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Recent Developments in Indonesia's Macro-economy and Trade, Q1-2018

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Abstract

This paper discusses Indonesia's macroeconomic and trade development in the first quarter of 2018. The macroeconomic data shows that the industrial growth was inhibited by regulatory regime inconsistency, while consumption growth still lagged overall GDP growth, and investment growth tended to rise. The trade data shows that the non-oil-and-gas commodities dominated its export, although the commodities' terms-of-trade declined. Indonesia's imports were mostly used as raw and auxiliary materials for the input of domestic production. The data also reveals that the larger the firms, the stronger tendency that they have comparative advantage in capital-intensive commodities, and vice versa.

Keywords: macroeconomic policy; growth; trade development; terms-of-trade, small and medium-sized enterprises

Abstrak

Artikel ini membahas perkembangan makroekonomi dan perdagangan Indonesia pada kuartal pertama tahun 2018. Data makroekonomi menunjukkan bahwa pertumbuhan industri pengolahan terhambat oleh inkonsistensi peraturan, sementara pertumbuhan konsumsi masih tertinggal dari pertumbuhan PDB secara keseluruhan, dan tren pertumbuhan investasi meningkat. Data perdagangan internasional menunjukkan bahwa komoditas non-migas mendominasi ekspor, meskipun nilai tukar perdagangan komoditasnya cenderung menurun. Impor Indonesia sebagian besar digunakan sebagai bahan baku dan bahan penolong untuk input produksi domestik. Data perdagangan juga menunjukkan bahwa semakin besar ukuran perusahaan, semakin kuat kecenderungan bahwa mereka memiliki keunggulan komparatif dalam komoditas padat modal, dan sebaliknya semakin kecil ukuran perusahaan semakin kuat kecenderungan untuk tidak memiliki keunggulan komparatif pada komoditas padat modal.

Kata kunci: kebijakan ekonomi makro; pertumbuhan ekonomi; perdagangan internasional; harga komoditas; usaha kecil menengah

JEL classifications: E20; E40; E66; F10; O11

1. Introduction

Higher commodity prices and infrastructure spending have not been followed by increase in household consumption. This condition is also exacerbated by

low growth of outstanding investment loans. The need to ensure macro stability by managing budget deficit means government should adjust its infrastructure spending plan to a more realistic target. Fiscal stimulus should not be expected to drive growth in 2018.

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Trend of price reversal for key export commodities in recent months, particularly coal and palm

oil, may poses some headwind for growth in 2018. With CPO down by 5% and Indonesia Coal Reference Price (*Harga Batubara Acuan*) practically unchanged compared to 6 months ago, net export and consumption growth in key provinces may be relatively flat, especially if the stagnant price continues. On the other hand, household consumption in general may start to increase considerably, as indicated by 11.2% growth in consumption credit in February (CEIC 2018). We expect consumption growth to exceed 5% starting from Q1 2018 and to increase slightly further by the end of 2018.

As we are now currently less than one year away from 2019 General Election, it is interesting to note how the issue of government's fiscal policy starts to take center stage again. While most of the attentions were brought to perennial and unwarranted hysteria that surrounds nominal debt, some of the overlooked issues warrant genuine concerns and call into question the commitment for reform by current administration. We are increasingly concerned with recent decision to quietly increase effective fuel subsidies by leaving RON 88 gasoline price (Premium) and diesel fuel (Solar) price unchanged and how it may increase fiscal and current account deficit. Deteriorating balance sheet of SOEs also highlights how unsustainable SOEs-dependent infrastructure financing is and underscores the urgent need for government to actually take PPP scheme seriously.

With regards to trade development, the concerns over the country's trade balance deficit mainly come from the declining terms-of-trade of non-oil-and-gas commodities traded, and the declining in oil-and-gas production and export. Indonesia specializes in industries and commodities which international prices tend to decline while importing merchandises which international price has been rising. The deficit in trade balance denoted the leap in imports growth which was not offset by the exports growth. The commodities imported by Indonesia were mainly

used as the input for domestic production, which on the one hand indicating an expansion in the domestic production but on the other hand indicating an imbalance on supply and demand of materials input in domestic market.

Indonesia's export in terms of the types of the exporting firms is also a concern to be analysed. While the Large Enterprises (LE) in Indonesia dominated the contribution to Indonesia's export of goods and tended to increase its contribution, the Small and Medium-sized Enterprises (SMEs) and Micro Enterprises (MiEs) contribution were relatively minor and tended to decline over the time. The analysis of the types of the exporting firms could further be attributed to the types of exported commodities, as shown by the fact that few amount of SMEs export capital-intensive commodities, while none of MiEs export capital-intensive commodities. The need to strengthen the exports of the manufacturing sector in particular implies more attempts are required to vary the types of export-oriented products and direct the industries development toward capital-intensive commodities.

2. Macroeconomic Development

2.1. Inconsistent, Anti-Import Regulatory Regime Hurts Industrial Growth

One of the most remarkable aspect of current policy stance of government is that while President Joko Widodo has vowed to do everything in his power to deregulate and make regulatory regime more business-friendly, some of regulations signed by his ministers tend to be rather protectionist and anti-business. While protectionist regulations are ostensibly promoted by ministers as measures to protect local businesses and livelihood of Indone-

sian workers, such measures will in fact do significantly more harm than good. Over the long term, increased protections may have and will continue to hurt our import-dependent exporters, consumer spending, and broader economic growth.

One of the victim of government's protectionist bent may be Indonesia's manufacturing industry, since vast majority of our imports are raw materials (input goods), intermediate goods, and capital goods that are primarily used by local manufacturers. According to CEIC database accessed in 2018, as much as 91% of our imports are raw materials, intermediate goods, and capital goods, with only 9% of total imports are consumer goods. Rather than accelerating in Q4, manufacturing industry growth slowed to 4.38% (y.o.y), bringing 2017 manufacturing growth to 4.3%. The slowdown in manufacturing growth as a whole is glaring when compared to rising consumption growth domestically and robust global growth.

