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SELECTED ISSUES

June 17, 2019

Approved By
Asia and Pacific Department

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EXCHANGE RATE AND TRADE DYNAMICS IN INDONESIA: CONNECTING THE DOTS[1]

This paper provides an overview of the exchange rate and trade dynamics in Indonesia. Using data on monthly export and import price and volume at the sectoral level, the paper estimates pass-through effects of exchange rate changes to trade price and volume. Results indicate adjustment frictions that depend on the source of the exchange rate fluctuation and the degree of integration in global value chains. Overall, combining price and volume effects, we find that a 10 percent depreciation in the exchange rate is associated with a rise in the goods net-exports of up to 1.6 percent of GDP.

A. Exchange Rate and Trade Balance: Recent Trends

1. Movements in exchange rates play an important role in determining how a country's trade balance adjusts in response to both external and domestic shocks. Exchange rates typically act as a shock absorber, in the sense that in response to an external shock, a depreciation should boost exports through the competitiveness channel and reduce imports as they become more expensive relative to domestic goods.[2] However, recent evidence from both emerging and advanced countries suggests that the transmission of exchange rate changes to trade price and quantities, through the expenditure-switching channel,[3] may be incomplete (see for example, Campa and Goldberg 2005). We examine this issue for Indonesia and attempt to, first, uncover a pattern from recent trends in both exchange rates and trade movements. Figure 1 below charts, since 2011, the movements in exchange rates in relation to both the terms of trade (proxy for real-sector fundamentals) and interest rate differentials (proxy for carry-trade attractiveness in international financial markets) as well as value of goods exports/imports. We see that, after a period of decline following the taper tantrum in 2013, goods imports have rebounded and steadily increased in the past few years despite a sharp depreciation of the rupiah since mid-2017. Following the tightening of global financing conditions in 2018, which put pressures on financial flows to Indonesia, the rupiah depreciated by about 6 percent in real effective terms. However, during the same period, imports surged both in value and volume terms by approximately 20 percent and 8 percent year-on-year respectively. On the other hand, exports moved more in line with recent changes in the exchange rate, growing in value by 7 percent in 2018.

[1] Prepared by Manasa Patnam (SPR).

[2] See Obstfeld (2001) and Engel (2002) for a survey.

[3] The expenditure-switching effect, the focus of this paper, refers to the shifting of domestic consumption away from foreign goods towards domestic goods because of trade price changes. In addition to this, there may also be an expenditure-changing or wealth effect which reflects the reduction in purchasing power associated with a weaker currency, leading to a compression of domestic demand and thereby of imports.

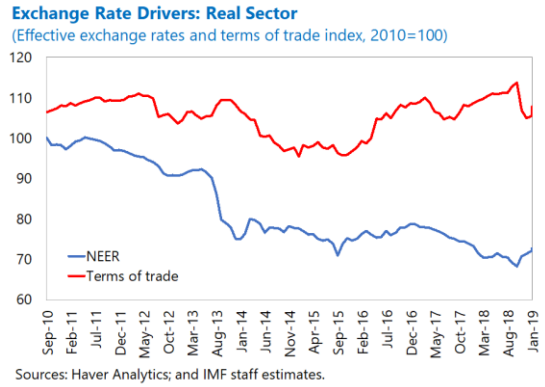
2. Exchange rate movements appear to have increasingly diverged from trade-related pressures, indicating a possible disconnect from fundamentals. An examination of the drivers of exchange rate reveals that movements in the nominal exchange rate have recently diverged from real-sector related fundamentals. For instance, as shown in Figure 1 and text table, the correlation between the terms of trade and NEER, has switched from positive (2010–2014) to negative (2015–2018) over the recent half of this decade. In contrast, we find that the opposite pattern holds for the relationship between the exchange rate and movements in the financial sector (proxied by the Indonesia-U.S. interest rate differential), where the correlation has turned from negative to positive.

Correlation of Exchange Rate with Terms of Trade and Interest Rate Differentials 1/

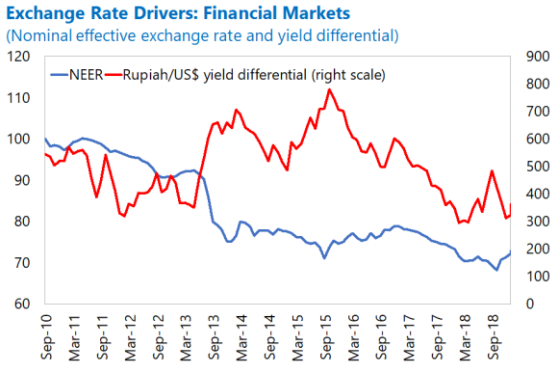
	2011-2014	2015-2018
Correlation between ToT and NEER	0.67	-0.32
Correlation between IRD and NEER	-0.65	0.49

1/ ToT refers to terms of trade, NEER to nominal effective exchange rates, and IRD to the Indonesia-U.S. interest rate differential (in bps). All pairwise correlation coefficients are signficant at the 5% level.

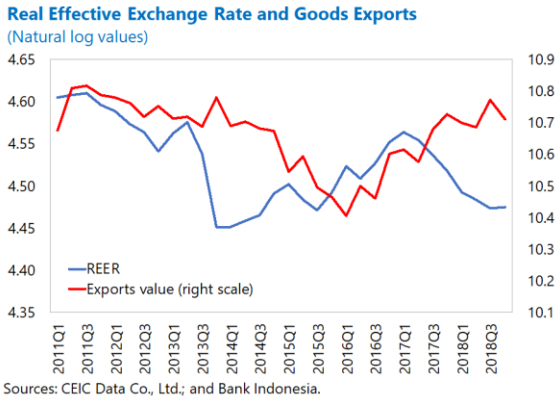
Figure 1. Indonesia: Exchange Rate and Trade Fluctuations: Recent Trends



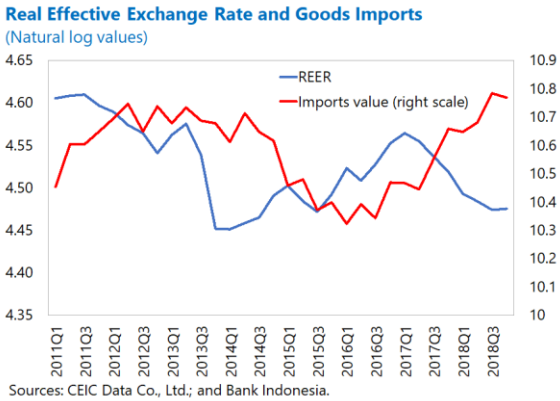
Sources: Haver Analytics; and IMF staff estimates.



Sources: Haver Analytics; and IMF staff estimates.

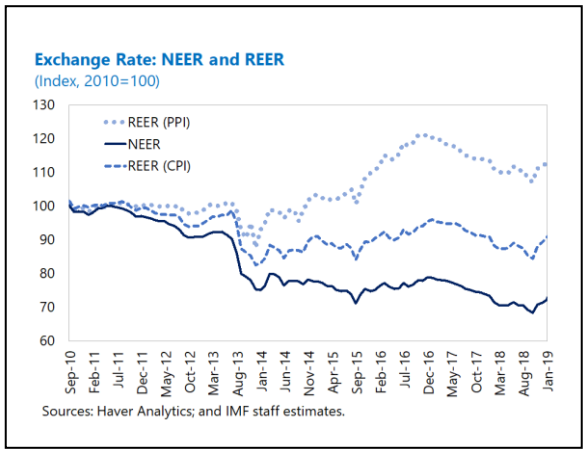


Sources: CEIC Data Co., Ltd.; and Bank Indonesia.



Sources: CEIC Data Co., Ltd.; and Bank Indonesia.

3. The volatility of exchange rates appears higher than fundamentals. The estimated standard deviation of both the PPI-based REER and NEER index (during 2010:Q1-2018:Q4) is strictly above the standard deviation of the terms of trade index by approximately 4 standard deviations. In addition, the PPI-based real exchange rate tracks very closely the nominal exchange rate at the monthly frequency and displays a similarly large persistence and volatility as the nominal exchange rate. These facts suggest that the exchange rate displays both high and "excess volatility" appearing therefore to be disconnected from fundamentals (see Chari and others, 2002 and Baxter and Stockman, 1989).



4. High exchange rate volatility, in excess of the volatility of fundamentals, is intrinsically linked to a limited pass-through of exchange rates to trade prices. Empirical evidence has shown that the excess volatility of real and nominal exchange rates is associated with limited pass-through effects of exchange rate changes to trade and consumer prices (Devereux and Engel, 2002).[4] This would imply that, both, depending on the nature of the shock and transmission mechanism, the change in the nominal exchange rate may not lead to a full substitution between domestic and foreign goods because of slow-changing relative prices of home and foreign goods.

5. The literature has examined several reasons related to both the source of shock and transmission mechanism to understand why pass-through effects of exchange rate changes to trade prices may be limited. These explanations can be broadly divided into those concerning the *nature of the exchange rate shock,* which creates different types of fluctuations, and those related to the *transmission mechanism,* which mutes the effect of volatile exchange rate fluctuations on local prices and quantities. In terms of the shock process, it has been posited that shocks emanating from international asset demand generate large and volatile exchange rate fluctuations that have small effects on the rest of the economy, because of financial frictions compared to productivity/demand or monetary shocks (Devereux and Engel, 2002; Forbes and others, 2018). The reasons why financial market shocks may be less impactful hinge on distortions within the micro-foundations of the international markets such as the presence of noise traders with limits to arbitrage, financial frictions, and time-varying risk premium (see Itskhoi and Mukhin, 2017).

[4] This means that the relationship between the equilibrium exchange rate and real-economy shocks are amplified by the presence of frictions related to firms, speculative activity in financial markets and market structure of international trade. For early insights on this see Krugman (1989) who argues that firms face significant sunk cost frictions and do not react to exchange rate changes that lie within a range, preferring a 'wait and see' approach, which prevents them from adjusting their prices and volumes instantaneously. Further over time, an increased volatility of exchange rates, partly from excessive speculation in international financial markets, could widen this range and further weaken firms' responsiveness.

6. In terms of the transmission mechanism the literature has emphasized the role of price-setting, the structure of international trade markets and demand preferences. For instance, there may be a significant home-bias in consumption that may weaken the expenditure switching effects of exchange rate changes from limited adjustment of trade quantities. Alternatively, local currency pricing or pricing to market with markup adjustment may limit the responses of trade prices to exchange rate movements. Finally, the global integration of trade markets, where import and export production process are no longer isolated and instead linked though complex supply-chain arrangements, may create offsetting impacts on prices that may net out the price effects in the aggregate.

7. To understand whether the exchange rate movements and trade flows are disconnected in recent times, we estimate the sectoral pass-through effect of exchange rate changes on trade prices and quantities. Using data on monthly trade prices and volumes at the sectoral level, the paper first examines if, and to what extent, the pass-through effects are limited. Next it examines a few specific channels, especially relevant for Indonesia, that may drive these effects. Depending on the sector's orientation and structure, limited pass-through can arise from deeper involvement in global value chains and foreign currency invoicing. In addition, these effects can be asymmetric such that the magnitude of pass-throughs may vary in response to exchange rate appreciations and depreciations.

B. Data and Empirical Methodology

8. We use sectoral data on import and export volume and prices at a monthly frequency to estimate six- and twelve-month pass-through effects. Trade value and volume data are obtained from Statistics Indonesia (BPS) at the SITC (revision four) sectoral classification. Real effective exchange rate data is from BIS. Monthly commodity price index[5] is from the IMF and data on global value chains is obtained from the OECD Trade in Value database.

9. Our estimation of aggregate trade-related pass-through effects, accounts from the possible heterogeneity of these effects across sectors. Estimates obtained from pooling all sectoral data can typically suffer from an "aggregation bias," if the price volatility is driven by sectors that experience relatively higher or lower elasticity. For instance, we would expect the results to be upward biased in high price volatility sectors are relatively inelastic. This insight was developed by Imbs and Mejan (2015) who show how aggregate elasticities obtained from combining disaggregate effects differ substantially from those obtained based on examining purely aggregate relationships.

[5] The index is used to identify (approximately) terms of trade shocks to commodity related exports/imports and represents four broad commodity asset classes: (1) energy, (2) agriculture, (3) fertilizers, and (4) metals and is a weighted average of 68 global commodity prices. The weight is calculated based on the global import share over a 3-year period (2014−2016) and is normalized to 100 at year 2016 prices.

10. Using sectoral monthly data on trade flows, we augment the exchange rate pass-through equation with commodity price shocks and account for the asymmetric response to shocks. We attempt to eliminate the effect of nominal price rigidities on pass-through estimates by focusing on the six- and twelve-month changes of trade prices and quantities,[6] where subscript *ct* denotes the cumulative change of all variables (trade prices, quantities, exchange rate and commodity price) between time *t* and the previous six or twelve months for sector i. The specification also mitigates bias from other (unobserved) economic factors that may be correlated with both import/export prices and ER/commodity shocks by conditioning on quarterly time effects (ρ_q). These time dummies can capture at the quarterly level, for instance, policy actions in response to exchange rate fluctuations or movements in other real-economic variables that are not explicitly included in the specification. In sum, the exchange rate (e) and commodity price (c) pass-through for the dependent variable, import prices (mp) expressed in local currency, can be specified as.[7]

$$\Delta mp_{i,ct} = \underbrace{\beta_i^+ \Delta e_{ct}^+ + \beta_i^- \Delta e_{ct}^-}_{Exchange\ Rate\ PT} + \gamma_i^+ \underbrace{\Delta c_{ct}^+ + \gamma_i^- \Delta c_{ct}^-}_{Commodity\ PT} + \rho_q + \epsilon_{i,ct}$$

The overall pass through can then be obtained by aggregating sector-wise pass-through coefficients based on their shares ($\beta^+ = \sum_i s_i \beta_i^+$ and $\beta^- = \sum_i s_i \beta_i^-$). A similar specification is employed for export prices expressed in foreign currency. In the next step we use the observed cumulative price changes to predict quantity response, while similarly conditioning on quarter specific time effects.

C. Results

11. Results indicate that there is considerable asymmetry and sectoral heterogeneity in the pass-throughs of exchange rate on import and export prices. The overall pattern that emerges from the estimated disaggregated effects below is that (i) trade prices are on average more responsive, i.e., have higher estimated pass-throughs, to exchange rate shocks relative to commodity price shocks; (ii) the exchange rate pass-through coefficient of import prices is higher than that of export prices; (iii) both export and import price pass-throughs vary by the nature of the shock with appreciations (depreciations) linked to stronger import (export) price changes; and (iv) sectoral price pass-throughs are dispersed, with the largest importing and exporting sectors having weak price responses to exchange rate fluctuations over a six-month horizon.

12. Import prices adjust well to exchange rate fluctuations with the effects being stronger for appreciation episodes. Table 1 reports the estimated import-price pass-through coefficients by

[6] Gopinath and others (2010) exploit good level data and identify pass throughs using cumulative changes in the log of the bilateral nominal exchange rate over the duration for which the previous price was in effect. However, since our data is at the sectoral level (combining several good) we are unable to identify discrete price changes and therefore focus on cumulative changes, assuming that rigidities last between six to twelve months. The median duration for trade price rigidity is estimated to be around 9−12 months (see Gopinath and Rigobon, 2008) but commodity goods can have lower durations.

