large mergers	320	280	252
Total Intermediate mergers	657	635	629
No. of large mergers reclassified as intermediate	-	40	68
No. of intermediate mergers reclassified as small mergers	-	62	96
Outcome of the dropped intermediate mergers			
Approved	572	58	91
Approved with conditions	65	3	4
Abandoned/Withdrawn	9	1	1
Phase of the dropped intermediate mergers			
Phase I	365	39	67
Phase II	227	20	25
Phase III	65	3	4
Outcome of large mergers that have shifted to intermediate			
Approved	256	34	57
Approved with conditions	51	5	9
Prohibited	8	1	1
Phase of large mergers that have shifted to intermediate			
Phase I	129	18	32
Phase II	141	12	24
Phase III	50	10	12

Source: Authors' own compilation based on the Commission's merger database.

The impact on the large and intermediate notifiable mergers over the period 2016-2018 given a 15% increase in the target firm's thresholds for intermediate and large mergers and either a 20% or 40% increase in the combined firms' intermediate and large merger thresholds are as follows:

(i) An increase of **15% of the target firm's and 20% of the combined firms' thresholds** would result in the reduction of 62 intermediate mergers (that will not be subject to notification) and 40 large mergers that would be notified as an intermediate merger instead. A total of 39 Phase I mergers, 20 Phase II mergers and three Phase III mergers would not be subject to mandatory notification. In terms of the large mergers that would be categorised as an intermediate merger, 18 had been evaluated as a Phase I, 12 as a Phase II, and ten as a Phase III.

(ii) An increase of **15% of the target firm's and 40% of the combined firms' thresholds** would result in the reduction of 96 intermediate mergers (that will not be subject to notification) and 68 large mergers that would be notified as an intermediate merger instead. A total of 67 Phase I mergers, 25 Phase II mergers and four Phase III mergers would not be subject to mandatory notification. In terms of the large mergers that would be categorised as an intermediate merger instead, 32 had been evaluated as a Phase I, 24 as a Phase II, and 12 as a Phase III.

(iii) In terms of the conditionally approved mergers that would not face mandatory notification, three intermediate mergers would be dropped following a 15% and 20% threshold increase,[52] whilst four would be dropped following a 15% and 40% increase.[53]

(iv) In terms of the impact on large mergers which would be categorised as intermediate mergers given an increase in the large merger thresholds (in addition to intermediate merger thresholds), we also assessed the impact on the Phase III large mergers. Table 13 below provides the breakdown of these Phase III large mergers by the overall outcome of the merger and the average number of days taken to investigate these mergers.

[52] Of the three conditionally approved mergers, two were subject to public interest conditions relating to employment and retrenchment (Lambda Corp./C.R. Bard Inc. – Phase III, and Hudaco Trading/the business of Boltworld – Phase III, see footnotes **Error! Bookmark not defined.** and 42, above), and the other was subject to both competition and public interest related conditions (Cashbuild/Buffalo Building – Phase II, see footnote **Error! Bookmark not defined.**).

[53] An additional conditionally approved merger subject to competition related conditions would also be dropped under this increase scenario (Abbot Laboratories/St. Jude Medical – Phase III, see footnote48).

Table 13: Phase III large merger assessed as intermediate mergers given the threshold increase, 2016-2018

	15% target, 20% combined	15% target, 40% combined
No. of Phase III large mergers categorised as intermediate instead		
Approved	5	6
Approved with conditions	4	5
Prohibited	1	1
Total	10	12
Average number of days		
Approved	101	102
Approved with conditions	142	137
Prohibited	168	168
Total Average	125	122

Source: Authors' own compilation based on the Commission's merger database.

(vi) The total number of large Phase III mergers that would fall under an intermediate merger does not vary much across the two threshold scenarios. For the 15% target and 20% combined, the number of 'recategorized' large Phase III mergers is ten, whilst it increases to 12 for the 15% target and 40% combined increase. The average number of days is between 125 days and 122 days, respectively. For approved Phase III mergers, an average of 101 and 102 days were taken to investigate, respectively and for the conditionally approved mergers, an average of 142 days and 137 days were taken to investigate. Overall, the prohibited merger took 168 days to investigate. It is important to note that under an intermediate merger, these large Phase IIII mergers would only be given a total of 60 business days to conclude investigation of these mergers. An increase in the thresholds would thus have an impact on the number of days that could be taken to investigate large complex mergers. This is an especially warranted consideration if we assumed that these large mergers truly required the additional time to provide a more thorough investigation of these Phase III mergers.