Salt import is just one of perennial example of how government's good intention in protecting domestic industry may do more harm than good for economic activities. With estimated industrial demand of more than 65% of total Indonesia's salt demand in 2016, unstable salt supply might hit manufacturing processes that require large amount of salt hardest. Several manufacturing subsectors that require the largest amount of industrial salt and most vulnerable to salt shortage are, according to Indonesia Industrial Salt User Association (AIPGI), petrochemicals (47.2%), pulp and paper (18.8%), food processing (14.2%), and fish salting (12.2%).

Indeed, we saw several indications that government's inconsistent salt policy affects chemicals manufacturing, as growth of chemicals manufacturing has slowed down for the last two consecutive years, with Q4 growth recorded at -4.19% (y.o.y). Also, while food and beverage manufacturing grow by 13.2% (y.o.y) in Q4 2017 due to steady

increase of new middle class and urban populations, continued salt shortage might show up in reduced growth of food and beverage manufacturing in Q1 2018. Only when industrial users started to complain did the government issued Government Regulation (PP) No. 9/2018 and shifted the purview of industrial salt import quota from Ministry of Maritime Affairs and Fisheries to Ministry of Industry, which is more attuned to the input goods need from industrial users.

The case of salt import quota and the necessity of government to backtrack its decision is far from isolated. Marks (2017) highlighted that effective rate of protections, which shows the degree of tariff and non-tariff (e.g. import quota), had increased considerably across almost all range of goods from 2008 to 2015. This finding indicates that previous administration's tendency to restrict import was continued by current administration and, judging by recent decisions by policymakers, shows no sign of reversal.

Such policy direction is counterproductive to Jokowi administration's efforts to be more pro-business and, as highlighted by the example of salt import, may harm businesses in various ways. Inadequate import quota may constrain supply and raise prices of input goods for industrial users, thus putting local manufacturers at disadvantage, both in their ability to supply goods consistently to buyers and reduce cost competitiveness. This in turn will undermine the business case of setting up or retaining manufacturing base for export-oriented industries in Indonesia and, from business perspective, increase the relative appeal of Indonesia's more business-friendly neighbors such as Vietnam.

Persistent sub-5% manufacturing growth in Indonesia shows how Indonesia missed the opportunity of courting Chinese manufacturers that started to relocate from China due to rising labor costs. Indonesia cede the opportunities of attracting export-oriented FDI to Vietnam, Thailand, the Philippines, Cam-

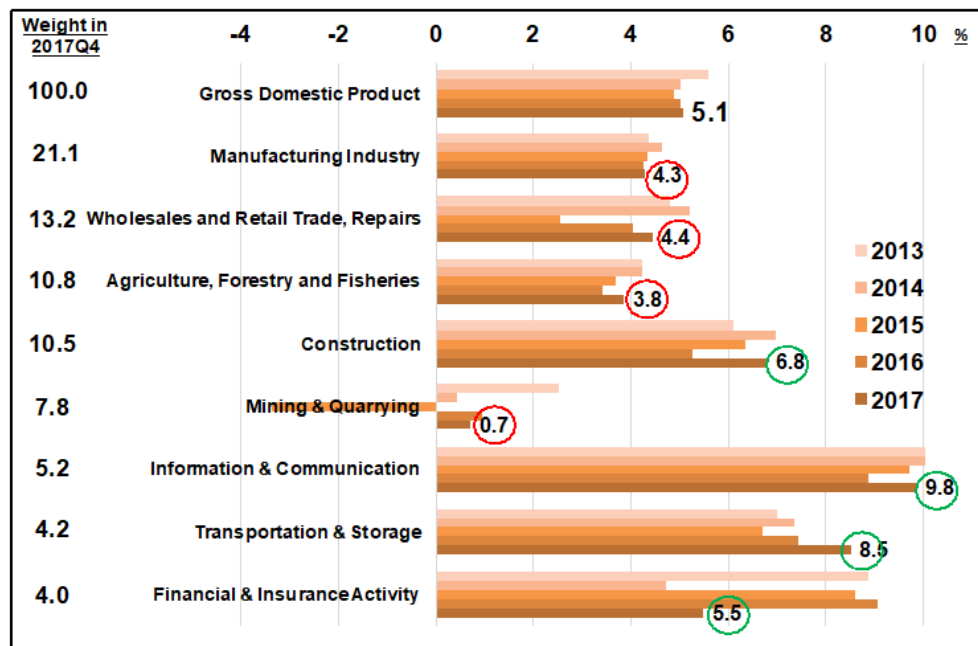


Figure 1: Growth rate of GDP and the Main Industries, 2013–2017Q4

Source: CEIC (2018)

bodia, or even African countries. Several export-oriented subsectors that should have attracted businesses that relocate from China, such as textile and wearing apparel and electronic/electrical equipment subsectors, recorded annual growth of only 3.8% and 2.8%. Transport equipment manufacturing, which tends to be higher value-added and higher-paying, also recorded growth of only 3.7% for 2017.

2.2. Service Sectors Growth Driven More by Experience Goods

Recent improvement of service sectors growth seems to highlight changing consumption pattern within Indonesian society. Slight increase in domestic consumption affect various sectors rather unequally, with sectors that are associated with consumer experience tend to fare better than retail trade. For example, back in 2011, when GDP growth was recorded at 6.2%, Wholesale and Re-

tail Trade grew by 9.66%, compared to Transportation and Sector, which grew by 8.31% and Accommodation, Food, and Beverages, which grew by 6.86%. In FY2017, when GDP growth was recorded at 5.07%, the figures for those three sectors are 4.44%, 8.49%, and 5.55% respectively.