[7] In this specification, e denotes the log of real effective exchange rate and c denotes the log of commodity price index. Import and export prices are derived based on their respective values and volumes. Import prices. mp, are expressed in Indonesian rupiah and deflated by the consumer price index. Export prices are expressed in U.S. dollars and deflated by the foreign consumer price index. Import and export volumes are also expressed in logs.

sector and differentiated by the type of shock (exchange rate vs commodity price) as well as by horizon. First, focusing on the six-month horizon we find that overall, across sectors, a 10 percent increase in exchange rate (appreciation) is associated with an import price decrease of 5.7 percent. On the other hand, a 10 percent increase in commodity prices is associated with an import price increase of 4.6 percent. The aggregate effects however mask important directional and sector-specific effects. For instance, a 10 percent appreciation of the exchange rate is associated with a decline in import prices by 8 percent, whereas a similar magnitude of depreciation results in only a 3 percent increase in import prices. In terms of sectoral effects, we find that the sector with the largest import share, accounting on average for 32 percent of total imports, (machinery and transport equipment) has a very low sensitivity to exchange rate (coefficient of -0.04) movements compared to other top importing sectors which have significantly higher pass-throughs (coefficient on average of -0.6). Turning to the twelve-month horizon, we see a general improvement in the import price sensitivities, with a 10 percent increase in exchange rate (appreciation) associated with an import price decrease of 7 percent, which indicates that the pass-through of exchange rates to import prices have a delayed effect. Most notably, the largest importing sector, which had almost negligible pass-throughs over the six-month horizon, increases its sensitivity to 6 percent (following a 10 percent exchange rate change) at the twelve-month horizon. This could be explained by time-lags in pricing and delivery and settlement delays. As before, we find a similar pattern of heterogeneity with twelve-month pass-throughs being stronger for appreciation and commodity price declines.

Table 1. Indonesia: Import Price: Pass-Through of Exchange Rate and Commodity Price 1/

	Share in Imports	Exchange Rate Pass-Through		Commodity Price Pass-Through	
		6-month	12-month	6-month	12-month
Food and live animals	8.4%	-0.36	-0.66	-0.15	0.32
Beverages and tobacco	0.5%	-5.90	-3.93	-1.23	-0.96
Crude materials	5.1%	-1.47	-0.81	-0.28	0.09
Mineral fuels, lubricants	19.4%	-1.07	-1.00	0.89	0.87
Animal and vegetable oils and fats	0.1%	2.79	2.57	0.24	0.29
Chemical	13.8%	-1.04	-0.65	0.20	0.17
Manufactured goods	16.0%	-0.23	-0.37	1.27	0.69
Machinery and transport equipment	31.7%	-0.04	-0.57	0.21	0.67
Miscellaneous manufactured articles	4.5%	0.02	-1.37	0.04	0.22
Other	0.4%	-9.24	-0.73	4.50	11.63
Total	100%	-0.57 ***	-0.70 ***	0.46 ***	0.60 ***
Asymmetric effects:					
+ (Appreciation/commodty price increase)		-0.80 *	-1.01 ***	0.33	0.58 ***
- (Depreciation/commodty price decrease)		-0.31 **	-0.43 **	0.53 ***	0.70 **

1/ The estimation sample period is between 2011–2018. Gray shaded cells for individual sectoral indicate effects that are not significant at the 10% level. Significance for aggregate effects are as follows: *** indicates significance at the 1% level; ** at the 5% level and * at the 10% level. 6-month refers to a cumulative horizon of six months; 12-month to a cumulative horizon of one year. Asymmetric effects are aggregated from the (unreported) sector-wise differentiated effects. Sectoral import and export shares are an average over the sample period.

13. The price sensitivity of export prices to exchange rate shocks is generally lower than of imports and concentrated over shorter horizons and during episodes of depreciation. Table 2 reports the estimated export-price pass-throughs by sector and differentiated by the type of shock (exchange rate vs commodity price) as well as by horizon. Overall, across sectors, a 10 percent increase in exchange rate (commodity-prices) is associated with increasing export prices (in foreign currency) by 4 percent (2 percent) at the six-month horizon compared to 1.5 percent (3 percent) over the twelve-month horizon. One explanation for the result that exports prices have lower estimated pass-through coefficients than import prices could be that firms set export prices in a dominant currency (mostly the dollar) and are therefore unable to change frequently their prices in response to exchange rate changes. There is however considerable asymmetry and heterogeneity in the distribution of these effects across sectors and by type of shocks.[8] Depreciations and commodity-price declines are associated with higher pass-throughs compared to appreciations and commodity price increases. We find a large dispersion of these effects across sectors, with the largest exporting sector having insignificant pass-throughs for exchange rate changes but significant pass-through effects for commodity price changes (on average 4 percent increase to a 10 percent increase in commodity prices).

14. With regards to estimation, it should be noted that pooled estimates of the overall aggregate effect are significantly downward biased. Results from a specification that pools all sectors reveals an aggregate import and export pass-through coefficient of -1.65 and 0.06, respectively. As discussed above there is substantial heterogeneity in both the sectoral share in total export/import value and the related sector-specific volume effects to price changes. The downward bias suggests the presence of sectors whose prices experience large price changes, but which are relatively more elastic.

15. The volume of both imports and exports are fully responsive to price changes. For a given level of price change, overall, we find that, for both exports and imports, the six-month adjustment to quantities is strong with aggregate elasticities close to one (Table 3). Import quantities adjust one-on-one to change in import prices, over all horizons. For exports, the effect is strong over the six-month horizon but weaker over time. There is still some sectoral variation in the distribution of these effects with commodity-intensive sectors (e.g., mineral fuels) more inelastic to price changes.

16. The price and quantity results imply that exchange rate changes can have significant effects on the current account, by affecting movements in net-exports of goods. We can combine the estimates for aggregate price and volume pass-throughs with the overall import and

[8] In some cases, pass-through coefficients over the 12-month horizon are estimated to be lower than at 6-months, suggesting that the effect declines over longer time horizons. This could happen for several reasons, including round-about production structure effects whereby, in the case of depreciation for e.g., exporters gradually pass-on cost increases from imported inputs into prices (neutralizing the initial decrease in foreign price). It could also be explained by the presence of other factors that take place over time, such as policy responses to the initial exchange rate shock, that may affect pricing decisions but are not adequately captured in the specification.

Table 2. Indonesia: Export Price: Pass-Through of Exchange Rate and Commodity Price 1/

	Share in Exports	Exchange Rate Pass-Through		Commodity Price Pass-Through	
		6-month	12-month	6-month	12-month
Food and live animals	7.0%	0.56	0.11	-0.18	0.07
Beverages and tobacco	0.7%	-1.67	-1.52	-0.10	-0.30
Crude materials	9.2%	3.44	2.17	0.10	-0.85
Mineral fuels, lubricants	25.9%	-0.43	-0.45	0.43	0.46
Animal and vegetable oils and fats	11.9%	0.59	0.04	0.43	0.60
Chemical	6.7%	-0.38	-0.51	-0.35	0.23
Manufactured goods	13.2%	-0.36	-0.57	0.32	0.35
Machinery and transport equipment	12.7%	1.52	1.34	0.34	1.07
Miscellaneous manufactured articles	11.7%	0.38	-0.02	0.26	0.32
Other	1.0%	-3.05	-0.05	-3.43	-1.65
Total	100%	0.44 **	0.14	0.22 **	0.33 ***
Asymmetric Effects					
+ (Appreciation/commodty price increase)		0.28	0.09	-0.39	0.29
- (Depreciation/commodty price decrease)		0.61 **	0.25	0.52 ***	0.46 **

1/ The estimation sample period is between 2011–2018. Gray shaded cells for individual sectoral indicate effects that are not significant at the 10% level. Significance for aggregate effects are as follows: *** indicates significance at the 1% level; ** at the 5% level and * at the 10% level. 6-month refers to a cumulative horizon of six months; 12-month to a cumulative horizon of one year. Asymmetric effects are aggregated from the (unreported) sector-wise differentiated effects. Sectoral import and export shares are an average over the sample period.

Table 3. Indonesia: Import and Export Volume Response to Prices 1/

	Imports		Exports	
	6-month	12-month	6-month	12-month
Food and live animals	-1.20	-1.16	-0.68	-0.80
Beverages and tobacco	-0.07	-0.19	-0.72	-0.90
Crude materials	-0.80	-1.06	-1.10	-0.99
Mineral fuels, lubricants	-0.30	-0.04	-0.33	-0.10
Animal and vegetable oils and fats	-1.53	-1.71	-1.37	-0.60
Chemical	-1.11	-1.36	-1.37	-0.74
Manufactured goods	-1.63	-1.35	-0.34	-0.24
Machinery and transport equipment	-1.10	-1.04	-1.07	-0.97
Miscellaneous manufactured articles	-0.82	-0.57	-0.32	-0.14
Other	-0.93	-0.96	-0.87	-0.97
Total	-1.01 ***	-0.93 ***	-0.72 ***	-0.48 ***

1/ The estimation sample period is between 2011–2018. Gray shaded cells for individual sectoral indicate effects that are not significant at the 10% level. Significance for aggregate effects are as follows: *** indicates significance at the 1% level; ** at the 5% level and * at the 10% level. 6-month refers to a cumulative horizon of six months; 12-month to a cumulative horizon of one year.

export share of goods to obtain a back-of-the-envelope effect of exchange rate movements on net exports.[9] The results suggest that a 10 percent depreciation in the exchange rate is associated with a rise in the goods net exports of, on average, 1.3 percent and 1.6 percent of GDP over a 6-month and 12-month horizon respectively. Our results are similar to those obtained by Bussiere and others (2013) who estimate export and price elasticities for 40 countries during the period 2000–2011 using aggregate quarterly data. Specifically, for Indonesia, the authors find the import and export price pass-through coefficients to range between 0.5 to 0.7 (for up-to two quarters). As an additional benchmark, Chapter 3 in IMF (2015) estimates the average effect of a 10 percent depreciation on net-exports to be 1.5 percent of GDP across a set of 23 advanced and 37 emerging/developing economies.

17. *Nature of the shock:* Pass-through effects of trade prices are weaker when exchange rate fluctuations are derived from international financial market perturbations. The text table shows the six-month aggregate import and export price pass-throughs estimated from a decomposition of the exchange rate fluctuations by those predicted by financial market shocks (proxied by changes in the U.S. bond yields and VIX) and other residual fluctuations.[10] We find that for both imports and exports, pass-through of residual fluctuations with respect to import/export prices are higher than that induced by financial market volatility (especially for imports) suggesting that the nature of the shock plays an important role in the evaluation of whether the implied exchange rate volatility is transmitted fully into the trade movements. The literature offers several conceptual reasons for this result (see Devereux and Engel 2002; Itskhoi and Mukhin, 2017). For instance, the presence of speculators or noise traders in asset markets may result in the exchange rate reacting to shocks to the expectations of such traders (either forecast error shocks or from limits to arbitrage) which are unrelated to trade fundamentals.

Pass-Throughs by Type of Exchange Rate Shock

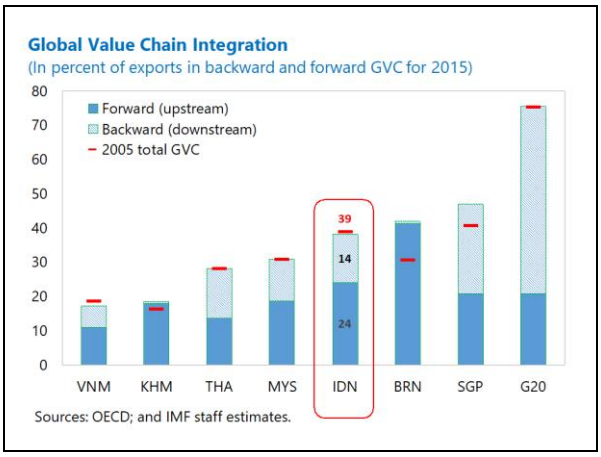
	Imports	Exports
Financial market fluctuations	-0.15	0.36
Residual fluctuations	-0.64 **	0.44 *

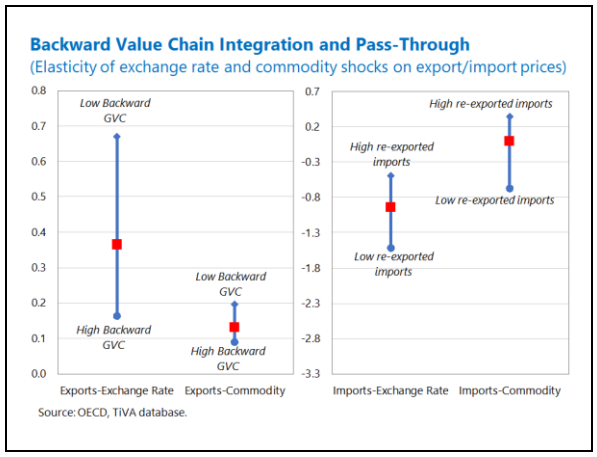
18. *Transmission Mechanisms:* The sectoral dispersion in pass-through can be partly explained by its integration in GVC. Indonesia is reasonably well-integrated in the global value chain with both backward and forward linkages. Compared to its peers in the Asian region,

[9] This effect is obtained as, $\beta^X.V\beta^X.(X/Y) - \beta^M.V\beta^M.(M/Y)$, where β^X (β^M) and $V\beta^X$ ($V\beta^M$) denote the exchange rate pass-through coefficient of export (import) prices and the price pass-through of export (import) prices to export (import) volumes respectively (see IMF, 2015 for more details). X/Y and M/Y are the 2018 goods export and import shares for Indonesia. The results are similar when using average export and import shares between 2012–2018.

[10] The estimation is done in two steps: first, exchange rate changes are regressed on two explanatory variable relating to international asset price movements (interest differential between Indonesia and United States and the volatility index, VIX); second we decompose total exchange rate changes into those predicted by financial market shocks (as obtained from predictions in the first stage) and residual fluctuations and then include both terms in the main pass-through equation.

Indonesia has one of the largest shares in terms of forward GVC linkages, measured by the domestic value added embodied in foreign exports (as share of gross exports). On the other hand, it also has a high degree of backward linkages; as of 2016, 14 percent of Indonesian exports have foreign value-added content. Further, many of the intermediate imports are often used for re-exports. The share of intermediate goods import used for re-exports is 20 percent, on average in Indonesia. Exploiting the sectoral variation in backward participation and intensity of re-exports, we find several interesting effects.[11] First, export pass-throughs are very sensitive to the share of foreign value-added content embodied in the sector's exports. Sectors with less dependence on imports for producing exports, i.e., with lower backward linkages are more likely to have high exchange rate pass-through effects on export prices. The same holds for commodity price effects but the difference is much smaller. Second, import price pass-throughs also vary by the extent of the share of imports used for re-exports. Those sectors with high shares of re-exported imports experience lower price pass-through effects of exchange rate shocks relative to sectors with a smaller share of imports for re-exportation needs. One reason for such an effect could be that this reflects weak substitutability between domestic and foreign goods, in the sense that these imports are essential for exports and limit the extent of expenditure switching.





19. Taken together, the results suggest that while trade prices adjust less than fully to exchange rate and commodity price shocks, volumes adjust strongly and almost instantaneously to price changes. Combined, these results indicate that exchange rate fluctuations can have a significant impact on the current account, by affecting net-exports through trade price and quantity adjustment. However, we do find incomplete adjustment of trade prices concentrated in the top import/export sectors over shorter time-horizons. We find that the pass-through effects vary substantially across sectors and, additionally, that appreciations have stronger pass-through effects than depreciation, confirming the asymmetries in the effects. We also find suggestive

[11] This specification augments the pass-through equations with global value-chain measures of backward participation (share of imports used for exports) and re-export intensity (share of imports that are re-exported) for exports and imports respectively. See OECD (2018) and Koopman and others (2014) for details. These measures are then interacted with the exchange-rate and commodity price change variables.

evidence that the extent of pass-through is weaker when exchange rate changes derive from financial market perturbations and when sectors are more tightly connected in the global value-chain for re-import and re-export purposes.