Our findings show that if the combined firms' threshold is raised by 20% and the target firm's threshold by 15%, there would be 62 fewer notifiable mergers over the 2016 - 2018 period (about 20 per year), only four of which were not approved unconditionally. If the combined threshold was increased by 40% instead, then there would be 96 fewer notifiable mergers (about 32 per year), only five of which were not unconditionally approved. The number of non-notifiable intermediate mergers approved with conditions increases under these scenarios, i.e. either three or four conditionally approved mergers would not face competition and public interest scrutiny. In terms of the complexity of the non-notifiable intermediate mergers, we note a slight increase in the number of Phase III intermediate mergers that would escape competition review, i.e. either three or four Phase III mergers. However, under a conservative approach, a larger number of Phase II mergers would be non-notifiable, i.e. either 20 or 25 (respectively). What is most striking is the number of Phase III large mergers that would be assessed as intermediate mergers instead should the large merger threshold be raised as well. This would potentially impact on the time needed to investigate these large mergers. Under these two scenarios, there is potentially a higher probability of incurring type II errors. This concern is likely to be more pronounced than in October 2017 following South Africa's decline into recession and then the Covid-19 crisis.

An increase to the thresholds based on the WBG benchmarking estimates

The last three scenarios for the increase of the thresholds is based on the estimated intermediate merger thresholds suggested by the WBG.[54] Table 14 below shows the change in the number of notified mergers if the intermediate merger thresholds were increased to:

(i) R666.4 million (rounded to R670 million) for the combined and R96.7 million (rounded to R100 million) for the target firm which represents the **95% lower bound model** estimate;

(ii) R1.05 billion for the combined and R176.3 million (rounded to R180 million) for the target firm which represents the **mid-point model** estimate; and

(iii) R1.67 billion for the combined and R321.6 million for the target firm which represents the **95% upper bound model** estimate.

Table 14: Impact on intermediate and large mergers under the thresholds determined by the WBG, 2016-2018

	Current	Model 95% Lower Bound	Model Point Estimate	Model 95% Upper bound
Target firm threshold	R100m	R100m	R180m	R320m
Combined firm threshold	R600m	R670m	R1.05bn	R1.67bn
Total Large mergers	320	320	320	260
Intermediate mergers that remain categorised as intermediate	657	636	360	194
Total Intermediate mergers	657	636	360	194
No. of Large mergers to change to Intermediate	-	-	-	-
No. of Intermediate mergers not captured	-	21	297	463
Outcome of the dropped intermediate mergers				

[54] The thresholds determined by the WBG using the country benchmarking analysis presented in section 4.2.1 above.

Approved	572	19	271	413
Approved with conditions	65	1	17	36
Abandoned/Withdrawn	9	1	6	7
Prohibited	11	-	3	7
Phase of the dropped intermediate mergers				
Phase I	365	15	180	270
Phase II	227	5	94	150
Phase III	65	1	23	43

Source: Authors' own compilation based on the Commission's merger database.

The impact on the notifiable mergers according to the proposed increases suggested by the WBG study over the period 2016-2018 are as follows:

(i) The **95% lower bound estimate** for the thresholds would result in a reduction of 21 notifiable intermediate mergers. 19 of these intermediate mergers were approved without conditions, one conditionally approved[55] and one withdrawn/abandoned.

(ii) Increasing the intermediate merger thresholds according to the WBG's **mid-point model estimate** would result in the significant reduction of 297 notifiable intermediate mergers. 271 of these 297 mergers had been approved without conditions, 17 had

[55] The conditionally approved intermediate merger had only public interest conditions applied in respect of a moratorium on merger-specific retrenchment (Lambda Corp./C.R. Bard Inc. – Phase III, see footnote 46).

been conditionally approved,[56] six had been abandoned/withdrawn,[57] and three had been prohibited.[58]

(iii) Lastly, if the intermediate merger thresholds are raised according to the WBG's **95% upper bound estimate**, an estimated 463 intermediate mergers would not have faced notification. 413 of these mergers had been approved without conditions, 36 had been

[56] The conditions applied to the 17 conditionally approved mergers addressed the following concerns:

(i) Ten were related to public interest concerns with mainly employment conditions and retrenchment conditions applied, merger cases: Konecranes plc/Terex Material Handling, etc. – Phase II (see footnote 49), Imerys SA/Kern Tech 1 – Phase III (see footnote 44), Lambda Corporation/C.R. Bard Inc. – Phase III (see footnote 46), Like Wise Trading/Selborne Carpet Wholesalers – Phase II (see footnote 44), Truworths/Load of Living – Phase II (relating to procurement from local suppliers), Boardriders Inc./Billabong International Limited – Phase III (see footnote 49), Pure Pharmacy Retail/U Farrell and Sons – Phase II (relating to the retail pharmacy market), Hudaco Trading/the business of Boltworld – Phase III (see footnote **Error! Bookmark not defined.**), ACSO Fund I Partnership/Skynet South Africa – Phase II (courier and related services), and Tourvest Financial Services/Travelex Africa Foreign Exchange – Phase II (foreign exchange market for travel services);

(ii) Four were related to competition concerns, merger cases: Abbot Laboratories/St. Jude Medical Inc. – Phase III (see footnote 48) relating to divestment, Puratos Group/Bidvest Bakery Solutions – Phase II (market for baking ingredients) relating to restraint of trade revisions, CTP/Private Property – Phase II (see footnote 43), and SEMA/CWT-Aquarius Shipping International – Phase III (see footnote 50) relating to information exchange conditions; and

(iii) Three were related to both public interest and competition concerns, merger cases: Vitas South Africa/the Profert Cluster – Phase II (fertiliser market) relating to employment and divestiture conditions, Cashbuild South Africa/Buffalo Building Supplies, etc. – Phase II (see footnote **Error! Bookmark not defined.**) relating to retrenchment and restraint of trade conditions, and Rhone Capital/Fluidra SA – Phase III (swimming pool equipment market) relating to procurement, BEE trusts and employments conditions, amongst others.