Relative drop in consumption of consumer goods is a secular trend that has happened for quite a while but less recognizable in 2014–2016, largely due to low economic growth. This is particularly apparent in Non-Motor Vehicle and Motorcycle Trade subsector, which grew by only 3.80% in Q4 2017. Aside from increased competition from e-commerce sellers, which depressed profit margin for retailers, consumer goods may have relatively less appeal for urban middle-class consumers. They are more attracted to consume their disposable income for experience goods, such as dining out and vacations. This trend may not be as apparent in motor vehicles trade and repairs, which recorded 5.74% (y.o.y) growth in Q4 2017, given the inadequacy of

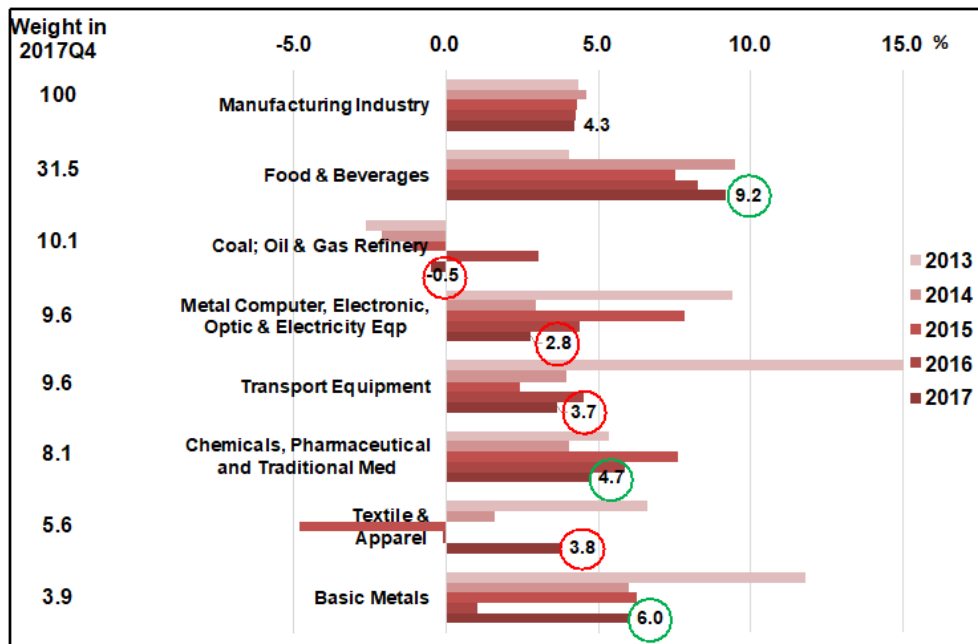


Figure 2: Growth rate of Manufacturing Sector and Its Subsectors, 2013–2017Q4

Source: CEIC (2018)

urban public transport systems, especially in secondary and tertiary cities, to accommodate rising mobility needs of increasingly affluent new urban middle class.

At 7.84% in Q4 2017 and overall 2017 growth of 8.32%, Transportation and storage services growth remains strong, although slightly lower than in Q3 (see Figure 4). Air transport continues to be the source of fastest growth in transport subsectors, thanks to large boom in tourism. Road transport, which accounted for more than 53.7% value added created by transportation sector, also posted robust growth of 7.55% in Q4 2017, partly due to rapid increase in usage of expedition services for e-commerce.

Tourism-related boom is also consistent with growth in Accommodation, Food and Beverages Activities sector growth, which grew by 5.49% in Q4 2017. This boom in tourism trend is in no small part due to increase in the use of visual-heavy social media, such as Facebook and Instagram, which facilitates

sharing of holiday experiences to wider social circle. Additionally, the use of social media also prompts the creation of more visually appealing dining experiences, which command higher price and higher value-added for restaurant and café industry. The use of social media is therefore related to relative rise experience goods in overall share of household consumptions.

Construction sector posted fastest growth in the last 3 years at 7.67% in Q4 2017. We see various reasons why construction sector will still experience rapid growth in 2018. First, as 2019 election is now less than a year away, there will be increased pressure on Jokowi administration to speed up and complete unfinished major infrastructure projects in his bid for reelection. Second, nominal mortgage rate has gone down by 1.02% even as inflation remains relatively stable, thus creating more incentives for households to take residential mortgages. Also related to infrastructure projects, we expect communication sub-sector, which grew by 8.99%,

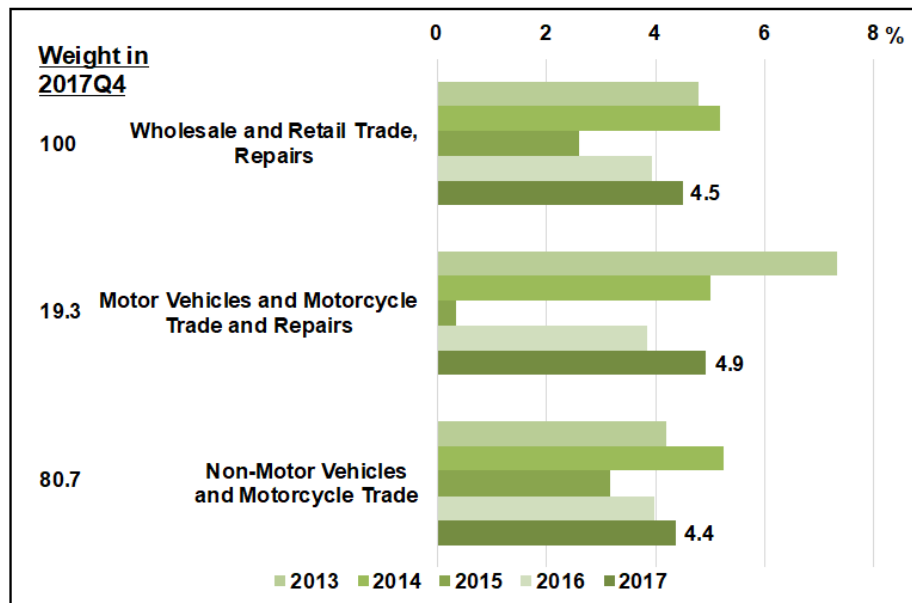


Figure 3: Growth rate of Wholesale and Retail Trade and Its Subsectors, 2013–2017Q4
Source: CEIC (2018)

to still grow by around 8-9% in 2018 as more consumers are becoming connected and increasingly rely on online transactions, thus creating more demand for IT infrastructure for both consumers and businesses.