20. In conclusion, this paper's analysis weaves together several elements that determine the transmission of exchange rates fluctuation to trade. It documents frictions in the adjustment of trade prices to exchange rate shocks that depend on the source of the exchange rate fluctuation as well as transmission mechanism related to the trade integration in global value chains. These results obtained in the paper are overall consistent with the existing literature on exchange rate pass-through effects, where it is found that (i) aggregate pass-through effects of exchange rate changes on trade prices are incomplete (Campa and Goldberg 2005; Gopinath and Itskhoki, 2010); (ii) exports that are highly dependent on imports have low sensitivity to exchange rate shocks (Amiti and others, 2019.), and; (iii) financial sector driven exchange rate shocks are weakly transmitted to the real economy (Forbes and others, 2019).

References

Amiti, M., O. Itskhoki, and Konings, J., 2014, "Importers, Exporters, and Exchange Rate Disconnect," *American Economic Review*, Vol. 104, Issue 7, pp. 1942–78.

Baxter, M., and A.C. Stockman, 1989, "Business Cycles and the Exchange-Rate Regime: Some International Evidence," *Journal of monetary Economics*, Vol. 23, Issue 3, pp. 377–400.

Bussière, M., Delle Chiaie, S. and Peltonen, T.A., 2014. "Exchange rate pass-through in the global economy: the role of emerging market economies". *IMF Economic Review*, 62(1), pp.146-178.

Campa, J.M., and L.S. Goldberg, 2005, "Exchange Rate Pass-Through into Import Prices," *Review of Economics and Statistics*, Vol. 87, Issue 4, pp. 679–690.

Chari, V.V., P.J. Kehoe, and E.R. McGrattan, 2002, "Can Sticky Price Models Generate Volatile and Persistent Real Exchange Rates?," *The Review of Economic Studies*, Vol. 69, Issue 3, pp. 533–563.

Devereux, M.B., and C. Engel, 2002, "Exchange Rate Pass-Through, Exchange Rate Volatility, and Exchange Rate Disconnect," *Journal of Monetary economics*, Vol. 49, Issue 5, pp. 913–940.

Engel, C., 2002. "Expenditure switching and exchange-rate policy", *NBER macroeconomics annual*, 17, pp.231–272.

Forbes, K., I. Hjortsoe, and T. Nenova, 2018, "The Shocks Matter: Improving Our Estimates of Exchange Rate Pass-Through," *Journal of International Economics,* Vol. 114, pp. 255–275.

Gopinath, Gita, and Roberto Rigobon, 2008, "Sticky borders," *The Quarterly Journal of Economics,* Vol. 123, No. 2, pp. 531–575.

————, and O. Itskhoki, and R. Rigobon, 2010, "Currency Choice and Exchange Rate Pass-Through," *American Economic Review*, Vol. 100, Issue 1, pp. 304–36.

————, and O. Itskhoki, 2010, "Frequency of Price Adjustment and Pass-Through," *The Quarterly Journal of Economics*, Vol. 125, Issue 2, pp. 675–727.

Imbs, J., and I. Mejean, 2015, "Elasticity Pptimism," *American Economic Journal: Macroeconomics*, Vol. 7, Issue 3, pp. 43–83.

International Monetary Fund, 2015, "Exchange Rate and Trade Flows: Disconnected?," Chapter 3 in *World Economic Outlook, October 2015: Adjusting to Lower Commodity Prices,* World Economic and Financial Surveys (Washington).

Itskhoki, O., and D. Mukhin, 2017, "Exchange Rate Disconnect in General Equilibrium," NBER Working Paper No. 23401 (Cambridge, Massachusetts: National Bureau of Economic Research).

Koopman, R., Z. Wang, and S.J. Wei, 2014, "Tracing Value-Added and Double Counting in Gross Exports," *American Economic Review*, Vol. 104, Issue 2, pp. 459–94.

Krugman, P.R., 1989. *Exchange-rate instability*, MIT Press, Cambridge, MA.

Obstfeld, M., 2001. "International macroeconomics: beyond the Mundell-Fleming model", *National Bureau of Economic Research,* No. w8369.

Organisation for Economic Co-operation and Development, 2018, "The Changing Nature of International Production: Insights from Trade in Value Added and Related Indicators," *OECD TiVA Indicators 2018 Update* (Paris).

INDONESIA'S GROWTH-AT-RISK[1]

Macrofinancial conditions serve as a useful predictor for downside risks to GDP growth (Adrian and others, 2019). A principal component analysis shows that tighter financial conditions and elevated macrofinancial vulnerability in Indonesia have been associated with a decline in future GDP growth. Using a country-specific financial condition Index and a macrofinancial vulnerability index for Indonesia, the Growth-at-Risk analysis shows that both financial condition and macrofinancial vulnerability index were at a neutral level at end-2018, and that the 2019 GDP growth rate will be most likely to be 5.2 percent, conditional on two neutral indices.

1. In a globally integrated financial system, changes in the domestic and global financial conditions and the evolution of macrofinancial vulnerabilities can provide powerful signals about risks to future economic activity (Prasad and others, 2019). As in the runup to the global financial crisis, macrofinancial vulnerabilities often increase in buoyant economic conditions when funding is widely available and risks appear subdued. Once these macrofinancial vulnerabilities are sufficiently elevated, a tightening of financial conditions pose significant downside risks to economic activity over the medium term. Thus, tracking the evolution of financial conditions and macrofinancial vulnerabilities can provide valuable information for policymakers regarding risks to future growth and also a basis for targeted preemptive action.

2. The growth-at-risk (GaR) framework links both financial conditions and macrofinancial vulnerability to the probability distribution of future GDP growth (IMF, 2017; IMF, 2018). The GaR framework offers a number of appealing features that enhance macrofinancial surveillance, which has focused on the central forecast. First, it allows to take into consideration the entire growth distribution—reflecting both downside and upside risks—in addition to the central forecast. Second, it provides a framework to analyze key driving factors for future real GDP growth, including their relative importance over different forecasting horizons.[2] Third, it helps quantify the impact of systemic risk on future real GDP growth and the intertemporal tradeoff associated with a tighter macroprudential stance.[3]

3. The first step of the GaR analysis is to select relevant macrofinancial variables, group them into partitions (i.e., groupings), and estimate a level of financial conditions and macrofinancial vulnerability. Using partitions instead of individual variables, one can extract common trends among relevant macrofinancial variables and remove idiosyncratic noise, thereby improving the quality of the subsequent analyses. For Indonesia, the team categorizes macrofinancial variables into three partitions: (1) financial conditions; (2) macrofinancial vulnerability; and (3) external factor. Given high exposures of domestic financial sectors to the global financial

[1] Prepared by Heedon Kang (MCM).

[2] For example, in the near term, loose financial conditions can help support growth. But, over the medium-term, they can induce a build-up of macrofinancial imbalances that could undermine growth down the road.

[3] While such a tightening could induce a short-term slowdown, it could lower the medium-term downside risks to growth with contained macrofinancial vulnerabilities.

market developments, the first partition captures both the domestic and global price of risk embedded in asset prices, the cost of funding, and the degree of domestic and global financial stress. The second partition represents macrofinancial imbalances which develop endogenously and act as potential amplifiers of negative developments of financial conditions. Lastly, given the role of China as the main trading partner, its growth is included as the external factor that influences future growth in Indonesia (Table 1).

Table 1. Indonesia: List of Macrofinancial Variables for GaR Analysis

Financial conditions	• Real long-term interest rates • Term spread • Sovereign spreads • Corporate spreads • CEMBI market cap • Equity returns • Change in foreign exchange rate • VIX
Macrofinancial vulnerability	• Credit growth • Credit gap • NPL ratios in the banking system • Ratio of external debt to GDP • Ratio of currency account balance to GDP • House price growth
External condition	• China's GDP growth

4. Financial conditions serve as a useful predictor for downside risks to GDP growth (Adrian and others, 2019). Using the principal component analysis (PCA), the financial condition index (FCI) is constructed by extracting the first principal component from a collection of eight financial variables. As shown Figure 1, the FCI is found to be a good leading indicator of GDP. The accompanying factor loadings show that both domestic and external financial conditions (e.g., sovereign spreads and VIX) play an important role in explaining future GDP growth in Indonesia. The Global Financial Crisis is clearly reflected in the FCI by a sharp tightening, and other episodes, such as the taper tantrum in 2013 and the global stock market in 2015, are also noticeable, which reflect well the heavy reliance on capital flows to finance the current account and fiscal deficits.

5. Financial conditions in Indonesia have tightened to a neutral level at end-2018. This tightening has been mainly driven by worsening external financial conditions and global trade tensions, whose developments Indonesia remains exposed to. It was also partly contributed by BI's policy rate hikes, which was done as a response to the global market turbulence and the EM sell-off in 2018. However, financial conditions in Indonesia are still at the neutral level by historical standards and are expected to loosen a bit in 2019:Q1, based on growing optimism about U.S.-China trade negotiations and expectations that major central banks would take a more patient

approach to monetary policy normalization. Thus, they would continue to be supportive of growth in the near term for Indonesia.

6. Macrofinancial vulnerability index (MVI) captures credit boom-bust cycles and macrofinancial imbalances in the housing market and external sector in Indonesia. The first principal component from a list of slow-moving credit aggregates and sectoral indicators summarizes the level of systemic risk in Indonesia. As shown in Figure 2, current account deficits and credit gap are the two most important variables to explain the level of macrofinancial vulnerability in Indonesia.

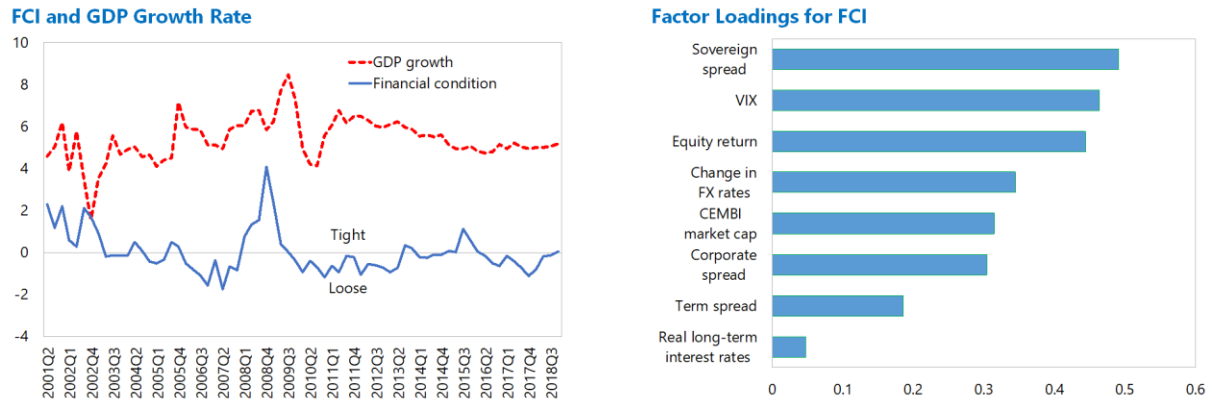
7. As of end-2018, macrofinancial vulnerability is broadly contained. Indonesia's external debt is still moderate and sustainable. The credit cycle moved out of a prolonged downturn with credit gap closing, and the banking system remains broadly sound with large capital buffers, strong profitability, and asset quality improvement. However, the vulnerability level turned to slight positive as current account deficits were widened and corporate external debt increased.[4] It can be elevated further if credit, especially to the corporate sector, grows rapidly without reins.

8. In general, tighter financial conditions and elevated macrofinancial vulnerability are associated with a decline in future GDP growth (Figure 3). Quantile regressions, which estimate relationships between selected explanatory variables (e.g., financial conditions, macrofinancial vulnerability partition) and quantiles of future GDP growth rates, find that the relationships vary over the forecasting horizon and differ across quantiles in Indonesia. Tight financial conditions are negatively correlated with economic activities in the near term. However, as financial conditions revert to their historical average, they tend to boost growth over the medium term. In contrast, when macrofinancial vulnerability is elevated, risks to future GDP growth is also high not only in the near term but also over the medium term.

9. Given the neutral financial conditions and macrofinancial vulnerability, the 2019 GDP growth rate is most likely to be 5.2 percent under the baseline (Figure 4). The distribution of 4-quarter ahead GDP growth is derived by fitting a t-skew distribution to predicted values of the conditional quantile regressions. The predicted growth mode for one-year ahead closely tracks the realized growth, especially since the global financial crisis (the bottom left chart). The GaR at 5 percent is 2.7 percent, implying that there is a 5 percent chance that real GDP in 2019 will grow by at most 2.7 percent. The probability of a recession is less than 1 percent in 2019 (the bottom right chart). The interquartile interval of the GDP forecast ranges from 3.9 to 5.3 percent at the end of 2019, with the mode and median being 5.2 and 4.5 percent.

[4] Current account deficits are expected to gradually narrow over the medium term.

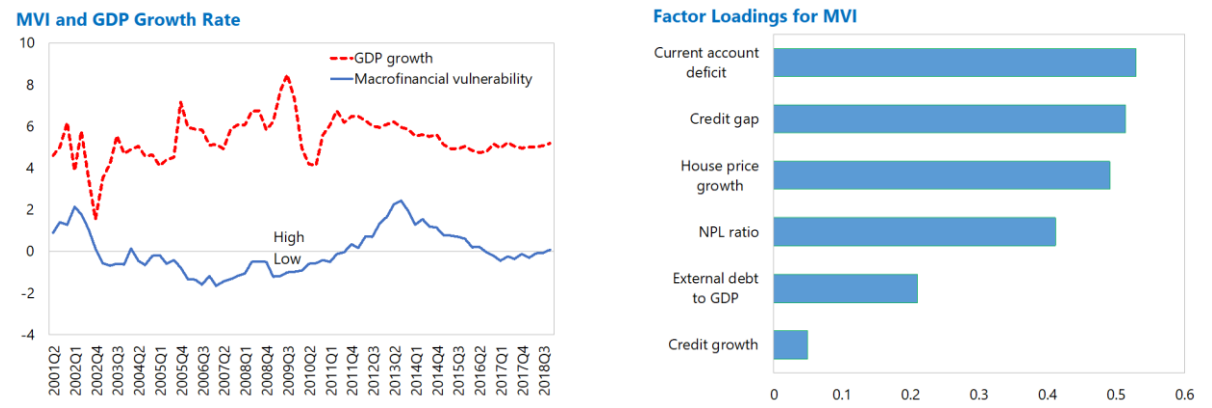
Figure 1. Indonesia: Financial Condition Index 1/



Source: IMF staff estimates.

1/ The FCI is normalized to have zero mean and a standard deviation of one over 2001–2018.