[57] In terms of the abandoned and withdrawn merger, 4 of the 6 were withdrawn whilst 2 were abandoned. In particular, Master Drilling/Atlantis Drill (Phase III) and Rhone Capital/Fluidra SA (Phase III) were both withdrawn and re-filed to the Commission. Master Drilling/Atlantis was refiled as a small merger and approved without conditions, whilst Rhone Capital/Fluidra SA was refiled and approved conditionally. The merger between Corobrik and Makana Brick (Phase III) was abandoned after the Commission prohibited the merger. The Firmenich/Flavoursome (Phase I) merger was also abandoned by the parties. The two remaining withdrawn proposed transactions concerned Boehringer Ingelheim International/Sanofi SA (Phase II) and K2014202010/Il Molino cc (Phase II).

[58] The three prohibited mergers that would have escaped the Commission merger control related to the following market definition and type of overlap:

(i) a horizontal overlap in the national market for the manufacture of asphalt in which potential unilateral and coordinated effects were assessed (merger between Much Asphalt (Pty) Ltd and the road span plants owned by Roadspan Surfaces (Pty) Ltd – Phase III);

(ii) a vertical overlap in the national market for the upstream market for the trading of wheat whereby the merger was ultimately prohibited due to the finding of possible collusive behaviour stemming from the merger (merger between K2014202010 (Pty) Ltd and African Star Grain and Milling (Pty) Ltd – Phase III); and

(iii) the provincial market for the manufacture and supply of steel drums in which the merger would have resulted in a near-monopoly market structure whereby the Commission found that the merger resulted in the removal of an effective competitor with a high likelihood that the merged entity would be able to unilateral raise prices (merger between Greif International Holding B.V. and Rheem South Africa (Pty) Ltd – Phase III).

conditionally approved,[59] seven had been withdrawn/abandoned and seven prohibited.[60]

Applying the mid-point estimate and the 95% upper bound estimate as the thresholds results in a much higher prevalence of incurring type II error costs, i.e. there is a notable increase in the number of problematic mergers based on merger outcome and phase classification. The prevalence of type I error costs appears to be mitigated in terms of the proportion of non-problematic non-notifiable intermediate mergers compared to the problematic mergers. Therefore, raising the merger thresholds to such an extent would benefit the Commission only in respect to lessening the burden of reviewing non-problematic mergers, but at the expense of incurring significant type II error costs.

The likely impact on merger control efficacy – comparison of the scenarios

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[59] Following the 17 conditionally approved mergers that would be non-notifiable under the mid-point estimate thresholds, the 95% upper bound estimate would include an additional 19 non-notifiable, conditionally approved, mergers. The conditions applied to the additional 19 conditionally approved mergers addressed the following concerns:

(i) 13 related to public interest concerns with mainly employment related conditions and two with local procurement based conditions, includes merger cases: Rhodes Food Group/Pakco – Phase II (canned produce market); Robor/Mine Support Products – Phase II (mining support systems); Rhodes Food Group/The Ma Baker Companies – Phase II (baking ingredients); ATC South Africa Wireless Infrastructure/Eaton Towers South Africa – Phase III (leasing of cellular towers); Twinsaver/Sylko – Phase III (household disposable packaging items); Kaltire Mining Tyres/the Business of the Tyre Corporation Group – Phase II (tyres used for mining equipment); Schmitz Cargobull/GRW – Phase II (supply of trailers); Cenon/Atlantis Food – Phase II (supply of seafood products); Sylvania Metals/Phoenix Platinum Mining – Phase II (mining of platinum and related metals); Eurolux/Radiant Group – Phase III (lighting fixture market); Amsted Rail Company/Cast Products South Africa – Phase II (railcar components market); Country Bird/Opti Agri – Phase III (animal feed); and Procter and Gamble Company/Merck in respect of its consumer healthcare business – Phase III (topical nasal decongestants market).

(ii) Five related to competition concerns mostly concerning information exchange, business development of HDP firms and divestiture conditions, merger cases: Medpro Pharmaceutica/Allergan – Phase II (manufacture of pharmaceutical products); Goldrush Group/Boss Gaming and Entertainment – Phase III (provision of bingo gambling services); TerraSan Beleggings/Westgro Investment – Phase III (harvesting of pelagic fish market); Nedbank and RMH/Divercity Urban Property Fund – Phase II (commercial property sector); and SerEli/Freestate Petroleum Distributors – Phase II (distribution of petroleum products).

(iii) One related to both public interest and competition concerns regarding employment related conditions and information exchange, merger case: MMC Treasury/Jardine Lloyd Thompson Group – Phase II (market for the provision of short-term insurance).