2.3. Consumption Growth Still Lags Overall GDP Growth

The glacial pace at which household consumption grew throughout 2017 suggests that households' consumption pattern tend to lag the overall economic growth and is less sensitive to changes in overall GDP. While outstanding consumption credit growth is relatively high at 11.04% (y.o.y) on December 2017, actual household consumption in Q4 2017 only grew by 4.96%.

Most of the components that constitute household consumptions growth (see Figure 5) stay relatively stable since Q1, with notable exception of transportation and communication (decelerating to 4.45% from 5.01%). Another sign of relatively more

sanguine household expectation, consumption on restaurant and hotel continues to grow significantly faster than overall consumption, growing at 5.71% in Q4 2017; restaurant and hotel tends to grow faster than the economy as a whole when consumer tend to have higher disposable income and the first to be cut when purchasing power is eroded. Spending on non-restaurant food and beverages also grew faster than overall economy in 2017, consistent with the fast growth of processed food and beverages industry.

Slightly higher domestic consumption may not be readily apparent when we are looking at core inflation, which stood at 2.67% (y.o.y) in March. This may be due to the fact that core inflation has stabilized at around 2.5–3.5%, conveniently within the lower bound of Bank Indonesia's inflation target. At current trend of GDP growth rate, we do not expect core inflation to accelerate much further. Recent multiyear high of international crude oil price at USD74/barrel may also have little impact on domestic inflation throughout 2018 and possibly well

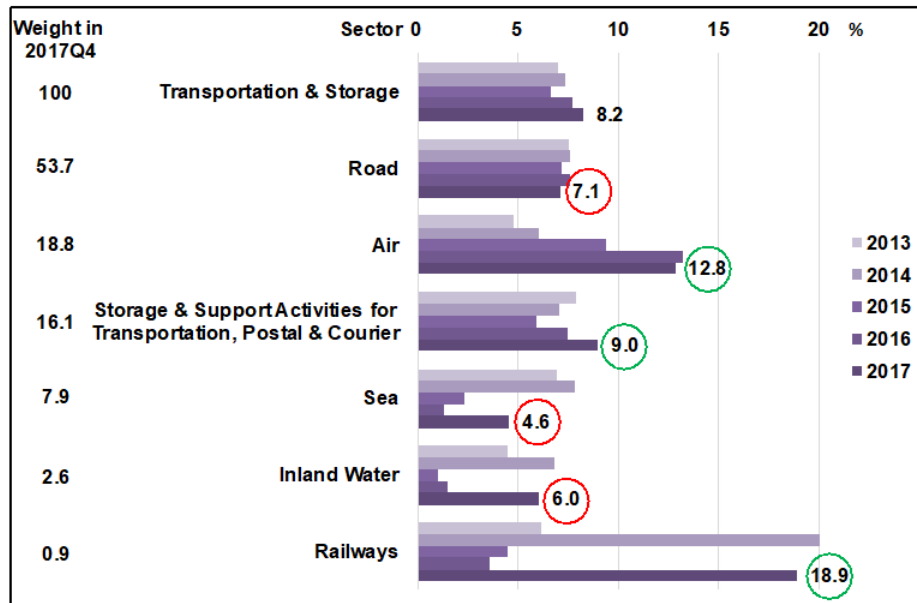


Figure 4: Growth rate of Transport and Its Major Subsectors, 2013–2017Q4
Source: CEIC (2018)

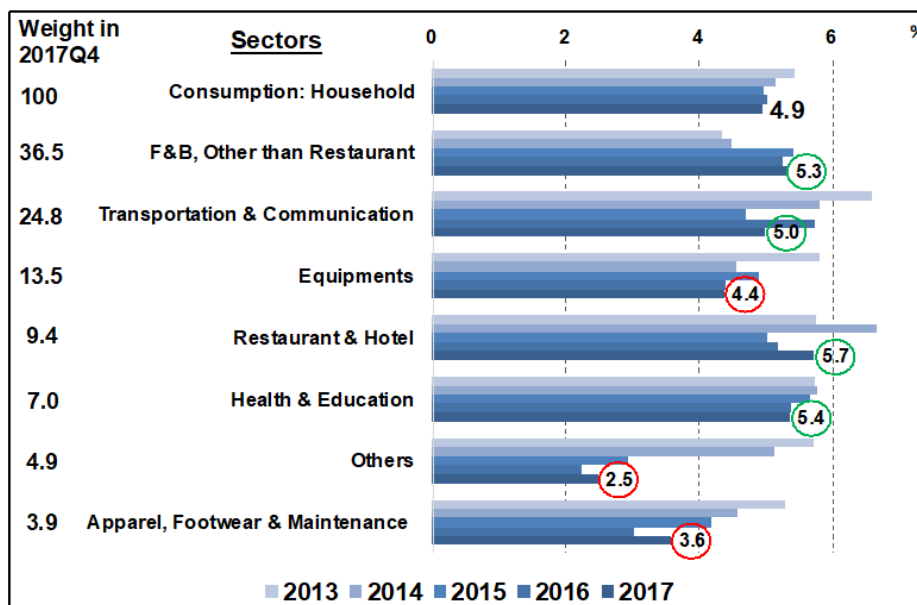


Figure 5: Growth rate of Household's Consumption and its Components, 2013–2017Q4
Source: CEIC (2018)