Figure 2. Indonesia: Macrofinancial Vulnerability Index 1/



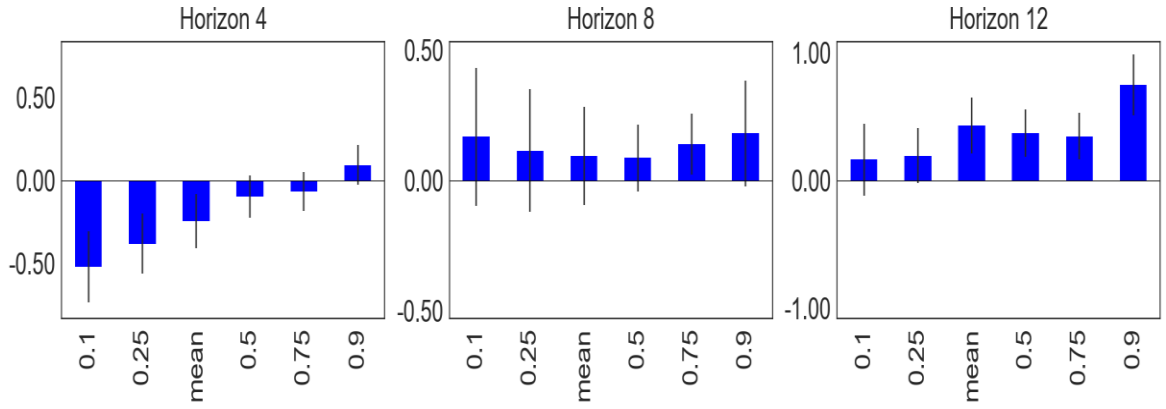
Source: IMF staff estimates.

1/ The MVI is normalized to have zero mean and a standard deviation of one over 2001–2018.

Figure 3. Indonesia: Quantile Regression Results

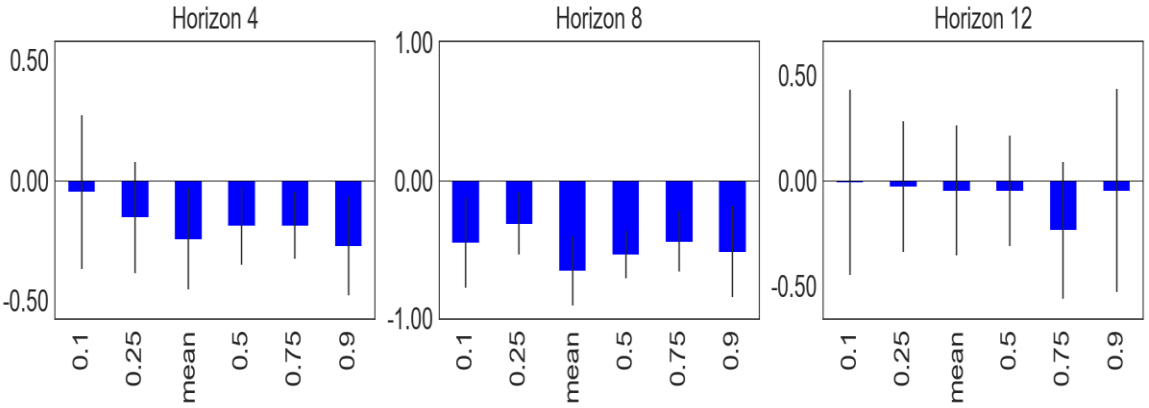
Tighter financial conditions are associated with lower GDP growth in the next year, when economic activity is weak, while they are associated with stronger GDP growth over the medium term.

Quantile Regression Coefficient for Financial Conditions over 4-, 8-, and 12-Quarters Ahead



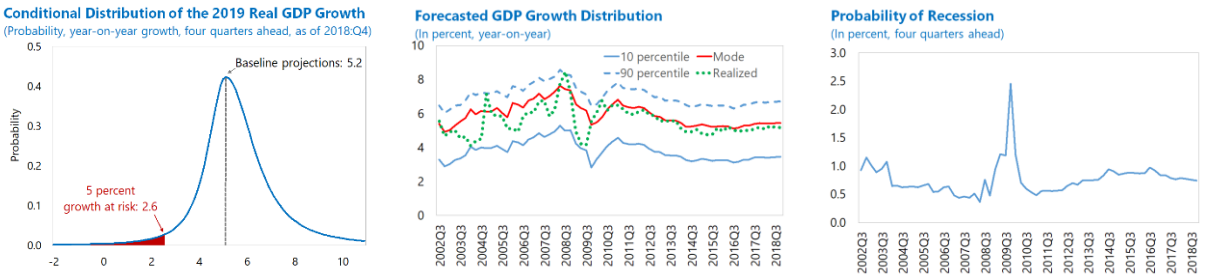
Elevated Macrofinancial vulnerability is associated with weaker growth regardless of the horizon, but the impact of potential shock amplification is larger over the medium term.

Quantile Regression Coefficient for Macrofinancial Vulnerability over 4-, 8-, and 12-Quarters Ahead



Source: IMF staff estimates.

Figure 4. Indonesia: Growth-at-Risk Results



Source: IMF staff estimates.

Appendix I. Data Source

Variables	Description	Source
Change in Long-Term Real Interest Rate	Percentage point change in the 10-year government bond yield, adjusted for inflation	Bloomberg Finance L.P.; IMF staff estimates
Term Spreads	Yield on 10-year government bonds minus yield on 1-year government bonds	Bloomberg Finance L.P.; IMF staff estimates
Sovereign Spreads	Yield on 10-year Indonesia government bonds minus yield on 10-year U.S. government bonds	Bloomberg Finance L.P.; IMF staff estimates
Corporate Spreads	Commercial banks' lending rates for corporate working capital minus interbank interest rate	CEIC data Co.; IMF staff estimates
CEMBI market cap	Market capitalization of Indonesia corporate debt securities in CEMBI	Bloomberg Finance L.P.
Equity Returns (local currency)	Log difference of the Jakarta stock market index	Bloomberg Finance L.P.
Exchange Rate Movements	Change in U.S. dollar per national currency exchange rate.	Bloomberg Finance L.P.; IMF staff estimates.
CBOE Volatility Index (VIX)	A measure of expected price fluctuations in the S&P 500 Index options over the next 30 days	Bloomberg Finance L.P.
Credit Growth	Year-on-year growth rate of loans to private sectors	CEIC data Co.; IMF staff estimates
Credit Gap	the difference between the credit-to-GDP ratio and its long-term trend, which is estimated with one-sided HP filter	CEIC data Co.; IMF staff estimates
NPL Ratio	Ratio of nonperforming loans to total loans in the banking system	Haver Analytics; IMF staff estimates
External Debt to GDP	Ratio of external debts to GDP	Haver Analytics; IMF staff estimates
Currency Account Deficits (relative to GDP)	Ratio of current account deficits to GDP	Haver Analytics; IMF staff estimates
House Price growth	Year-on-year growth rate of residential property price index	Haver Analytics; IMF staff estimates
Real GDP Growth for Indonesia	Percent change in GDP at constant prices for Indonesia	IMF, World Economic Outlook database
Real GDP Growth for China	Percent change in GDP at constant prices for China	IMF, World Economic Outlook database

Appendix II. Parametric Estimation of Future Growth Distribution

Estimation of the Conditional Quantiles

For a set of horizons $h \in \{4, 8, 12\}$ where *h* represents the quarters ahead, the following specifications are estimated:

$$y_{t+h} = \alpha^{\tau} + \sum_{i \in I} \beta_i^{\tau} X_{i,t} + \varepsilon_{i,t}^{\tau}$$

Where y_{t+h} represents future GDP growth *h* quarters ahead, $X_{i,t}$ is the partition i (financial condition, macrofinancial vulnerability, and external factor), β_i^{τ} the coefficient of the τ quantile regression, α^{τ} the associated constant and $\varepsilon_{i,t}^{\tau}$ the residual. The quantile regressions are estimated at different points of the distribution of y_{t+h}, $\tau \in \{10, 25, 50, 75, 90\}$. A quantile regression at the 10th percentile would estimate a relationship when GDP growth is relatively weak, while a quantile regression at the 90th percentile would show one when growth is strong. Using quantile regressions for estimating the conditional distribution has many advantages: first, under standard assumptions, quantile regressions provides the best unbiased linear estimator for the conditional quantile; second, quantile regressions are robust to outliers. Finally, the asymptotic properties of the quantile regression estimator are well-known and easy to derive.

Parametric Fit of the Conditional Distribution of Future GDP Growth

The conditional quantiles are sufficient statistics for describing the full conditional cumulative distribution function (CDF). From the CDF, we derive the probability distribution function using a parametric method to fit the conditional quantiles for the sake of robustness with regards to quantiles crossing and extreme quantiles estimation. Following Adrian and others (2016), a parametric t-skew fit is used to represent more accurately fatter tails. The skew version of the t-distribution is useful to model tail events, given that most of the macro-financial variables present this feature.

Fitting the CDF estimated from the quantile regressions represents another robust dimensionality reduction, after the data partitioning presented above. The Student t-skew distribution is fully characterized by five parameters (location/mode, degree of freedom, scale/variance, kurtosis, and skewness) which represents a good compromise between describing the distribution as accurately as possible and keeping a low number of parameters to avoid over-fitting.

The estimation of the t-skew distribution parameters is done in two different steps. First, degrees of freedom are computed directly while the mean parameter of the conditional distribution can be retrieved from OLS fit, with the same specification as the quantile regressions:

$$mu^* = g(E[y_{t+h} | \{X_i\}_{i \in P}]) = g(\hat{\alpha}^{OLS} + \sum_{i \in I} \hat{\beta}_i^{OLS} X_{i,t})$$

Second, the sigma, the kurtosis, and the skewness, which are truly the quantities of interest, are estimated via the following minimization program:

$$\text{sigma}^*, \text{skew}^*, \text{kurtosis}^* = argmin[\sum [tskew.quantile(\tau,\ mu^*, df^*, sigma, skew, kurtosis) - Q(y_{t+h}, \tau | \{X_i\}_{i \in P})]^2]$$

Once the optimal three t-skew parameters have been estimated from the conditional quantiles, it is straightforward to derive the fitted t-skew cdf and pdf, therefore allowing to estimate the associated Growth-at-Risk.

References

Adrian, Tobias, Nina Boyarchenko, and Domenico Giannone, 2019, "Vulnerable Growth," American Economic Review, Vol. 109, No. 4, April.

International Monetary Fund, 2017, "Financial Conditions and Growth at Risk," Chapter 3 in *Global Financial Stability Report October 2017*, (Washington).

————, 2018, *Singapore—Staff Report for the 2018 Article IV Consultation* (Washington).

Prasad, Ananthakrishnan, Selim Elekdag, Phakawa Jeasakul, Romain Lafarguette, Adrian Alter, Alan Xiaochen Feng, and Changchun Wang, 2019, "Growth at Risk: Concept and Application in IMF Country Surveillance," IMF Working Paper No. 19/36 (Washington: International Monetary Fund).

IMPACT OF MONETARY POLICY COMMUNICATION IN INDONESIA[1]

This paper assesses the impact of monetary policy communication in Indonesia, focusing on the features and impact of monetary policy press releases and reports. It shows that the transparency of monetary policy has improved significantly over time, as monetary policy press releases have provided more information. However, the clarity of the messages appears to have declined. The paper also highlights that surprises on monetary policy decisions are relatively frequent, though the size of the surprises is small. Press releases and monetary policy reports do not appear to have a significant impact on market rates.

1. Communication is an important tool of monetary policy at Bank Indonesia (BI). With the adoption of an inflation targeting framework in 2005, transparency and clarity of monetary policy has played an increasingly important role in guiding market expectations. As a result, communication tools and events have increased over time. BI has increased its disclosure of information relevant for monetary policy through press releases, monetary policy reports, monetary policy reviews, speeches by senior BI officials, press conferences, and outreach.

2. This paper assesses the impact of monetary policy communication in Indonesia from three perspectives. First, the transparency and clarity of monetary policy communication is key to align BI and the market's understanding of the drivers of monetary policy decisions. Second, with this alignment in understanding, monetary policy decisions should be generally predictable for the market. Third, the efficacy of monetary policy can be strengthened with communication with the latter clarifying policy decisions, or providing new information not previously priced in market rates.

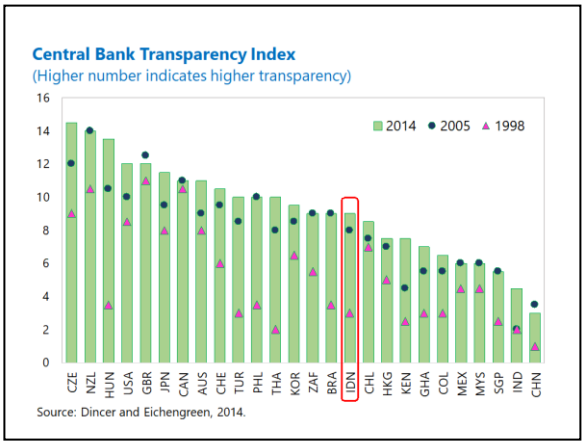
3. The analysis presented below focuses on two tools of monetary policy communication at BI—monetary policy press releases and monetary policy reports. Press releases are issued at the end of the regular monthly or extraordinary monetary policy committee meetings. Monetary reports are published on a quarterly basis. For other months of the year, BI issues monetary policy reviews, which are similar to the monetary policy reports, excluding the forward-looking analysis. In this paper, references to monetary policy reports encompass both monetary policy reports and reviews. The reports are not issued on the same day as the monetary policy press release, allowing a separated identification of their impact.

A. Transparency and Clarity

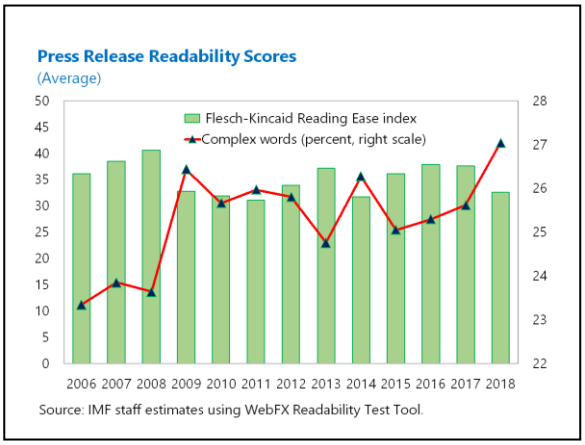
4. Transparency of monetary policy has improved over time. Transparency is a key element of accountability and a way to enabling markets to respond more smoothly to policy decisions. Transparency provides the public with a better understanding of the central bank's objective and the factors that motivate monetary policy decisions (Dincer and Eichengreen, 2014). The Dincer-

[1] Prepared by C. Ahokpossi, A. Isnawangsih, S. Naoaj (all APD), and T. Yan (COM). K. Moriya and T. Wanasukaphun (both ITD) assisted with the textual analysis.

Eichengreen transparency index suggests that BI's monetary policy transparency has improved substantially over the last two decades.[2] BI's monetary policy transparency now ranks among the highest for emerging markets.



5. However, the communication of multiple objectives of monetary policy remains a challenge. BI's legal mandate is to achieve and maintain the stability of the rupiah value (in terms of prices of goods and services and the exchange rate). To achieve this goal, Bank Indonesia adopted the inflation targeting framework, where inflation is the primary monetary policy objective, while adhering to the free-floating exchange rate system. In this framework, the exchange rate policy aims to minimize excessive exchange rate volatility, rather than to peg the exchange rate to a particular level. In practice, at different times, BI has referred to multiple objectives such as inflation, current account deficit, protection against volatile global markets, safeguarding the competitiveness of domestic financial markets against changing policies in other countries, etc.