[60] In addition to the prohibited intermediate mergers lost under the WBG's mid-point estimate intermediate threshold values increase, an additional four prohibited mergers would also have been non-notifiable under the WBG's 95% upper bound estimate. These additional four prohibited mergers included:

(i) the downstream market for the manufacture and supply of corrugated board in the inland market with both horizontal and vertical overlaps in which this merger was ultimately prohibited after the finding that post-merger coordination within the market would be strengthened, merger case: Corruseal Group/Pride Pak Packaging (Phase III);

(ii) the national retail of golf bags/luggage with a horizontal overlap in which the merger was assessed for unilateral effects, the removal of an effective competitor and coordinated effects, merger case: Morecorp/Purple Dot Investments 12 (Phase III);

(iii) the Western Cape market for the provision of active fire protection services in which a horizontal overlap was found and assessed for coordinated effects, merger case: Jasco Electronics/Cross Fire Management (Phase III); and

(iv) the national market for various ostrich products – the Commission assessed the merger for unilateral effects, the removal of an effective competitor, coordinated effects as well as vertical effects stemming from the merger and leading to a near-monopoly situation – this merger was ultimately approved with conditions after reconsideration by the Tribunal, merger case: Ostrich Skins/Mosstrich and Klein Karoo International (Phase III).

To determine the likely impact on the Commission's merger control efficacy, we compare the effect of a few selected scenarios evaluated above after applying it to the mergers notified to the Commission over our 2016 to 2018 observation period. The selected scenarios are as follows:

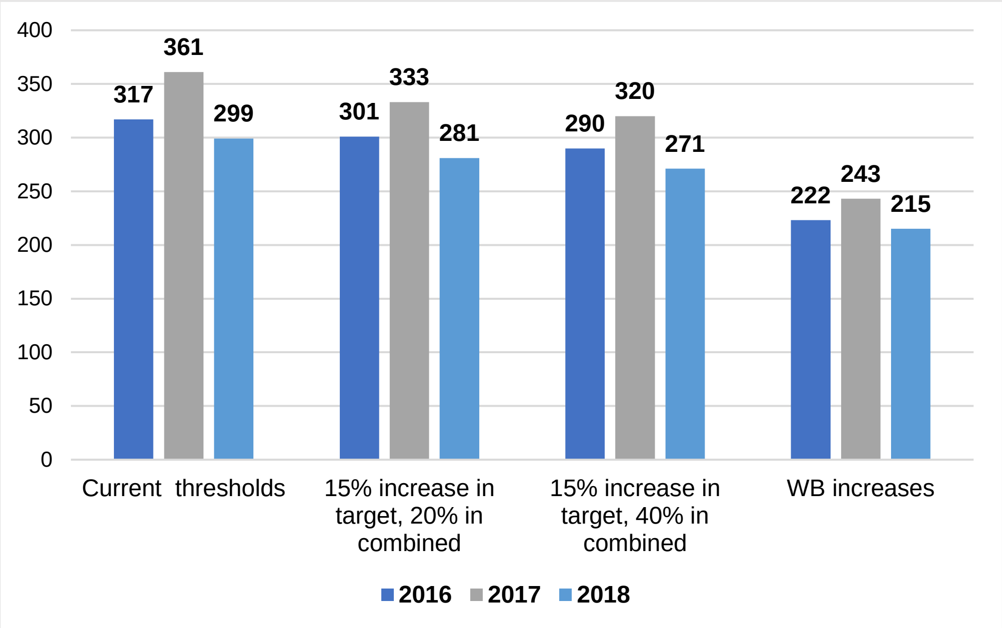
(i) current thresholds implemented from October 2017;

(ii) the combined and target firm threshold scenarios given a 15% increase in the target's thresholds and a 20% or 40% increase in the combined firms' thresholds (15% target and 20%/40% combined); and

(iii) the WBG's mid-point threshold estimate (WBG scenario).

First, we compare the number of notified mergers over the 2016-2018 period under these scenarios which is depicted in Figure 9 below.

Figure 9: Number of notifiable mergers under the different scenarios, 2016-2019



Source: Authors' own approximations based on the Commission's merger database.

Under the October 2017 thresholds (if applied for each period), there is an average of 326 notifiable mergers per year. Under the 15% target and 20%/40% combined scenarios, there would be an average of 305 and 294 notifiable mergers per year for each scenario, respectively.[61] This would result in 21 and 32 fewer notifiable mergers per year, respectively. Under the WBG scenario, there would be on average 227 notifiable mergers per year which amounts to 99 fewer mergers per year. Although the WBG scenario results in fewer notifiable

[61] Based on the averages of mergers evaluated over 2016-2018.

mergers per year, as shown from the analyses above, the WBG scenario would result in a higher likelihood of type II error costs, whilst the slightly more moderate threshold increases (based on 15% target and 20%/40% combined scenarios) would result in less. Even though we only observe small declines in type I errors across our more moderate threshold increase scenarios, the increase in type II errors based on the loss of complex (defined as both Phase I and II mergers) and problematic mergers is cause for concern.