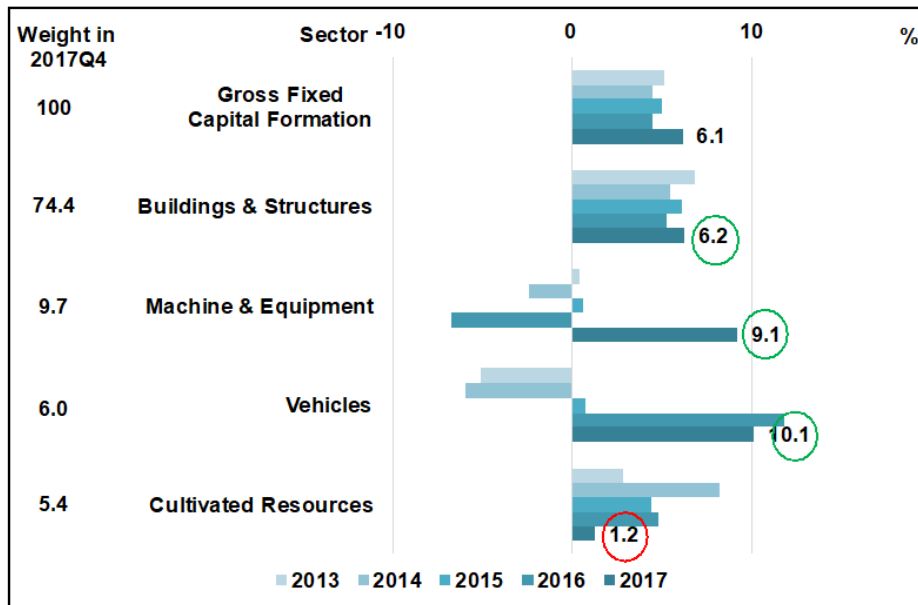


Figure 6: Growth rate of Investment and its Main Components, 2013–2017Q4
Source: CEIC (2018)

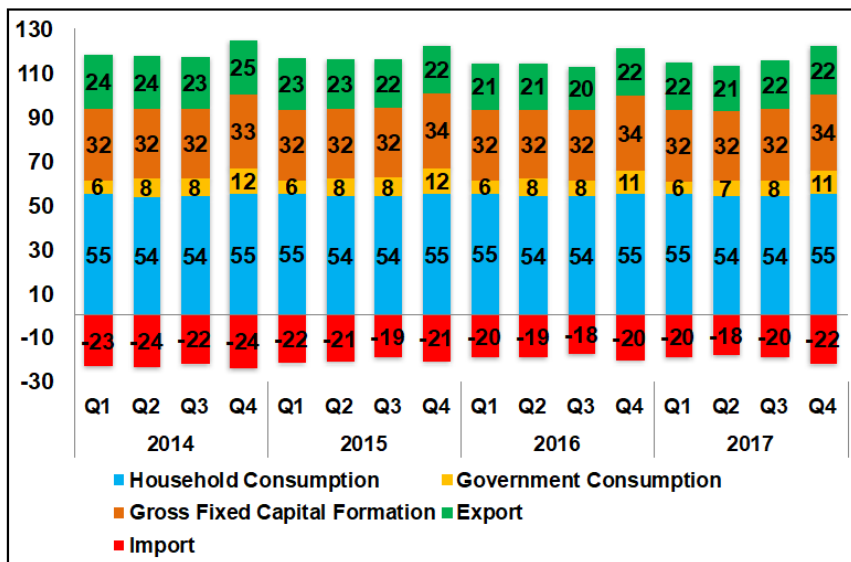


Figure 7: Shares of GDP Components, 2014Q1–2017Q4 (%)
Source: CEIC (2018)

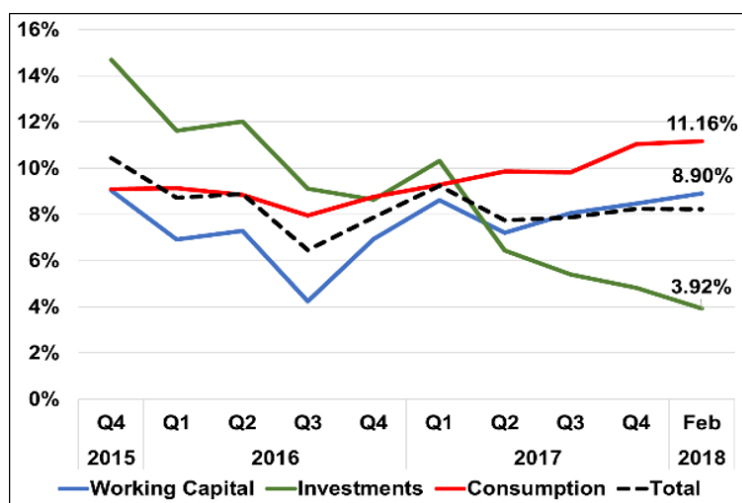


Figure 8: Credit Growth by Purposes, 2015Q4–February 2018 (YoY, %)
Source: CEIC (2018)

into 2019, as government has implicitly indicated that they were backtracking their pledge to float the price of subsidized fuel price, particularly as 2019 General Election nears. As such, the upward risk to inflation comes mostly from exchange rate risks, which have depreciated by more than 4% from the start of this year.

2.4. Higher Trend of Investment Growth

Gross fixed capital formation, the measure of investment in GDP, still grew significantly faster than the economy in Q4 at 7.25% y.o.y, bringing overall 2018 real investment growth at 6.12% y.o.y. Key drivers of investment growth in Q4 are machine and equipment investments. This type of investment grew by 22.27% in Q4 and 9.54% throughout 2017. This growth trend is last seen in 2011, when quarterly GDP growth was consistently above 6%.

Reversing the trend in Q3, investment in vehicles experienced negative growth in Q4, which is partially explained by cyclical trend and the fact that several previous quarters already saw high level of

growth. Consistent with stellar growth of construction sectors, investment in building continues to be strong in Q4. Investments by both foreign and local enterprises also continue to increase in Q3 and Q4, as shown by increase in foreign direct investment and domestic direct investment by 14.95% and 16.82% (y.o.y.) respectively in nominal Rupiah term.