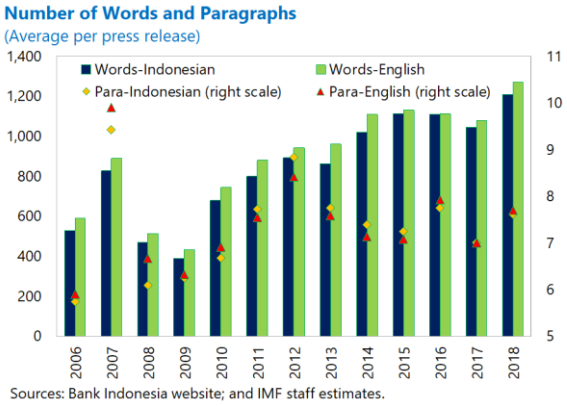
6. While BI has provided more information in its monetary policy press releases over time, the clarity of message appears to have weakened. The literature suggests that clarity of monetary policy message improves the effectiveness of monetary policy. Blinder (2008) suggests that clearer communications have higher signal-to-noise ratios and should thus provide more useful information. Using the Flesch-Kincaid measure of readability, Bulir, Cihak, and Jansen (2014) measured the clarity of inflation reports by four central banks before and during the GFC and found an association of clarity and reduced market volatility. The Flesch-Kincaid[3] measure of readability suggests, among other things, that longer sentences (and complicated words with many syllables) reduce the clarity of messages. Our analysis finds that the length of monetary policy press releases (the number of words) has increased over time, reflecting an increase in both the number and length of paragraphs. As each paragraph

[2] The Dincer-Eichengreen transparency index is constructed from the assessment of 15 areas, including whether there is a formal statement of monetary policy objective(s) with explicit prioritization of objectives when there are multiple objectives, a quantification of the primary objective(s), independence vis-à-vis the government, and public provision of data relevant for the conduct of monetary policy.

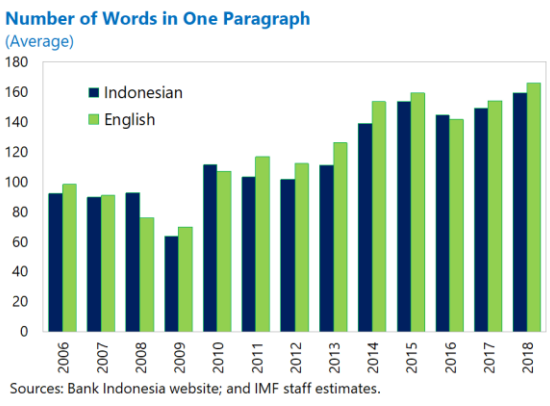
[3] Flesch-Kincaid Index on 0–100 scale is based on this formula: 206.835 - 1.015 x (words/sentences) - 84.6 x (syllables/words). Low scores indicate text that is complicated to understand. For most business writing, a score of 65 is a good target.

typically covers a different issue, BI has included more information over time. However, paragraphs have become longer, essentially due to longer sentences, which is typically associated with a loss of clarity. The results are broadly similar whether the Indonesian or English version of the press releases are analyzed (Figure 1).

Figure 1. Indonesia: Press Releases Words and Paragraphs



Sources: Bank Indonesia website; and IMF staff estimates.

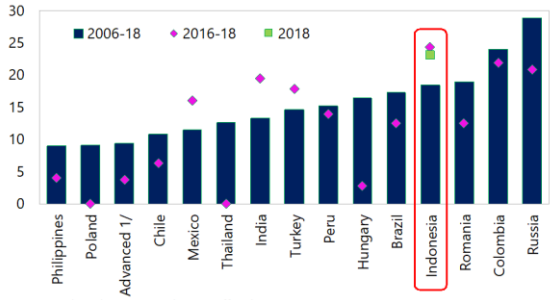


Sources: Bank Indonesia website; and IMF staff estimates.

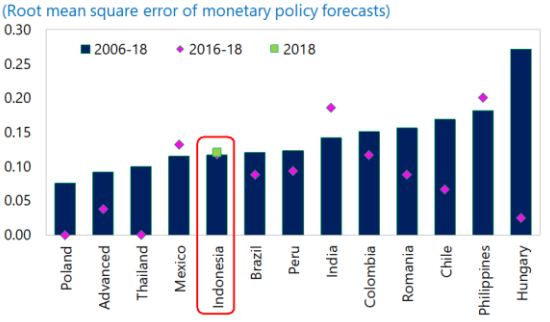
B. Predictability

7. Monetary policy is somewhat predictable as shown by forecast errors in Bloomberg analysts surveys (Figure 2). The forecast error by the median analyst is relatively frequent compared to other emerging markets. In particular, in periods of stress, the frequency of error is higher. Even though forecast errors are relatively frequent, their size is relatively small including the mean square forecast error of BI policy decision , when compared to other emerging markets.

Figure 2. Indonesia: Predictability of Interest Rate Decision



Sources: Bloomberg LP.; and IMF staff estimates.
1/ Average of Canada, Australia, Czech Republic, Korea, New Zealand, Norway, United Kingdom, and United States.



Sources: Bloomberg LP.; and IMF staff estimates.
1/ Average of Canada, Australia, Czech Republic, Korea, New Zealand, Norway, United Kingdom, and United States.

C. Impact on Market Rates

8. Monetary policy surprises have a significant impact on money market rates, but there is no evidence that they affect the bond market (Table 1). If the market anticipated monetary policy decision correctly, market rates should reflect that anticipation. As a result, policy decisions that are in line with market expectations do not have a significant impact on market rates. In contrast, unanticipated decisions (surprises) should have a significant impact on market rates. We test this understanding against money market rates, bond yields and the exchange rate (see Appendix III for a description of the estimation approach). The results indicate that anticipated monetary policy decisions have no significant impact on market rates. As expected, decision surprises have a significant impact on money market rates, with the impact declining along the maturity curve. In contrast, rate surprises do not have a significant impact on bond yields and the exchange rate because of shallow financial markets, including an incomplete yield curve, a money market active only for maturities up to one month.[4]

Table 1. Indonesia: Impact of Monetary Policy Surprise and Anticipation 1/

Variables	Overnight Interbank	Interbank				Government Bond Yield			Exchange Rate
		1-week	2-week	3-week	1-month	1-year	5-year	10-year	
Unanticipated	1.369 ***	1.000 ***	1.195 ***	0.469 ***	0.540 ***	0.285	0.133	-0.008	112.883
	(0.357)	(0.19)	(0.252)	(0.17)	(0.21)	(0.175)	(0.113)	(0.096)	(75.787)
Anticipated	0.442	0.334	0.505 *	0.203	0.231	-0.014	0.001	-0.115	0.946
	(0.376)	(0.224)	(0.258)	(0.221)	(0.167)	(0.087)	(0.057)	(0.058)	(20.736)
Constant	-0.014	0.003	0.014	0.005	0.010	-0.003	-0.003	-0.006	-2.198
	(0.039)	(0.016)	(0.019)	(0.016)	(0.025)	(0.015)	(0.01)	(0.048)	(5.42)
Observations	135	135	135	135	135	126	138	141	141
R-squared	0.079	0.213	0.246	0.075	0.050	0.029	0.013	0.001	0.027

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

9. Monetary policy press releases appear not to have a significant impact on market rates once policy rate decisions are accounted for (Table 2). Beyond the rate decision, the monetary policy press release can convey additional information that move market rates. Such information could be in the in the form of forward guidance, or highlight of risks not accounted for by the market. We test this hypothesis to explore whether in the absence of policy rate surprises there is still a significant impact of press releases on market rates (see Appendix III for a description of the estimation approach). The results indicate that press releases do not have a signficant impact on market rates beyond the policy rate decision itself. While there is a significant impact of policy rate changes on the short-end money market maturity curve, it does not propagate along the entire curve. In addition, there is no significant impact on bond yields and the exchange rate. The results

[4] Other aspects of the shallow financial markets in Indonesia include the availability of government securities for maturities of one year or higher and the small issuance of short-term government securities.

are supported by an alternative estimation approach (Appendix II), where we regress the absolute change in market rates on a dummy variable for press releases in the full sample. Even though press releases have no significant independent impact on market rates, they might be useful in other ways not assessed here. For example, over time, they may provide more clarity on the policy framework without affecting market rates contemporenously.

Table 2. Indonesia: Impact of Press Release on Market Rates 1/

Variables	Interbank				Government Bond Yield			Exchange Rate
	1-week	2-week	3-week	1-month	1-year	5-year	10-year	
Overnight	0.759 ***	0.327 **	0.063	-0.211	-0.055	0.009	-0.071	47.169
	(0.1)	(0.144)	(0.081)	(0.313)	(0.091)	(0.089)	(0.083)	(34.571)
Surprise dummy	-0.046 **	-0.051	0.028	-0.005	0.029	0.012	0.008	-14.485
	(0.018)	(0.034)	(0.032)	(0.05)	(0.03)	(0.019)	(0.014)	(10.925)
Surprise dummy*Overnight	-0.439 ***	-0.095	-0.087	0.304	-0.094	-0.023	0.077	-51.566
	(0.106)	(0.178)	(0.078)	(0.315)	(0.141)	(0.09)	(0.084)	(35.952)
Unanticipated	1.008 ***	1.201 ***	0.466 ***	0.539 **	0.213	0.159	-0.015	134.627 *
	(0.147)	(0.246)	(0.171)	(0.212)	(0.159)	(0.117)	(0.09)	(81.048)
Anticipated	0.301 **	0.479 **	0.214	0.237	-0.049	0.009 *	-0.056 *	-7.623
	(0.141)	(0.208)	(0.227)	(0.152)	(0.112)	(0.061)	(0.028)	(22.487)
Constant	0.028 ***	0.042 **	-0.010	0.013	-0.010	-0.008 ***	0.037	5.984
	(0.008)	(0.017)	(0.017)	(0.037)	(0.023)	(0.013)	(0.01)	(5.707)
Observations	135	135	135	135	122	135	135	135
R-squared	0.725	0.422	0.083	0.078	0.046	0.026	0.026	0.052

1/ Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

10. Monetary policy reports do not appear to have significant impact on financial markets (Table 3). To measure the impact of monetary policy reports on market rates, we consider whether there is a significant shift in the yield curve on the days of release of the reports (restricted sample) as compared to other days (full sample). We measure the shift by estimating whether a movement in the short-end of the yield curve (overnight interbank rate) significantly propagates to all maturities along the yield curve (see Appendix III for a description of the estimation approach). There is no significant difference between the coefficient of the restricted and full sample estimations (Table 3), suggesting that monetary policy report have no significant impact on market rates. The results are supported by an alternative estimation approach (Appendix II), where we regress the absolute change in market rates on a dummy variable for press releases in the full sample. As noted for press releases, even though monetary policy reports have no significant impact on market rates, they might be useful in other ways not assessed here.

Table 3. Indonesia: Impact of Monetary Policy Reports on Market Rates 1/

Variables	Interbank								Bond Yield						Exchange Rate	
	1-week	1-week	2-week	2-week	3-week	3-week	1-month	1-month	1-year	1-year	5-year	5-year	10-year	10-year		
Overnight interbank rate	0.330 ***		0.185 ***		0.028		0.010		0.054		0.009 *		-0.005		4.028	
	(0.063)		(0.07)		(0.023)		(0.03)		(0.037)		(0.005)		(0.013)		(3.59)	
Overnight rate (full sample)		0.313 ***		0.242 ***		0.031 **		0.012 *		-0.002		0.001		-0.001		1.551
		(0.029)		(0.04)		(0.014)		(0.007)		(0.004)		(0.002)		(0.003)		(1.402)
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	-0.002	0.000	-0.129 ***	0.020 ***	-2.117	4.554 **
	(0.023)	(0.006)	(0.026)	(0.006)	(0.015)	(0.005)	(0.03)	(0.006)	(0.01)	(0.004)	(0.005)	(0.002)	(0.014)	(0.004)	(5.499)	(2.11)
Observations	106	2703	106	2703	106	2703	106	2703	92	2390	106	2692	106	2703	106	2703
R-squared	0.557	0.461	0.224	0.283	0.021	0.009	0.001	0.001	0.031	0.000	0.016	0.000	0.001	0.000	0.003	0.000

1/ Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

11. In conclusion, this paper shed some light on the transparency, clarity, predictability, and impact of monetary policy communication in Indonesia. It showed that while monetary policy transparency has improved over time, and monetary policy is somewhat more predictable in Indonesia than in peer countries, the clarity of communication appears to have weakened. The analysis of the impact of monetary policy communication on market rates indicates that monetary policy surprises have a significant impact on money market rates, but not on bond yields, highlighting a weak transmission of monetary policy. The results suggest that in addition to improving the clarity of monetary policy communication, deepening financial markets would support the effectiveness of monetary policy and its communication. Key financial deepening reforms include improving liquidity and activity in the money market beyond one month of maturity and increasing the issuance of short-term government securities.

Appendix I. Data Source

Variables	Description	Source
Unanticipated Policy	The difference between BI's rate decision (it) and analysts' anticipated rate (Et-1it)	Bloomberg L.P. (Bank Indonesia Reference Interest Rate Index)
Anticipated Policy	The difference between analysts' anticipated rate (Et-1it) and actual BI's rate (i_{t-1})	Bloomberg (Bank Indonesia Reference Interest Rate Index)
Press Release Dummy	Dummy variable for Monetary Policy Press Release date (if any press release 1, otherwise 0).	Bank Indonesia
MPR Release Dummy	Dummy variable for Monetary Policy Report Release date (if any MPR release 1, otherwise 0).	Bank Indonesia
Policy Rate Change Dummy	Dummy variable for Monetary Policy Rate (BI rate) Change (if any rate changes 1, otherwise 0).	Bank Indonesia
Macroeconomic Release Dummy	Release dates for major macroeconomic variables of Indonesia – GDP, CPI, The Nikkei Indonesia Manufacturing Purchasing Managers' Index and Current Account balance (if any release 1, otherwise 0).	Bloomberg L.P.
Policy Rate Change	Change in Monetary Policy Rate (BI rate) from previous day	Bank Indonesia
Overnight Interbank	Change in actual overnight interbank money market rate from previous day	Bank Indonesia
1-week Interbank	Change in actual 1-week interbank money market rate from previous day	Bank Indonesia
2-week Interbank	Change in actual 2-week interbank money market rate from previous day	Bank Indonesia
3-week Interbank	Change in actual 3-week interbank money market rate from previous day	Bank Indonesia
1-month Interbank	Change in actual 1-month interbank money market rate from previous day	Bank Indonesia
1-year Government Bond Yield	Change in 1-year government bond yields from previous day	Bloomberg L.P. (GIDN1YR index)
5-year Government Bond Yield	Change in 5-year government bond yields from previous day	Bloomberg L.P. (GIDN5YR Index)
10-year Government Bond Yield	Change in 10-year government bond yields from previous day	Bloomberg L.P. (GIDN10YR Index)
Exchange Rate	Change in Indonesian spot rupiah per U.S. dollar form previous day	Bloomberg
FedRate	Change in Federal Funds Effective rate from previous day	Haver Analytics
1-month money market rate	Change in 1-month U.S. Treasury Bill Yield from previous day	Haver Analytics
10-year government bond yield	Change in 10-year U.S. Treasury Bond Yield from previous day	Haver Analytics
EMBI spread	Change in JPMorgan Emerging Market Bond Global (EMBIG) Index Sovereign Spread for Indonesia	Bloomberg L.P. (JPSSGIDO Index)
CDS	Change in Indonesia 5-Year Sovereign Credit Default Swaps	Bloomberg L.P.