Second, we observe the impact of these scenarios on the number of mergers per analyst over the 2016 to 2018 period. The overall number of mergers per analyst for each year is shown in Table 15 below as well as the differences in mergers per analyst relative to the October 2017 threshold adjustment.

Table 15: Comparison of the number of mergers per analyst under the different scenarios, 2016 to 2018

Period	Current thresholds	Increase Scenario		
		15% target and 20% combined threshold	15% target and 40% combined threshold	WBG – midpoint estimate
2016	20	19	18	15
2017	18	17	16	13
2018	17	16	15	13
Difference between current and each increase scenario				
2016	-	1	2	5
2017	-	1	2	5
2018	-	1	2	4

Source: Authors' own approximations based on the Commission's merger database.

Table 15 above, shows that the WBG scenario would result in the largest decrease in mergers assessed per analyst, ranging between 4 to 5 over the period.[62] It is interesting to note that the 15% target and the 20% or 40% combined threshold increase scenarios only amount to a saving of one and two mergers per analyst (respectively), which confirms our earlier conclusion of small reductions in type I errors under these scenarios. However, as previously shown, there is a higher probability of type II errors occurring when considering higher incremental increases to the thresholds.

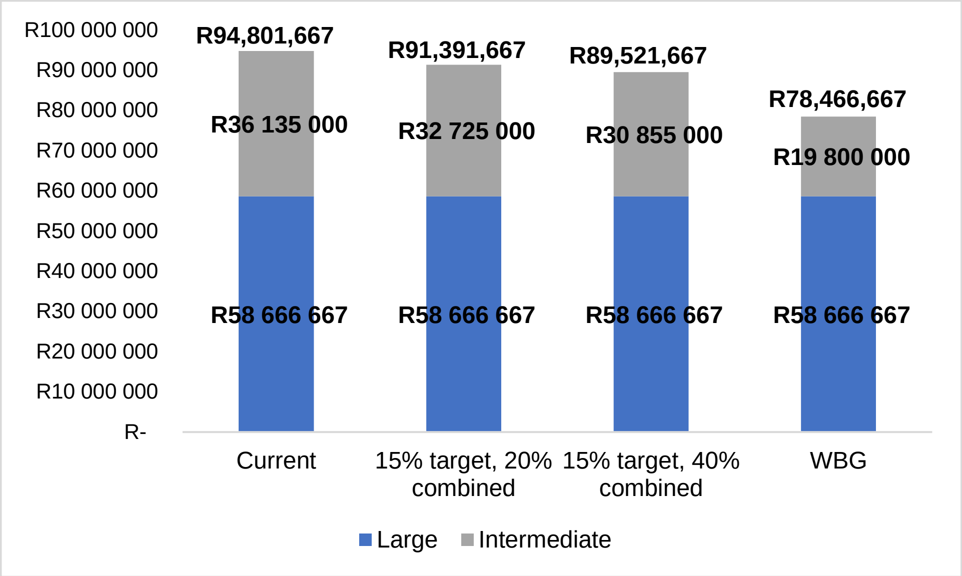
Lastly, we observe what the impact from the reduction in the notifiable mergers will have on the Commission's revenue generated from the merger filing fees over this period. In this regard, we assess this impact in two parts: (i) given only an increase to the intermediate merger thresholds which would only impact the number of intermediate mergers notified; and (ii) given an increase to both the intermediate and large merger thresholds which would impact

[62] The difference between the WBG scenario would only be 2 to 3 less mergers per analyst relative to the 15% target and 40% combined scenario or 3 to 4 less mergers per analyst relative to the 15% target and 20% combined scenario.

the classification of intermediate and large notifiable mergers. For our evaluation we consider the average merger filing fee that would be generated per annum given these increases over the period 2016-2018. In addition, for a clear comparison, we use only the latest, 2019 merger filing fees.[63]

Figure 10 below, depicts the changes to the merger filing fee revenue if only the intermediate merger thresholds are raised under each of the three scenarios in comparison to the current thresholds.

Figure 10: Comparison of merger filing fees, average per annum, given an increase in only the intermediate merger thresholds, 2016-2018



Source: Author's own compilation based on the Commission's merger database.