Strong investment growth in Q4 continued to be accompanied by record-low growth banking sector loans for investment purposes. In Q4 2017 and in February 2018, loan for investment purposes grew at 1.82% and 1.11% respectively in real term (4.82% and 3.92% y.o.y in nominal term, subtracted by core inflation), despite the fact that gross capital formation grew by 7.25% in Q4. This can be explained by the fact that investors apparently deploy more equity-based investment, or in several cases, investors may opt to tap into capital market for long-term investment financing. One of the hint for more equity-based investment financing can be seen by looking at total direct investment growth in real term, which in Q4 amounted to 10.97%. Another hint is the fact that corporate bond issuance in 2017 grew by 31.02% in real term, albeit with total

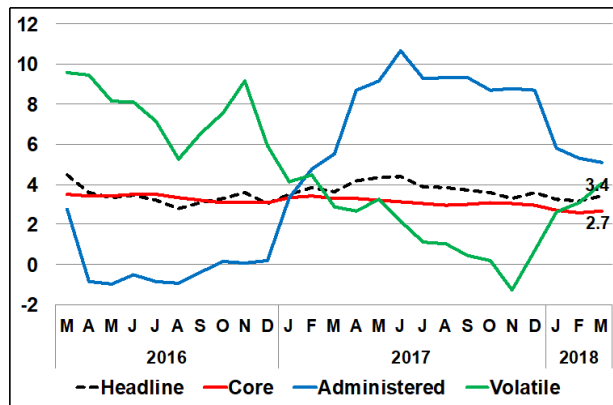


Figure 9: Inflation Rate (% y.o.y)
Source: CEIC (2018)

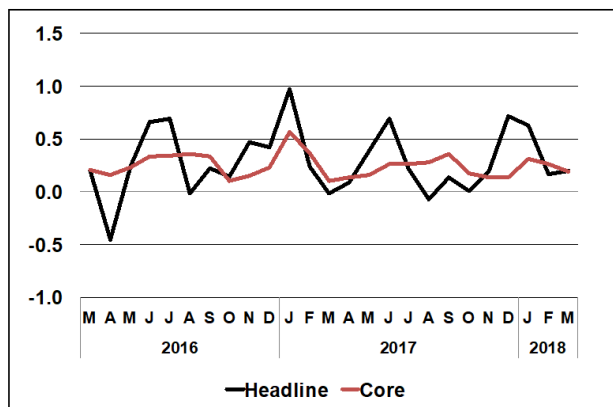


Figure 10: Inflation Rate (% mtm)
Source: CEIC (2018)

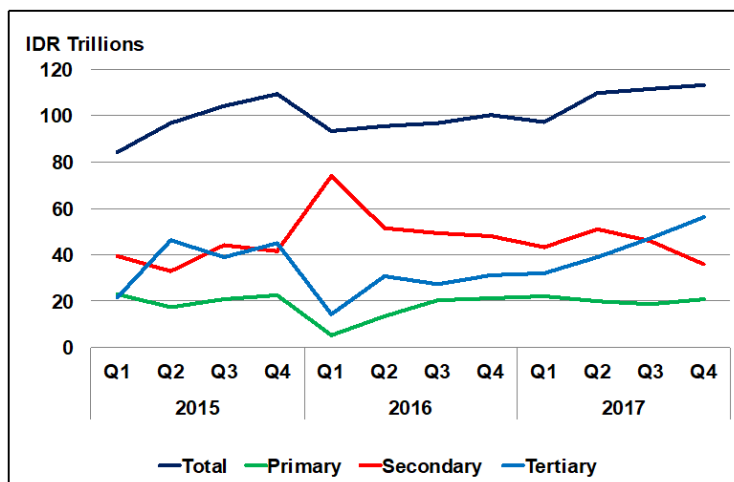


Figure 11: FDI Realization (Nominal)
Source: CEIC (2018)

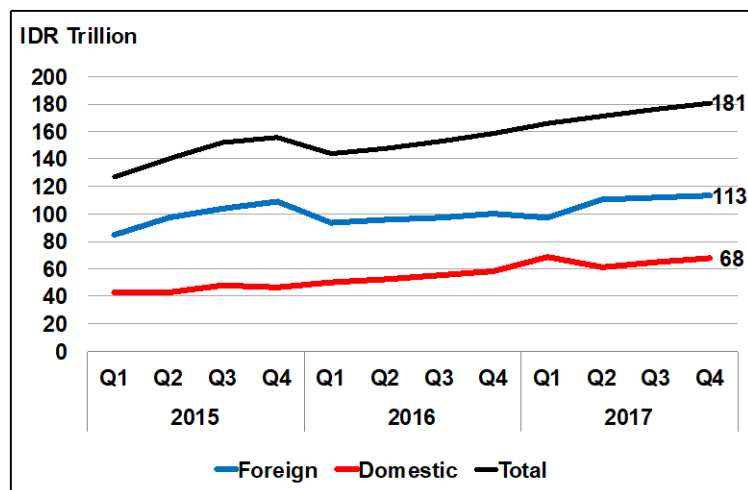


Figure 12: Foreign and Domestic Investment (Nominal)

Source: CEIC (2018)

corporate bond issuance in 2017 of only Rp156.71 trillion. Higher reliance on equity investment, foreign capital, and capital market financing is ultimately good for the corporations and the economy, as real investments become less vulnerable to market cycle, 2018 trend of higher interest rate worldwide, and higher interest rate charged by banks.