Appendix II. Impact of Press Release and Monetary Policy Report

Impact of Press Release and Monetary Policy Report—An Alternative Approach 1/

Variables	Overnight Interbank	Interbank				Government Bond Yield			Exchange Rate
		1-week	2-week	3-week	1-month	1-year	5-year	10-year	
Press Release Dummy	-0.051	-0.005	0.010	-0.014	0.008	0.000	0.011	-0.117 **	-5.434
	(0.052)	(0.02)	(0.022)	(0.018)	(0.023)	(0.013)	(0.008)	(0.05)	(6.642)
MPR Release Dummy	0.002	0.028	0.006	-0.029 *	0.015	-0.021 *	-0.017 ***	-0.012	-8.120
	(0.076)	(0.032)	(0.027)	(0.017)	(0.027)	(0.011)	(0.005)	(0.09)	(6.662)
Policy Rate Change	-0.401	-0.262 **	-0.197	-0.131	-0.097	0.033	-0.002	0.061	-18.329
	(0.233)	(0.127)	(0.164)	(0.143)	(0.114)	(0.049)	(0.037)	(0.048)	(29.573)
Macroeconomic releases dummy	-0.042	-0.035 **	-0.050 ***	-0.007	-0.056 ***	-0.004	-0.004	-0.011	-7.000
	(0.038)	(0.015)	(0.013)	(0.016)	(0.012)	(0.01)	(0.005)	(0.056)	(6.43)
Constant	0.253 ***	0.142 ***	0.150 ***	0.081 ***	0.158 ***	0.095 ***	0.062 ***	0.230 ***	70.726 ***
	(0.018)	(0.008)	(0.008)	(0.006)	(0.007)	(0.004)	(0.002)	(0.022)	(5.299)
Observations	2,703	2,703	2,703	2,703	2,703	2,506	2,840	2,965	2,966
R-squared	0.0009	0.0023	0.0027	0.0011	0.0040	0.0008	0.0017	0.0006	0.0002

1/ Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Appendix III. Description of Analytical Approaches

Predictability of Monetary Policy – Measuring Monetary Policy Surprises

Bloomberg conducts a survey of analysts covering Indonesia, prior to BI's monetary policy meeting decisions. The difference between BI's rate decision (i_t) and analysts' anticipated rate ($E_{t-1}i_t$) constitutes a monetary policy surprise (unanticipated monetary policy change). The change in policy rate by BI (Δi_t) can therefore be broken down into unanticipated ($\Delta i_{j,t}^{u}$) and anticipated policy change ($\Delta i_{j,t}^{a}$).

$$\Delta i_t = (i_t - i_{t-1}) = (i_t - E_{t-1}i_t) + (E_{t-1}i_t - i_{t-1}) = \Delta i_{j,t}^{u} + \Delta i_{j,t}^{a}$$

Where "i" is the policy rate; "t" is the time index; "$E_{t-1}i_t$" is the market expectation at time "t-1" of the policy rate at time t.

Efficacy of Monetary Policy – Market Reaction to Monetary Policy Surprises

To capture the impact of monetary policy surprises on market rates (money market, bond yield curve, and the exchange rate) we run an ordinary least square with robust standard errors. The dependent variables are market rates, the independent variables are anticipated and unanticipated rate changes in policy rates, and the control variables include global factors (changes in U.S. Fed rates, 1-month money market rate, and 10-year government bond yield), and country risk (EMBI and CDS for Indonesia).

$$\Delta m_t = \alpha_0 + \alpha_u \Delta i_{j,t}^{u} + \alpha_a \Delta i_{j,t}^{a} + \alpha_c Controls + \varepsilon_t$$

Efficacy of Monetary Policy – Isolating the Impact of Press Release on Market Rates

The identification approach here relies on the fact that on days when there is no monetary policy surprise, there should be no significant shift in market rates. If such shift is observed, it could be attributed to the content of the press release (not to the policy rate decision), provided other key drivers of market rates are accounted for. While a random event can move particular maturities or the entire yield curve, a consistent and significant shift in the curve on days when the press release is issues (and there is no rate surprise) could be reasonably attributed to the content of the press release. To capture such impact, we interact the short-end of the money market (overnight rate) with a dummy variable indicating whether there was a policy rate surprise or not.

$$\Delta m_t = \alpha_0 + overnight + surprise + overnight * surprise + \alpha_u \Delta i_{j,t}^{u} + \alpha_a \Delta i_{j,t}^{a} + \alpha_c Controls + \varepsilon_t$$

Where "overnight" is the overnight money market rate and "surprise" is the dummy variable which takes the value 1 if there is a monetary policy rate surprise, and zero overwise.

Efficacy of Monetary Policy – Impact of Monetary Policy Reports on market rates

The identification approach here relies on the fact that if on days when a monetary policy report is released, there is significant shift in market rates relative to other days (or the entire sample covering all days between 2005 and 2018), such a shift it could be attributed to the content of the monetary policy reports (not to the policy rate decision), provided other key drivers of market rates are accounted for.

$$\Delta m_{r,t} = \alpha_{r,0} + \alpha_{r,1} overnight + \alpha_{r,c} Controls\ (for\ restricted\ sample) + \varepsilon_t$$

$$\Delta m_{f,t} = \alpha_{f,0} + \alpha_{f,1} overnight + \alpha_{f,c} Controls\ (for\ full\ sample) + \varepsilon_t$$

Where "overnight" is the overnight money market rate. A significant difference between αr,c and αf,c would be attributed to the impact of monetary policy reports.

Impact of Press Release (MP) and Monetary Policy Reports (MPR) on market rates (full sample) – Robustness check.

Here we focus on the impact of MP and MPR on market rate, irrespective of the direction of the impact. In the full sample, we estimated the impacts by regressing the absolute value of market rate changes on dummy variables capturing whether there a PR or MPR was release on a given day, while controlling of other factors that could affect market rates.

$$|\Delta m_t| = \alpha + \beta_1 D(MP)_t + \beta_2 D(MPR)_t + \beta_3 D(Macro)_t + \beta_4 \Delta i_t + \beta_5 Controls\ + \varepsilon_t$$

Where $|\Delta m_t|$ = absolute value of change in market rates; D(MP) = press release dummy; D(MPR) = monetary policy report dummy; D(Macro) = macroeconomic release dummy (covering the release of data on growth, inflation, trade); Δi_t = change in policy rate.

OPERATIONALIZING A MEDIUM-TERM REVENUE STRATEGY IN INDONESIA[1]

A medium-Term revenue strategy (MTRS) can help raise substantial revenues—up to 5 percent of GDP over the medium term, with 1.5 percent of GDP from tax administration reforms and 3.5 percent of GDP from tax policy reforms—and streamline the tax system, and ultimately promote inclusive growth and reduce the economy's vulnerabilities to shocks. However, as the MTRS represents a comprehensive and ambitious reform strategy, it is neither possible nor desirable to implement the reforms in one step. This paper illustrates how the MTRS reforms can be prioritized, sequenced and phased to reflect their economic and social impacts, as well as implementation challenges. It indicates that early reform efforts should focus on a public communication campaign, improving tax administration, and streamlining existing taxes.

A. The Context

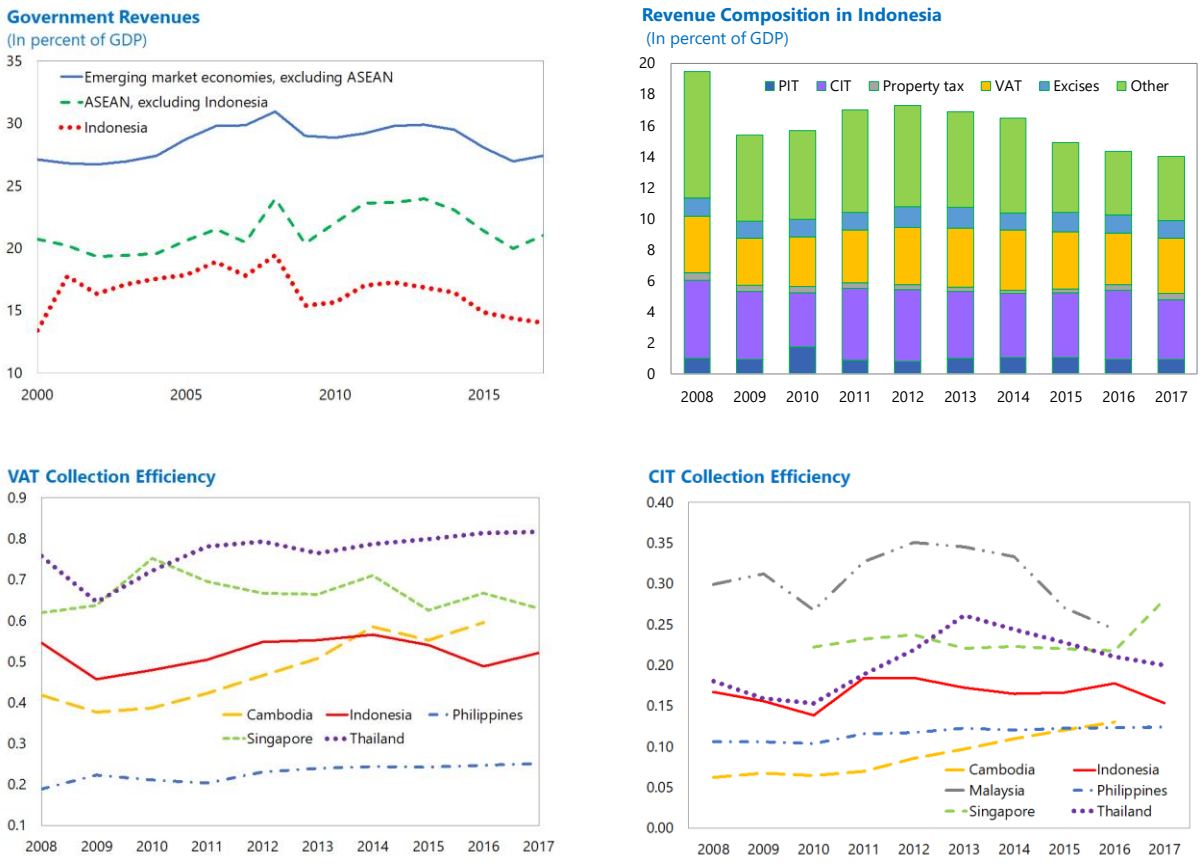
1. Low government revenues in Indonesia reflect both narrow tax base and low collection efficiency. While the headline rates for the corporate income tax (CIT) (25 percent), personal income tax (PIT) (top rate of 30 percent) and valued added tax (VAT) (10 percent) have been broadly in line with regional peers, the revenue-to-GDP ratio in Indonesia has been substantially lower. In recent years, total revenues are about 5 percent of GDP lower than the average of other ASEAN countries and 10 percent of GDP lower than the average of emerging market economies outside of the region. Over the past 10 years, the main tax revenue components have been largely stable while other revenues—in particular, those related to oil and gas—have declined (Figure 1 top panel).

2. Various exemptions, special tax regimes and low tax thresholds reduce the tax base and hamper the functioning of the tax system. While the basic structure of the current tax system appears appropriate, detailed design weaknesses often undermine the basic principles of a good tax. For instance, the myriad of special regimes, exemptions, and tax incentives in each of the major taxes leads to a relatively weak revenue performance. At the same time, it creates an uneven playing field among businesses, thereby resulting in welfare losses, inequities, and complications in administration and compliance. For example, Indonesia's VAT and CIT collection efficiencies are both relatively low in the region and have showed little sign of improvements up to 2017 (Figure 1, bottom panel).

3. A MTRS can help raise substantial revenues and streamline the tax system, and ultimately promote inclusive growth and reduce the economy's vulnerabilities to shocks. While economic growth in Indonesia has remained at a healthy level of about 5 percent, the

[1] Prepared by Baoping Shang (FAD), drawing from analytical work by Juan Toro, Ruud De Mooij, Aqib Aslam, John Brondolo, Hui Jin, Suahasil Nazara, Narine Nersesyan, Michael D'Ascenzo, Annette Chooi, and Thomas Story.

Figure 1. Indonesia and Its Peers: Government Revenues and Collection Efficiencies 1/



Sources: World Revenue Longitudinal Data; and IMF staff estimates.
1/ VAT collection efficiency = VAT revenues as a percent of consumption/Standard VAT rate; CIT collection efficiency = CIT revenues as a share of GDP/CIT rate.

economy could grow faster and the MTRS is one of the key structural reforms that could unlock Indonesia's potential through several channels.

- Indonesia is facing large spending needs in the areas of human capital development, infrastructure, and social safety net.[2] This in turn would boost growth potential and reduce income inequity (Kinda and Doumbia, 2019). In addition, a well-functioning social protection system is often a prerequisite for other structural reforms such as labor market reforms (for example, a strong social protection system can help mitigate the adverse effect on displaced workers). A comprehensive diagnosis of the tax system in Indonesia indicates that a MTRS based on a combination of tax policy and administration reforms could raise revenues by up to

[2] Achieving the United Nations' Sustainable Development Goals (SDGs) in Indonesia is estimated to require additional spending of about 5½ percent of GDP in the areas of education, health, and infrastructure per year (Gaspar and others, 2019; IMF, 2018).

5 percent of GDP in the medium term, with 1.5 percent of GDP from tax administration reforms and 3.5 percent of GDP from tax policy reforms (De Mooij, Nazara and Toro, 2018).

- The MTRS could help improve economy-wide productivity and business climate by streamlining the tax system and removing distortions. For example, while Indonesia's overall Doing Business ranking improved significantly in recent years, it is still substantially behind regional peers (e.g., Singapore, Malaysia and Thailand) and the standing on Paying Taxes in fact dropped and contributed to the still relatively low overall ranking, which is a key factor in attracting investment (Table 1).

Table 1. Indonesia: Doing Business Ranking

	Indonesia			Malaysia	Philippines	Singapore	Thailand	Vietnam
	2017	2018	2019	2019	2019	2019	2019	2019
Overall Ease of Doing Business rank	91	72	73	15	124	2	27	69
Component rank								
Resolving insolvency	76	38	36	41	63	27	24	133
Enforcing contracts	166	145	146	33	151	1	35	62
Protecting minority investors	70	43	51	2	132	7	15	89
Starting a business	151	144	134	122	166	3	39	104
Getting electricity	49	38	33	4	29	16	6	27
Registering property	118	106	100	29	116	21	66	60
Getting credit	62	55	44	32	184	32	44	32
Dealing with construction permits	116	108	112	3	94	8	67	21
Paying taxes	104	114	112	72	94	8	59	131
Trading across borders	108	112	116	48	104	45	59	100

Source: World Bank, Doing Business database.

- The MTRS would also help reduce macroeconomic vulnerabilities over the medium term. Because of low revenues, the government relies on volatile external borrowing to finance its deficit and channels some infrastructure spending through SOEs and PPPs, which could lead to fiscal risks and macroeconomic vulnerabilities.

4. The operationalization of the MRTS requires careful prioritization, sequencing and phasing, taking into account economic and social considerations as well as implementation challenges. The complexity and interdependence of the MTRS reforms and the importance of buy-in and support by stakeholders require a well sequenced and phased approach to reap the benefits of the MTRS while mitigating any adverse social impacts that it may have.

B. Key MTRS Reforms

5. The MTRS centers on tax policy reforms that remove certain exemptions, streamline tax regimes, and broaden base and increase rates in the least distortionary manner, and on tax administration reforms to improve compliance and the efficiency of tax filing and collection. Thus, in addition to raising substantial revenues, the MTRS would also have direct

impact—beyond through spending of the additional revenues—on economic efficiency, equity and ease of tax administration and compliance (Table 2).[3] Special tax treatments for social objectives or certain industrial policies could be instead accommodated by using other instruments—such as expenditure policy—that are more effective and efficient for those purposes.