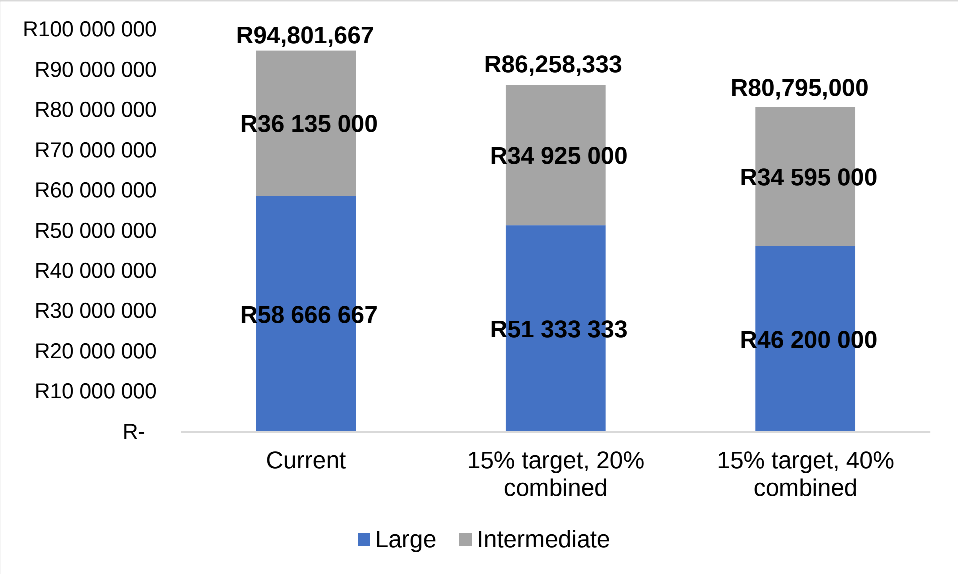
Figure 10 above shows that if the Commission were to only increase the intermediate merger thresholds given the three scenarios, it would receive R3.41 million, R5.28 million or R16.335 million less per annum on average, respectively. These represent declines of 3.6%, 5.6% and 17.2% respectively. The total savings of notifiable mergers for each of these three scenarios would be 62, 96 or 297, respectively with a total of 657 intermediate mergers notified over the current period[64], representing declines of 6.4%, 9.8% and 30.4% relative to total notifiable mergers. The overall reduction in notifiable mergers is more than the reduction in merger revenue when only intermediate merger thresholds are raised.

[63] As of 1 January 2019, the new merger filing fees implemented is as follows: R165 000 for intermediate mergers and R550 000 for large mergers.

[64] Since only the intermediate thresholds are increased, the total number of large mergers notified over this period remains fixed at 320.

Figure 11 below depicts the changes to the merger filing fee revenue (average per annum) if both the lower and high thresholds are raised under each of the first three scenarios.

Figure 11: Comparison of merger filing fees, average per annum, given an increase in both intermediate and large merger thresholds, 2016-2018



Source: Author's own compilation based on the Commission's merger database.

From Figure 11 above, in the event that both intermediate and large merger thresholds are increased, the amount of revenue generated reduces substantially. The filing fee revenue would reduce by R8.5 million (9% reduction) or R14 million (15% reduction) per annum given a 15% target and 20% or 40% combined threshold increase, respectively. This amounts to a 9% or 15% reduction relative to the estimated merger filing fee revenue of the October 2017 adjusted mergers, respectively. In terms of the percentage difference in notifiable mergers over the 2016-2018 period, 6% and 4% fewer mergers are notifiable compared to the current October 2017 adjusted mergers, respectively. The overall reduction in the number of notifiable mergers is less than the reduction in merger revenue (because some large mergers would be classified as intermediate, which fetches lower merger fees).

For the Commission to maintain a similar level of merger filing fee revenue, it would have to raise the filing fees as a result of the reduction in the overall number of notifiable mergers. In terms of an increase in only the intermediate merger thresholds, Table 16 presents the increases to the intermediate filing fee.

Table 16: Estimated adjustment to the intermediate merger filing fee to maintain the Commission's filing fee revenue over the 2016-2018 period

	Current	15% target, 20% combined	15% target, 40% combined	WBG

No. of notifiable intermediate mergers	656	595	561	360
Total revenue from intermediate mergers	R108,405,000	R98,175,000	R92,565,000	R59,400,000
Filing fees for intermediate mergers	**R165,000**	**R182,193**	**R193,236**	**R301,125**

Source: Authors' own approximations based on the Commission's merger database.

Note: Filing fees for intermediate is rounded to the nearest whole number.

Based on Table 16 above, the Commission would have to raise its filing fees for intermediate mergers given a reduction in notifiable mergers to maintain the historical filing revenue. The merger filing fee would have to increase by either 10.4% (under an increase of 15% target and 20% combined), 17.1% (under an increase of 15% target and 40% combined), or by 82.5% (under the WBG's mid-point model estimate).

In terms of an increase to both the intermediate and large merger thresholds, an increase to both the merger filing fees (i.e. intermediate and large) is assessed. These are shown in Table 17 below.

Table 17: Estimated adjustment to intermediate and large merger filing fees to maintain the Commission's filing fee revenue over the 2016-2018 period

	Current	15% target, 20% combined	15% target, 40% combined
No. of notifiable intermediate mergers	657	635	629
Total revenue from intermediate mergers	R108 405 000	R104 775 000	R103 785 000
Filing fees of intermediate mergers	**R165 000**	**R170 717**	**R172 345**
No. of notifiable large mergers	320	280	252
Total revenue from large mergers	R176,000,000	R154,000,000	R138,600,000
Filing fees of large mergers	**R550 000**	**R628,572**	**R698,413**

Source: Merger Database
Note: Filing fees for intermediate mergers is rounded to the nearest whole number.