2.5. Slightly Better Tax Collection, Subsidies to Increase Considerably in 2018

A key problem of this year's fiscal policy is government's tendency to ignore the fixed fuel subsidy and floating fuel price system. From political economy standpoint, such change of heart makes sense, given that issue of living costs, which fuel price have outsized influence on, can influence reelection chance of current administration in 2019 General Election. On the other hand, the issue of fiscal deficit and government debt prompt Government to pledge the return to zero or positive primary balance. At the same time, key export commodities like CPO or coal have seen reduction in price, which poses risks of below-target tax and non-tax

revenues from extractive sectors. In the medium term, this means government has to choose between cutting expenses from other posts or raising tax revenues from other sources.

The risk of more expensive bill for fuel subsidies is not trivial, particularly given that OPEC members seem to remain committed to production cut and raising prices to their target price of 80–100/barrel. Government's Financial Notes (*Nota Keuangan*) has explicitly outlined Ministry of Finance's assumption of fixed fuel subsidy, while in practice this is not the case, as gasoline price has remained constant even as oil price has risen by more than 30% on year-on-year basis. Government has also essentially forced Pertamina to shoulder the losses that they may incur for selling gasoline at government-mandated price, which jeopardize the health of Pertamina's balance sheet and its sustainability as a company.

Following Ministry of Energy and Mineral Resources' formula to calculate economical price for RON88 gasoline and gasoil, government's decision to keep RON88 gasoline price at Rp6,450/liter (Rp6,550/liter in Java) and Diesel at Rp5,150/liter can easily raise cost of subsidy far above RAPBN's

target of only Rp10.39 trillion. At US\$76/barrel RON92 and US\$81/barrel Gasoil MOPS price, we estimate that total fuel subsidy amounts to Rp83 trillion¹. Pertamina cannot shoulder the cost of fuel subsidies by itself.

Letting Pertamina shoulder the losses of current oil price may hurt Pertamina's ability of doing business by forcing them to operate with deteriorating cash flow. In the short term, this will reduce remaining Pertamina's dividend or retained earnings, which will show up in reduced non-tax revenues. In the long term, production capacity and competitiveness of Pertamina will deteriorate due to shortage of capital for investment.

In our opinion, the risk of keeping retail fuel price at current level is quite high. Government will eventually have to adjust fuel price. However, the longer government delay the adjustment, the harder will such adjustment be implemented. Government should start to adjust retail fuel price gradually.

If government succeed in adjusting retail fuel price gradually, we see that government revenue target of 2018 is realistic enough. However, slightly lower coal price and CPO price may slightly affect tax and non-tax revenue. 2018 revenue target is just around 13.5% higher than 2017 realization. Combination of higher crude oil price, better economic growth, and increased tax compliance should suffice in achieving 2018 revenue target. If government can address the problem of fuel subsidies in time, government target of achieving positive primary balance by 2020 should be within reach.

¹Based on our estimate of average price for MOPS Gasoline 92 and MOPS Gasoil throughout 2018

2.6. Relatively Manageable External Risks despite Recent Episode of Capital Outflow

Another source of growth in 2016 and 2017, net goods export, started to worsen in Q4 2017. Depending on the direction of crude oil, CPO, and coal prices, net export may be negative for 2020. As Indonesia is heavily reliant of export of these three commodities and other raw materials (see Figure 15), commodities prices are very important in shaping Indonesia's trade balance. As of recently, crude oil has risen by more than 30% (y.o.y), compared to gain in coal prices of 14.8% and CPO of around 10%. The extent of impact of new regulation about domestic market obligation of 25% total production at discounted price, which was implemented to help PLN and to keep electricity subsidy expenditure low, on coal exports is still uncertain, given that the government pledge to increase production quota for coal.

Adding to the problem of commodities price volatility is the contrast between export profile and import profile of Indonesia. In total value, Indonesian export is still highly dependent on export of raw materials, particularly mineral resources, vegetable fat/CPO, and precious metals. Together these three categories account for 42.3% of total exports, which explains the vulnerability of Indonesian exports to changes in global commodity prices, even until now. In contrast, Indonesia tends to import higher value-added goods, such as electric equipment, industrial chemicals, and vehicles, which are much less vulnerable to commodity prices fluctuations. As the result, recent improvements in domestic investments have net negative impact on Indonesia's trade balance. We expect trade balance in 2018 to be slightly negative, unless prices of key export commodities like CPO and coal start to rise again. The trade deficit will also slightly worsen Indonesia's current account position in 2018, possibly in the range of

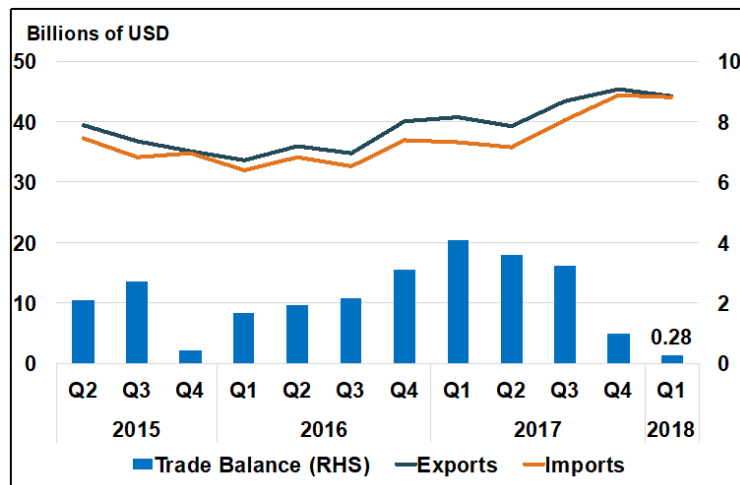


Figure 13: Quarterly Trade Balance (Nominal), (2015Q2–2018Q1)
Source: CEIC (2018)