VAT

6. Remove certain exemptions. Numerous VAT exemptions lead to cascading effects as exempt suppliers are unable to claim VAT credits on their inputs—distorting production patterns—and breaks in the VAT chain, which reduces voluntary compliance. Using VAT exemptions to support industries distorts resource allocation and is usually not efficient. Under the MTRS, exemptions for mining, agriculture (including plantation and forestry products), tourism, domestic transportation, employment services, fee-based financial services, art, entertainment, electricity, and water would be eliminated. A short list of "standard exemptions" would remain, such as for margin-based financial services, education, and health care. Removing the exemptions—in addition to a modest revenue gain at about 0.2 percent of GDP—would help improve efficiency and administration and compliance. The effect on equity is likely mixed. On one hand, tax burden would be more fairly distributed across sectors; on the other hand, the reform could negatively impact the poor as their consumption basket may include larger share of products from the affected industries such as food, electricity and water. Thus, part of the revenue gain from the MTRS should be used to strengthen the social safety net to mitigate the impact on the poor.

7. Reduce the registration threshold. The VAT registration threshold—in some sense another form of exemption—is exceptionally high (VAT threshold as a multiple of per capita PPP GDP in Indonesia is about 30 while it is around or below 5 in most other economies) and lowering it would have similar impacts on efficiency and administration and compliance as removing exemptions. The impact on equity is unclear, depending on, for example, the income levels of the affected business owners and their customers.

8. Replace the sales tax on luxury goods (STLG) with VAT and a vehicle excise. The STLG raised only 0.15 percent of GDP in 2015 —ninety percent of which came from vehicles—and has been subject to severe erosion. Such small revenues are not worth the complexity and administrative efforts. Therefore, the STLG should be repealed and all goods subject to the normal VAT rate. Vehicles would instead become subject to a specific excise, in line with international practices. The excise should be independent of price and instead be based on the engine size of the vehicle, adjusted yearly for inflation. The coverage of the vehicle excise should be expanded to include vehicles that are currently exempted, such as pick-ups and trucks. The new tax is expected to raise about 0.6 percent of GDP in revenues, and this transformation can help improve efficiency (vehicle excise can help address environmental externalities associated with vehicle use and improve

[3] Economic efficiency refers to whether tax reforms have distortionary effects on the economy, including on investment decisions, consumption choices, and employment behavior; equity refers to whether the tax burden is fair and equitable; and ease of administration and compliance refers to the efficiency of tax filing and collection process.

welfare), equity (the tax burden is expected to be mostly levied on the rich based on car ownership), and administration and compliance (vehicle excise is much easier to administer than STLG).

9. Increase the standard rate by 2 percentage points. Headline VAT rate in Indonesia is similar to that of other ASEAN countries but is relatively low in a wider international context. There is scope to gradually raise the standard VAT rate by 2 percentage points after certain exemptions have been removed and the VAT registration threshold reduced. While this can help raise substantial revenues, it will have some distortionary impact on the economy—even though VAT is one of the least distortionary taxes—and potentially significant adverse impact on the poor, which can be mitigated by strengthening the social safety net.

Excise

10. Introduce fuel excises. Fuel excises provide a practical tool to internalizing the externality costs associated with fuel consumption including global warming, local air pollution, traffic congestion and accidents, noise, and road damage.[4] Imposing excises to levels close to the ASEAN averages (for example, around IDR 3,000 per liter for gasoline) can raise 0.5 percent of GDP in revenues and improve economic efficiency. Fuel excises are easy to administrator under current tax capacity and can be easily scaled up as needed. However, fuel excises will have potentially large negative impact on the poor and are only feasible after fuel subsidies are phased out as fuel subsidies keep fuel prices at below market levels. Strengthening social safety net is therefore critical to protect the poor from the adverse effect and build support for the reform.

CIT

11. The current business tax creates discrimination between firms due to sector-based final tax regimes, the generous presumptive taxation of small and medium-sized enterprises (SMEs), and preferential treatment of selected businesses.[5] There are also many selective incentives, which are granted on a discretionary basis. This has created an uneven playing field and caused significant misallocation of capital and labor, which is reflected in a lower productivity than what could be achieved through a more neutral system. The tax on businesses should also be aligned with the PIT to avoid arbitrage between capital and labor income.

12. Replace special regimes with one single corporate income tax. A single uniform CIT rate should be imposed on all corporate income, except for shipping, which is commonly treated separately. Final withholding schemes on deemed profits would thus be abolished, the 50 percent discount on the CIT rate for medium-sized businesses removed, and corporations no longer eligible for the small business regime even if their turnover is below the SME threshold. Also, discretionary

[4] Some of the externalities could be better addressed by other instruments, for example, a tax on mileage driven or peak hour charges. However, these instruments are still not widely available, and it is appropriate to reflect externalities in fuel taxes until more efficient policies can be comprehensively implemented.

[5] For certain sectors such as shipping and airline operations, oil and gas drilling operations, construction work, planning and supervision, and rental of land and building, the CIT on net income is replaced by a final tax of 1–10 percent on gross receipts.

tax incentives in the CIT should be phased out. The reform is expected to be revenue neutral and any additional revenues from the above changes could be used to lower the headline CIT rate (Box 1). The reform would help improve efficiency (providing the proper incentives and foster competition), equity (tax burden is more fairly distributed), and administration and compliance (the tax scheme is simpler).

13. Reduce the threshold of the SME regime. The gross turnover threshold for Indonesia's SME tax regime is exceptionally high by international standards. It implies that many medium-sized businesses are subject to the 0.5 percent final tax on turnover.[6] This has several disadvantages: (i) it creates distortions in firm behavior (e.g., it discourages firms from growing, including investing in R&D and human capital, or encourages them to split into multiple small firms); (ii) it creates large horizontal inequities (e.g., between firms with different margins on turnover), and (iii) with a low rate of 0.5 percent, the inclusion of many medium-sized enterprises comes at the expense of revenues. A small business regime would remain but be applied only to those small non-incorporated firms with limited ability to keep proper books and records. The special regime serves the purpose of reducing the compliance burden on very small firms, which can facilitate their compliance. The new threshold under the MTRS would be aligned with the VAT threshold and set at IDR 600 million. While the efficiency implication of the reform is unclear (the distortionary effect of a higher tax on SMEs and the removal of the distortions—for example, due to differential taxation based on firm size—offset each other) and ease of administration and compliance is likely little changed, the reform will improve the fairness of tax burden.

14. Introduce alternative minimum tax. To provide an effective safeguard against tax avoidance and tax evasion by corporations, Indonesia should adopt an alternative minimum tax (AMT) in the CIT. The AMT would be based on a tax on turnover and a corporation would thus pay the maximum of either the ordinary tax liability under the CIT or the AMT. As the AMT has the disadvantage of imposing tax on loss-making companies, it could be accompanied by a generous "carry-forward" period of 10 years. Thus, the difference between AMT payments and regular CIT liability would be creditable against future CIT liabilities. The carry forward provision would also help smooth volatility of tax revenues to the budget. While the AMT could raise considerable revenues, it could also introduce inefficiencies and increase complexity of tax administration and compliance.

15. Improving international taxation. Indonesia has already adopted measures to comply with minimum international standards on base erosion, profit shifting and automatic exchange of information (AEOI). Moreover, it has implemented other anti-avoidance measures, such as controlled foreign corporation legislation and restrictions on interest deductibility. Further strengthening of these measures is underway, for instance, with respect to transfer pricing regulations, provisions against treaty shopping, the definition of a permanent establishment, and a general anti-avoidance rule. Another issue relevant for Indonesian international taxation rules is the

[6] The SME turnover tax was lowered from 1 percent to 0.5 percent in 2018.

country's double tax agreements. While these initiatives can help strengthen international taxation, their impacts are expected to small and should not be overestimated.

PIT

16. Broaden PIT base and strengthen progressivity. The combination of a relatively high basic exemption threshold and the rate structure leads to relatively low PIT burden for the middle class in Indonesia. In restructuring the PIT, the new system would be based on individual income, instead of the current system that is based on family income. It would be constructed in such a way that gradually more people will enter the PIT—holding the basic exemption constant as nominal incomes rise—and are subject to the top rate of 30 percent also by reducing the level of income at which this rate applies. This could raise an additional 0.3 percent of GDP in revenues by the end of the reform. The PIT reform will lower efficiencies with higher tax burden on the middle class but improve equity with stronger progressivity.

Property Tax

17. Recurrent property taxes are generally considered the most growth friendly as they distort business and consumer decisions less than other taxes. They are perceived as fair due to the relatively close link between the tax obligation and the benefits that the taxpayer derives from local public services. Property transfer taxes (or stamp duties) are generally easy to collect but create larger distortions in property markets and are therefore less efficient. Revenues from property taxes—at 0.3 percent of GDP—are low in Indonesia and there is scope for more. First, property value used for the assessment of the property tax are considerably below market value, which reduces the base. Second, the law does not allow municipalities to set rates above 0.3 percent of the assessed value, which is low from an international perspective.

18. *Reducing the property transaction tax while increasing the property tax*. The reform would increase the maximum allowable rate of the recurrent land and building tax from 0.3 percent to 1 percent. An accurate property register needs to be developed, accompanied by an efficient system of valuation. The maximum allowable rate of the property transaction tax (stamp duty) would gradually be reduced from 5 to 2 percent. The reform could raise around 0.3 percent of GDP revenues by local governments and allow the central government to reduce its transfers to local governments. The reform will likely increase efficiency (replacing more distortionary property transaction tax with less distortionary property tax) and equity (a wealth tax). The effect on administration and compliance should be limited given that a property tax already exists.

Tax Administration

19. Taxpayer compliance is low and, in some areas, declining. Tax administration reforms—some of which are ongoing—include a targeted set of initiatives aimed at strengthening the DGT's capacity to:

- Collect more revenues by reducing noncompliance and tax evasion. Poor compliance has not only resulted in large losses of tax revenues but has also created unequal competition between those taxpayers who comply with the tax rules and those who do not. Moreover, the failure of some individuals and businesses to pay their fair share of taxes could undermine taxpayers' confidence in the fairness of the tax system and the integrity of its administration.

- Increase the productivity of its workforce. For example, the DGT allocates too many of its staff members to low-productivity routine support and supervision tasks, and too few to auditing.

- Reduce taxpayers' compliance costs, which would help improve Indonesia's investment climate.

20. Five initiatives to support compliance improvement programs (CIPs) in four areas—VAT, employer withholding, ultra-high wealth individuals (UHWI) and high wealth Indonesians (HWI)—are central to raise 1.5 percent of GDP in revenues while also improving efficiency, equity, and administration and compliance:

- *Strengthening the audit workforce*. The audit workforce numbers are low by international standards and should be increased, and the skills and support tools provided to auditors enhanced. A national audit taskforce should be established to ensure that a steady stream of trained auditors is available to all regions over the next two years.

- *Building a data matching capacity*. Self-assessment systems depend upon a comprehensive set of high-quality data for effective management, and investing in good data will pay dividends in the long run. Revenue mobilization could be improved by a whole-of-government and community approach to improving access to, and integrity of, high leverage data sets.

- *National deployment of compliance risk management*. Compliance Risk Management (CRM) approaches are generally accepted as critical in supporting improved taxpayer compliance. DGT's first generation CRM system, piloted in 16 district tax offices, is consistent with international compliance risk management case selection approaches.

- *Increasing efficiency of support and supervision*. Successful revenue administrators respond quickly to changing organizational priorities and ensure that staff are assigned the highest priority work. For example, DGT would reassign staff from low risk refunds and low revenue extensification work to risk-based compliance management and extensification focusing on individuals and businesses with significant tax potential.

- *Leveraging the tax amnesty and AEOI intelligence*. International experience with tax amnesties highlights the risk to revenue collection and community confidence if the amnesty is not followed by credible actions to strengthen enforcement. DGT is developing a plan to ensure that the revenue benefits of the Tax Amnesty and the powerful data flowing from the OECD's common reporting standard and AEOI are exploited.

21. Institutional reforms in several areas would help achieve the goals of the supporting initiatives, sustain the reform gains and improve the productivity of DGT over the long term, including:

- *Autonomy and budget flexibility*. The DGT should be provided additional flexibility in managing and organizing its workforce. However, it should remain an integral directorate within the Ministry of Finance.

- *Organization*. Changes in the DGT's organization are necessary to curb corruption and enhance the productivity of its staff. The DGT's organizational reform agenda should therefore be better aligned with good international practices and standards regarding staff integrity. For example, integrity measures would be required to create greater awareness among DGT employees about the directorate's own Code of Conduct and by publicizing to staff the nature and consequences of misconduct.

- *Information technology (IT)*: Improvements to the IT system should be prioritized to support compliance management. The planned new computer system (the core tax administration system) could strengthen compliance and improve tax officer productivity. To achieve the best results, the new IT system should be combined with redesigning and simplification of core tax administration processes, including registration, filing, and payment.

C. Complementary Reforms

22. Complementary reforms in other areas—for example, expenditure policy and public financial management—are required for the MTRS to achieve its ultimate goal of enhancing inclusive growth and welfare. The primary objective of the MTRS is to raise revenues for priority spending, including meeting the spending needs to achieve the SDGs, as empirical evidence suggests that countries with a tax-to-GDP ratio below 15 percent tend to grow significantly slower than countries above this tipping point—a phenomenon that is explained by the role of taxation in state building and the strengthening of the social contract with its citizens (Gaspar and others, 2016). However, the additional revenues would only lead to higher growth if they are spent efficiently. This means that the MTRS should go hand in hand with reforms to improve spending efficiency, particularly in the areas of energy subsidies, education, and public investment management (Box 2). Energy subsidies are a very inefficient way of spending government resources, and fuel excises can only be introduced after subsidies are eliminated.

23. Strengthening social safety net can improve social welfare and help build consensus on the MTRS. Some of MTRS reforms will adversely affect the wellbeing of the poor—such as the increase in VAT rate and the introduction of fuel excises—and a well-functioning social safety net would help mitigate the impact. Furthermore, this would help build public support for the reforms.

D. Sequencing and Phasing

24. The implementation of the MTRS requires careful sequencing and phasing. The MTRS is a comprehensive and ambitious reform strategy, and it is neither possible nor desirable to implement the reforms in one step. The proper sequencing and phasing of the reforms need to reflect their economic and social impacts, as well as implementation challenges. The MTRS reforms can be broadly categorized into four groups (Table 3):

- *Tax administration reforms*. By definition, tax administration reforms are designed to better enforce existing laws—including improving both compliance and efficiency of tax collection—and are mostly under the direct control of the Ministry of Finance. In addition to improve administration and compliance, these reforms also tend to have beneficial effects on efficiency and equity. Revisions to the General Tax Provisions and Procedures Law (RUU KUP)—a draft is currently with the parliament—are needed to provide more autonomy and budget flexibility for DGT, and this can help enhance the productivity of its workforce. Important progress has been made in recent years, and reform efforts should be further intensified as the benefits of the reforms will only materialize over time and tax administration reforms also help enhance the revenue impact of tax policy reforms.

- *Tax reforms that streamline existing taxes*. These reforms are primarily designed to improve the functioning of existing taxes and tend to improve efficiency, equity and administration and compliance. Some of the reforms, however, could face resistance from certain interest groups, and revisions of relevant tax laws are often required.