From Table 17, the Commission would raise the intermediate merger filing fee by less (see Table 16 above) following an increase of both the intermediate and large merger thresholds. This amounts to an increase of intermediate merger filing fees by approximately 3.5% and 4.5% given an increase in thresholds by 15% of the target and 20% or 40% of the combined, respectively. The filing fees of large mergers would need to increase by 14.3% under the 15% target and 20% combined scenario or by 27% under the 15% target and 40% combined scenario. In terms of the intermediate merger filing fees, the percentage increase observed in the table above is more in line with the Commission's standard practice of raising the merger filing fees by inflation. However, in terms of large merger filing fees, the estimated percentage required to raise the merger filing fees to maintain historical revenue would be much larger than an inflationary increase proposal.

Although it is understandable that the Commission would see a decrease in its merger revenue given fewer notifiable mergers and the classification change of large notifiable mergers,[65] it is important to understand the extent to which such reductions in the Commission's annual budget could hinder the effectiveness and investigative process still required to enforce its merger control policy. In terms of such a consideration, we assume the level to which the merger filing fees would have to increase should the Commission require its historical revenue levels to be maintained. In this regard, the Commission would require a notable increase to its merger filing fees, which as observed, are higher than an inflation adjusted fee. Significant increases to the merger filing fees places a higher cost burden on merging parties, especially for non-problematic mergers. However, lower relative revenues and a lack of appropriately set filing fees may constrain the competition authority's ability to effectively undertake its merger control duties.

5. CONCLUSION AND FINAL REMARKS

In this paper, we evaluate the institutional efficiency and effectiveness of the South African jurisdiction's merger control regime based on the appropriateness of its current merger notification thresholds.

First, we evaluate the impact of the current thresholds in limiting the occurrence of type I and type II errors as well as the impact on merger filing fee revenue. Second, we assess the methods (based on international best practices) that the South African jurisdiction could consider when setting appropriate merger notification thresholds. We evaluate the likely impact on South Africa's merger control regime if the thresholds are to be changed. This is based on observing the changes to historical mergers notified to the Commission over the period 2016 to 2019. In this context, we assess several scenarios to adjust the thresholds. For comparative purposes, we assess the notifiable mergers that have already been adjusted to the current merger control thresholds (October 2017 thresholds). We also identify a number of parameters that should be considered before reforming merger thresholds. These include the complexity of notified mergers, merger outcomes, the time that it takes to evaluate complex mergers, the ratio of mergers assessed per merger analyst, and the impact to merger filing fee revenue generated by the Commission.

The overall findings suggest that there is a trade-off between reducing type I errors and incurring type II errors given higher increases to the current thresholds. The adjustments to

[65] I.e. if both the intermediate and large merger thresholds are changed, merging parties would be classified under a large merger only if the asset and/or turnover values of the target and combined firms falls within the higher set large merger threshold values.

the thresholds over time have resulted in small reductions in type I errors (with respect to all our scenarios excluding the WBG thresholds). This means that the Commission's resources will continue to be largely utilised on non-problematic mergers under higher thresholds. This has implications for institutional efficiency and the optimal use of the Commission's resources which could be diverted to focus on more problematic transactions. This indicates that upward revisions to thresholds may not be a sufficient method to deal with the persistence of the type I error and may necessitate the Commission to consider other alternatives.

What is more concerning is increased type II errors arising after higher revisions to the thresholds. The increase in type II error costs, albeit small, is of greater concern given the permanent structural changes that result from mergers and acquisitions, more so in the South African context where markets are generally characterised by high levels of concentration. While the number of problematic mergers that may escape scrutiny may appear small, the economic recovery efforts (on the back of a sustained economic recession and the recent economic disruption caused by the Covid-19 crisis, both of which are likely to result in increased concentration following widespread firm failure) necessitate a more circumspect approach to such type II errors. This further affirms the need to find ways, beyond merger thresholds adjustments, in which to deal with the identified type I error in order to release resources to deal with more problematic mergers. This indicates that upward revisions to thresholds may not be a sufficient method to deal with the type II errors and may necessitate the Commission to consider other alternatives.

Based on our findings and the challenges highlighted, we consider a few approaches that may be considered in order to minimise type I and II error costs. In this regard, it may be more beneficial to reform the current merger threshold regime by including other metrics such as:

(i) The development of sector-based thresholds (for specific designated sectors) as many sectors in the South African economy may not clearly fall within a generalised threshold; and

(ii) The adoption of a "transaction value" based metric. This metric relates to the transaction price paid by the acquiring firm. This may assist in those mergers, where companies or assets which are either too low or yet to generate a turnover, do not trigger a mandatory notification. This is a metric that has been adopted to combat mainly problematic digital market related transactions that were not previously captured under the merger threshold notification regime. This would potentially also be useful for other markets.

From an internal operations perspective, the Commission could adopt a more stringent and robust merger screening mechanism to identify, early on, less problematic mergers. In addition, instead of having the potential to extend merger evaluation times for only large mergers, the allocated time to investigate mergers should potentially be based on the complexity classification of a merger and not the size of the merger. This will address the short time frames that the Commission encounters and provide the opportunity for the Commission to allocate more resources to potentially problematic mergers.