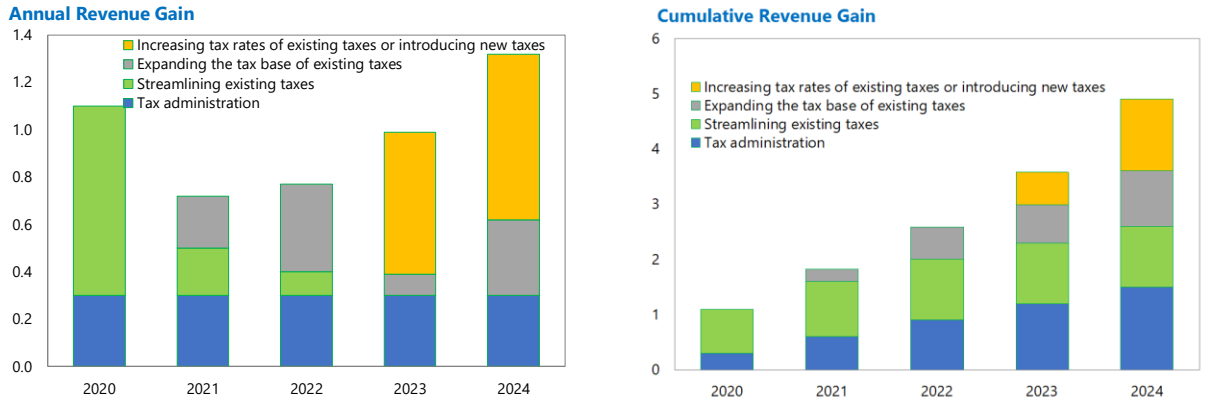
- *Tax reforms that expand the base of existing taxes*. These reforms broaden the tax base, and could potentially have some negative impacts on efficiency, equity or administration and compliance. In addition, lowering the thresholds for VAT and SME turnover tax should take place after VAT exemptions are removed and the CIT is streamlined. These reforms may require extensive consultations with the public and stakeholders and revisions of relevant laws.

- *Tax reforms that increase the rates of existing taxes or introduce new taxes*. These reforms can raise substantial revenues, but also tend to have negative impacts on efficiency or equity and are the most challenging to implement. In addition, fuel excises can only be implemented after fuel subsidies are removed; VAT rate increase should happen after VAT exemptions are removed and threshold lowered; and a strong social safety net is needed to protect the most vulnerable before fuel prices or VAT rates are increased. Revisions of relevant tax laws may be required.

25. Immediate reform efforts should focus on a public information campaign, improving tax administration and streamlining existing taxes. This would help garner public support for the implementation of the MTRS, generate sizable revenues upfront, and create the conditions for other MTRS reforms. A public communication campaign should start immediately to build public support for the MTRS. Tax administration reforms would continue and be further intensified. Preparations for tax reforms that streamline existing taxes should also start immediately, and these reforms could be implemented from 2020. Tax reforms that expand the base of existing taxes could be implemented

starting in 2021 or 2022, and tax reforms that increase the rate of existing taxes or introduce new taxes in 2023 (Figure 2).

Figure 2. Indonesia: Revenue Gain from Sequencing and Phasing of Reforms—An Illustrative Scenario
(In percent of GDP)



Source: IMF staff estimates.

26. An action plan can help facilitate the implementation of the MTRS. While the MTRS with sequencing and phasing maps out the blueprint for tax policy and administration reforms, detailed steps and timelines for each reform can help put the strategy into actions. Table 4 summarizes the key reform actions recommended over the next two years:

- *Building public support*. Implementing the MTRS represents a major fiscal policy shift in many years and could be potentially a milestone in the economic development of Indonesia. As it touches many interests and will create winners and losers at least in the short term, it inevitably will face resistance from various groups. Building public support strategically is thus crucial for its success. This includes effective engagement and consultation with key stakeholders to solicit their inputs and address their concerns and an information campaign to communicate the urgency and rationale for and content of the MTRS to the public. The public communication strategy could build on the experience of the whole-of-government communication campaign used during the tax amnesty.

- *Improving tax administration*. This centers around the designs and launches of CIPs (in the areas of VAT, employer withholding obligation, professional, high income and wealthy persons, and ultra-high wealth individuals), supported by the implementation of supporting initiatives and institutional reforms.

- *Streamlining existing taxes*. This basically involves reviewing current schemes, preparing reform proposals, and introducing new or revised laws.

E. Conclusion

27. Government revenues are very low in Indonesia and the tax system is characterized by various distortions. The MTRS can help not only raise substantial revenues—around 5 percent of GDP over five years—to meet the priority spending needs, but also streamline the tax system and improve productivity and boost growth. The implementation of such an ambitious reform requires carefully prioritization, sequencing and phasing, taking into account economic and social impacts of the reforms as well as implementation challenges. An action plan can further help facilitate the immediate implementation of the reforms, taking advantage of the window of opportunity after the elections.

28. While the authorities have already taken steps to reform the tax system in several areas, reforms should be carefully integrated under the umbrella of the MTRS. The ongoing actions to improve tax administration are very much consistent with the MTRS, including the development of Compliance Risk Management (CRM), the automatic exchange of information including through the lifting of bank secrecy, the acceleration of VAT refund, and the plan for an IT system. The decision to reduce the already low SME turnover tax from 1 percent to 0.5 percent, on the other hand, ran contrary to the recommendations of the MTRS and may need to be reconsidered.[7] Expanding the list of service exports with zero-rated VAT (already adopted) and lowering CIT (under discussion) may be justifiable on their own but would weaken overall revenues. The pros and cons of introducing additional tax incentives need to be carefully evaluated, including how they contribute to raising revenues and improving productivity and business climate.

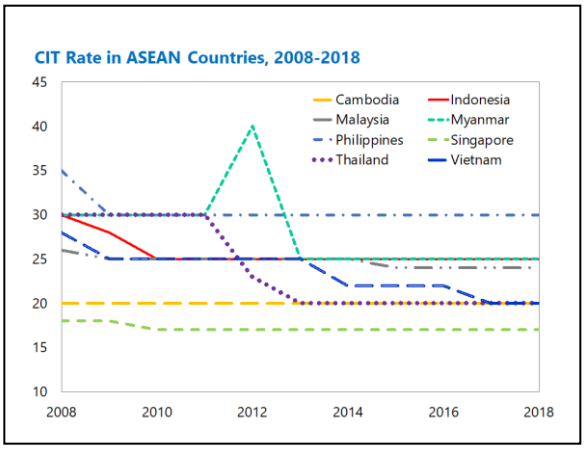
29. Another important issue is how the additional revenues should be used. This should depend on both external and domestic economic conditions and needs to strike a balance between protecting short-term macroeconomic stability and meeting long-term spending needs. With growth at around potential, low inflation, a stable external environment and large spending needs, the additional revenues could be used for investments in priority areas. If the economy overheats and inflation inches up or external financing becomes volatile, it could be an opportunity to lower fiscal deficit, repay obligations to SOEs for past infrastructure spending, or reduce infrastructure spending through SOEs and the private sector to bring the spending onto the budget.

30. The reform strategy should adapt as social and economic conditions change. The action plan outlined here reflect current social and economic conditions. The authorities should continue to refine and revise the strategy and the action plan as circumstances change.

[7] The lower turnover tax of 0.5 percent, however, is limited to 3, 4, and 7 years—depending on the establishment type of the SMEs—after which they will have to file the standard CIT. This could be especially burdensome for small SMEs and is not consistent with the best practice.

Box 1. CIT and Tax Competition

Indonesia CIT rate is slightly high among ASEAN countries. In 2018, the CIT headline rate of 25 percent is lower than that of Philippines, the same as that of Myanmar and higher than that of Malaysia, Cambodia, Thailand, Vietnam, and Singapore. Several countries have lowered their CIT rate in recent years. However, the CIT collection efficiency, as shown in Figure 1, tend to be low, indicating low effective rate likely driven by tax incentives and allowances such as tax holidays for pioneer industries, investment allowance, special economic zones and integrated economic development zones, and reduced CIT rates for publicly listed companies and medium-sized companies.



Considerations to lower CIT rate need to carefully balance the costs with the benefits. Lowing CIT rate could lead to substantial loss of revenues and this can be costly for Indonesia because of its low revenue level. The potential benefits are to attract additional investments to Indonesia. However, considerations should be given to the fact that as Indonesia already provides a number of tax incentives through for example tax holidays and economic zones, how much additional investments can be attracted by lowering CIT of a few percentage points. A larger reduction could risk tax competition with peers and lead to adverse economic impacts for many countries in the region.

Improving business climate, infrastructure and the quality of the labor force could be a more effective way to attract investments and boost long-term growth. Many factors, besides low CIT rate, help attract investments. Implementation of the MTRS—including a revenue-neutral CIT reforms to streamline the CIT system and using the revenue gain to lower the CIT headline rate—to improve business climate and invest in infrastructure and human capital may be a more effective way to attract investments and boost long-term growth.

Box 2. Public Investment Efficiency 1/

While public investment efficiency in Indonesia is similar to the average of peer countries, there is still significant gap between Indonesia and the best performing countries. In translating public investment into quality infrastructure, Indonesia is about 37 percent below that of the best performing countries. In other words, Indonesia could substantially improve its infrastructure with the same level of public investment by increasing efficiency.

While public investment management practices are in general solid, there are some key weaknesses in the management of public investment. The currently system performs well in, for example, fiscal targets and rules, coordination between entities, budget comprehensiveness and availability of funding. Key shortcomings stem from a lack of focus on specific investment projects when planning, budgeting, and monitoring public investment. This lack of focus means it is difficult to determine if the best projects are selected, and whether they are properly managed and implemented. As a result, the weakest practices can be found in project appraisal and project implementation. In particular, the lack of project-level information in the medium-term development plans and of rigorous project appraisal limit their effectiveness in guiding project selection, while the virtual absence of capital project management (including project audits) and portfolio management oversight hamper the delivery of projects on time, on budget and according to specifications. Multiyear budgeting is another area with shortcomings, mostly due to absence of information on the medium-term spending envelopes, ongoing and new projects, and the total cost of projects.

The analysis recommends six high priority actions. This includes (1) enhancing the focus on capital projects and their visibility; (2) identifying major capital projects in the medium-term development plans; (3) strengthening multiyear budgeting framework for capital spending; (4) improving the quality of project preparation and selection; (5) modernizing capital portfolio oversight and monitoring; and (6) strengthening capital project management.

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1/ Drawn from analytic work by Manal Fouad, Chishiro Matsumoto, Ha Vu, Holger van Eden, David Gentry, and Eivind Tandberg.

Table 2. Indonesia: Key Tax Policy and Administration Reforms[1]				
	Revenues	**Efficiency**	**Equity**	**Administration/compliance**
Tax policy	3.5			
VAT	1.8			
Remove certain exemptions	0.2	↑	-	↑
Reduce the registration threshold	0.2	-/↑	-/↓	↑
Replace STLG with VAT and vehicle excise	0.6	↑	↑	↑
Increase in the standard rate by 2 percentage points	0.8	↓	↓	-
Excise taxes	0.5			
Introduce new excises on fuel	0.5	↑	↓	-
Corporate income tax (CIT)	0.4			
Replace special regimes with one single corporate income tax	0.0	↑	↑	↑
Reduce the threshold of the SME regime	0.1	-/↓	↑	-
Introduce alternative minimum tax	0.3	↓	-	↓
Improve international taxation	0.0	-	-	-
Personal income tax (PIT)	0.4			
Broaden PIT base by including the middle class and strengthen progressivity	0.4	↓	↑	-
Property tax with higher rate	0.3			
Reducing property transaction tax and increasing property tax	0.3	↑	↑	-
Tax administration	1.5	↑	↑	↑
Launch CIPs for VAT, employer WHT, UHWI and Wealthy Indonesians through:				
Strengthen audit workforce				
Build a powerful data matching capacity				
National deployment of compliance risk management				
Increase efficiency of support and supervision				
Leverage the tax amnesty and AEOI intelligence				
Institutional reforms:				
Autonomy and budget flexibility				
Organization				
IT				

1/ "↑" represents an improvement; "↓" represents a deterioration; and "-" represents no change or unclear.

Table 3. Indonesia: Reform Sequencing and Phasing

Areas	Measures	Reform Considerations	Timeline
Improving tax administration	CIPs and the supporting initiatives; institutional reforms	Improve efficiency, equity or administration or compliance; many reforms under the direct control of the Ministry of Finance and a few revisions to laws are needed; require improvements in tax administration capacity	Year 1-Year 5
Streamlining existing taxes	Remove certain VAT exemptions Replacing STLG with VAT and vehicle excise Replace special regimes with one single corporate income tax Reducing property transaction tax and increasing property tax	Improve efficiency, equity or administration or compliance; require revisions to laws	Year 1-Year 3
Expanding the tax base of existing taxes	Lower VAT registration threshold Introduce alternative minimum tax Broaden PIT base by including the middle class and strengthen progressivity Reduce the threshold of the SME regime	May have some negative impacts on efficiency, equity, or administration and compliance; require revisions to laws	Year 2-Year 5
Increasing tax rates of existing taxes or introducing new taxes	Higher VAT rate New fuel excise	Large revenue impact; negative impacts on efficiency or equity; may require mitigating measures from the expenditure side; should be implemented after some other reforms are completed; and require revisions to laws	Year 4-Year 5

Table 4. Indonesia: An Action Plan in the Near Term		
Areas	**Measures**	**Actions**
Building public support	Launch a communication campaign	Communicate the urgency for and content of the MTRS to the public and key stakeholders to build consensus for reform.
Improving tax administration	Launch CIPs	Reducing VAT noncompliance-evasion CIP
		Employer withholding obligation CIP
		Professional, high income and wealthy persons CIP
		Ultra-high wealth individuals CIP
	Implement supporting initiatives	Establish a national audit improvement taskforce
		Initiate a data improvement pilot
		Deploy CRM nationally
		Better target extensification
		Keep amnesty participants in the system and compliant
	Rolling out institutional reforms	Enhance staff integrity and human resource management
		Allow more autonomy for DGT
		Improve organization of DGT
		Approve budget flexibility for DGT
		Complete initial information technology preparations: local office data cleansing teams commence operations; and high priority data sets available
Streamlining existing taxes	Remove some VAT exemptions	Review VAT exemptions and prepare for a proposal for their removal: phase out from January 2019
		Revise the VAT law
	Replace STLG with VAT and vehicle excise	Abolish the STLG, and prepare a proposal for the phasing in of vehicle excise
		Introduce vehicle excise
	Replace special regimes with one single corporate income tax	Review current CIT regimes and estimate the revenue neutral CIT rate for a single CIT
		Revise the CIT law

References

De Mooij, Ruud, Suahasil Nazara, and Juan Toro, 2018, "Implementing a Medium-Term Revenue Strategy," Chapter 6 in *Realizing Indonesia's Economic Potential*, eds. by Luis Breuer, Jaime Guajardo and Tidiane Kinda (Washington: International Monetary Fund).

Gaspar, Vitor, Laura Jaramillo and Philippe Wingender, 2016, "Tax Capacity and Growth: Is There a Tipping Point?" IMF Working Paper No. 16/234 (Washington: International Monetary Fund).

Gaspar, Vitor, David Amaglobeli, Mercedes Garcia-Escribano, Delphine Prady, and Mauricio Soto, 2019, "Fiscal Policy and Development: Human, Social, and Physical Investment for the SDGs," IMF Staff Discussion Note No. 19/03 (Washington: International Monetary Fund).

International Monetary Fund, 2018, *ASEAN Progress Towards Sustainable Development Goals and the Role of the IMF* (Washington).

Kinda, Tidiane and Djeneba Doumbia, 2019, "Reallocating Public Spending to Reduce Income Inequality: Can It Work?" IMF Working Paper, forthcoming.