Regarding the above, it is also important to highlight the limitations of the paper and the challenges of reforming thresholds in South Africa. The first limitation relates to the use of historical data to determine the effectiveness of merger thresholds. Firstly, it is difficult to evaluate a true likelihood to reality given that the past does not perfectly predict the future. This is especially so with South Africa's sustained economic trouble followed by the Covid-19 crisis, where many firms may face vastly reduced revenues and lower asset values. Secondly, it is possible that there will be a number of problematic mergers that would have escaped mandatory merger notification under the current intermediate merger thresholds, particularly in certain sectors such as digital markets.

The second limitation is with respect to the approach taken by the WBG. The determination of precise thresholds may be more complex that what one is able to capture from an international benchmarking exercise. The regression-based approach adopted by the WBG may thus overstate or understate the thresholds by linking one jurisdiction's thresholds to that of another. In this respect, the WBG empirical determination, whilst novel and informative, does not consider the exact intricacies and nuances behind the thresholds set across the jurisdictions assessed. Rather, it simply links the thresholds to the size of economy. We included the WBG approach to assess whether this international benchmarking approach would be beneficial to determine appropriate values for South Africa's thresholds. As the findings suggest, the WBG thresholds raise error II costs significantly.

In terms of challenges to reforming South Africa's thresholds, we note the current depressed state of the economy. In this regard, there has already been fewer merger notifications that have been filed with the Commission over the last two financial years.[66] This may largely be accredited to the continued contraction of the economy[67] and the prevalence of highly concentrated industries which has persisted since the end of Apartheid. In the first quarter of

[66] The financial years, 2018/19 and 2019/20, with year ended 31 March.
[67] In fact, South Africa had entered into a technical recession by the end of 2019.

2020, the Covid-19 pandemic resulted in further declines to the already weakened state of the economy.[68]

During this period, the Commission is likely to be inundated with fewer but more complex merger transactions. At the same time, many smaller transactions may take place, due to businesses divesting non-essential operations, such that many transactions may fall outside of the merger thresholds. In this regard, certain sectors may in fact benefit from lower thresholds, for example, digital markets and agriculture and agro-processing sectors. Furthermore, in sectors that are highly concentrated and where larger firms typically generate smaller asset and/or turnover values, increasing the merger thresholds may exclude them from mandatory notification or disrupt the lead times afforded when assessing complex mergers (i.e. where large mergers would fall under intermediate mergers instead).

[68] The depressed state of the economy is likely to persist for a number of years. As businesses adapt their strategies in this economic environment, it is also unlikely that businesses will undertake many mergers and acquisition proposals in the short and medium-term.

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APPENDIX A – REGRESSION OUTPUT FROM WBG THRESHOLD ESTIMATION

The simple regression model used for the estimation of South Africa's threshold by the WBG is presented in Equation 3 below:

Equation 1: Simple regression model of log thresholds on log of GDP

$$log(Combined/Individual\ \ local\ turnover)\ = constant\ + \log\ (GDP)\beta$$

The output from the estimated regression model is presented in the table below:

Table 18: WBG's regression model output on log thresholds on log of GDP

Variables	(1) Combined Local Turnover	(2) Individual Local Turnover
Log(GDP)	0.648***	0.575***
	(0.105)	(0.139)
Constant	0.814	0.969
	(2.663)	(3.550)
Observations	52	34
R^2	0.434	0.348

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

The model shows that there is a relationship between the merger notification thresholds that have been set in the sample of jurisdictions and the size of the economies (as measured by GDP of each respective country). On average, the simple regression model shows that higher merger notification thresholds are set in countries with relatively larger GDP or within countries with a larger economy size.

The estimated values from the regression model can be used to calculate the predicted intermediate merger thresholds (combined and target firm thresholds) for South Africa. Essentially, South Africa's estimated thresholds are determined by the relative size of its economy based on the average thresholds set relative to log of GDP (log(GDP)) across the sample of jurisdictions. To produce the model prediction for the South African lower notification thresholds, the following formula is used:

Equation 2: Formula used to produce the model prediction

$$Predicted\ threshold = \ e^{\beta_0 + \ \beta_1 * Log(GDP)}$$

Where, β_0 is the model constant and β_1 is the estimated coefficient on log(GDP)

Using Equation 4 above to calculate the predicted values of the intermediate merger thresholds of South Africa's combined and target (individual) turnover thresholds produces the following results:

Equation 3: Predicted value for South Africa's combined intermediate threshold value

$$Predicted\ combined\ lower\ threshold = \ e^{0.814\ +\ 0.648\ *\ Log(GDP)_{SA}}\ \approx US\$\ 69\ million$$

Equation 4: Predicted value for South Africa's target intermediate threshold value

$$Predicted\ target\ (individual)\ lower\ threshold = \ e^{0.969\ +\ 0.575\ *\ Log(GDP)_{SA}}\ \approx US\$\ 11\ millio$$