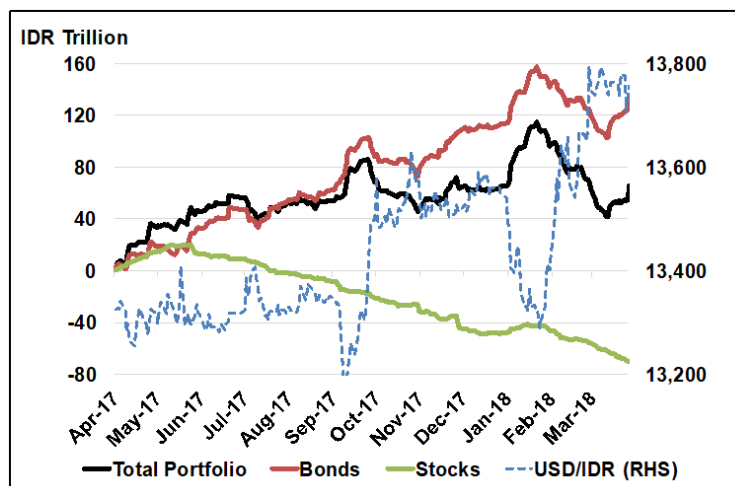


Figure 14: Exchange Rate and Short-Term Capital Inflow (April 2017–March 2018)
Source: CEIC (2018)

1.8–2.0% for FY2018.

Improvement in global economy seems to become more robust in most developed countries and key emerging markets, with mixed impacts on Indonesian economy. On one hand, higher-than-expected global demand for the rest of 2018 will help raise commodities prices and demand for Indonesian manufactured goods. This will in turn improve Indonesian export performance from the baseline scenario and strengthen current account position. On

the other hand, economic strength in developed economies makes higher interest rate world an inevitability at this point. Higher-than-expected US growth in particular will create impetus for The Fed to raise interest rate even faster. This will create additional downward pressure on already-depreciating Rupiah.

Even if global equity market, with its already lofty valuation, will eventually experience significant correction, we do not expect such correction to have

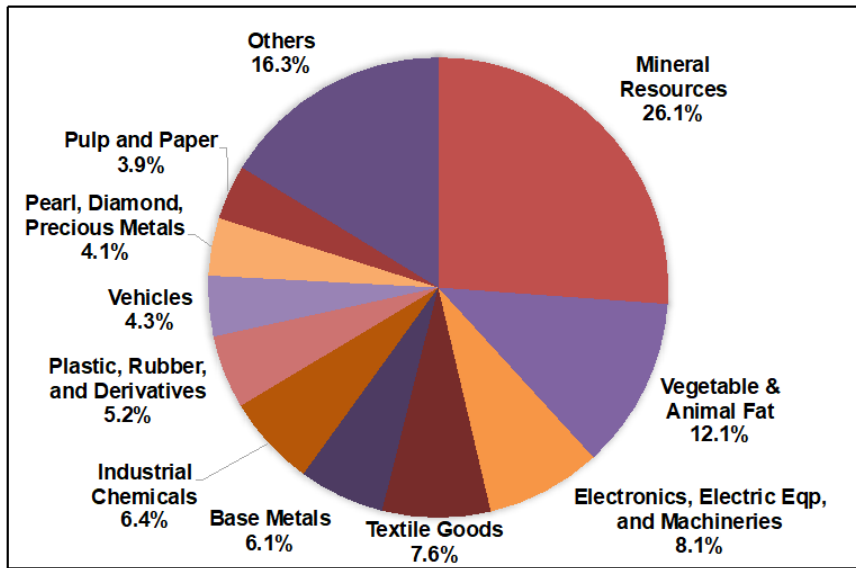


Figure 15: Indonesia Export Profile (January–February 2018)
Source: CEIC (2018)

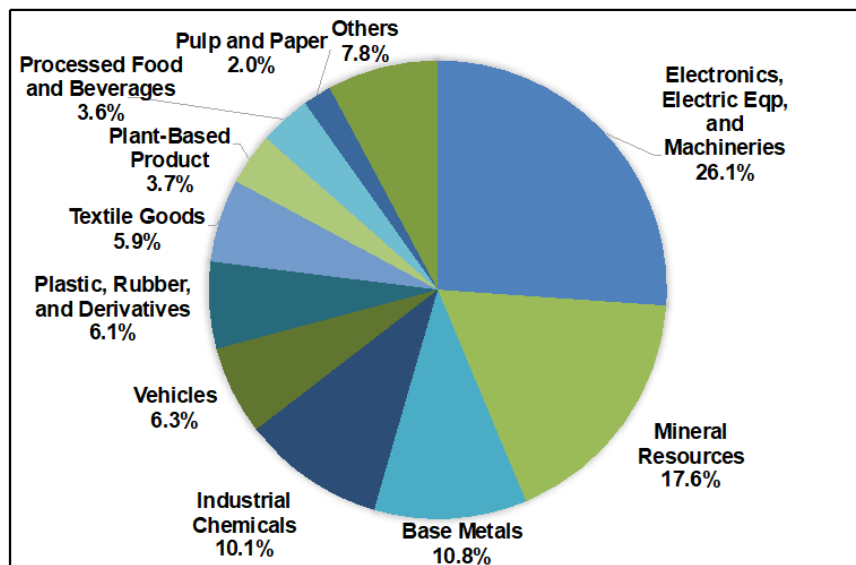


Figure 16: Indonesia Import Profile (January–February 2018)
Source: CEIC (2018)

large impact on global growth like how interest rate increase from 2005–2007 in US induced Global Financial Crisis in 2008. First, strict financial regulations that were introduced in post-2008 financial market means that significant market corrections will poses much less risks to financial system. Second, increasing reliance on domestic consumption

in China, compared to 2008, may insulate global economy from possible US recession. Third, pace of interest rate increase in US is also much more gradual when compared to interest rate increases around 2005–2006. Finally, major central banks, having learned the lesson of 2008 crisis, have signaled that they monitor developments in the econ-

omy much more closely and are readier to intervene when there are signs of economic downturn, thus reducing risk of unexpected surprises that may trigger recession. We still stand by our projection that is a good chance that the external risks in 2018 will be rather limited to downward pressure on Rupiah and will be relatively manageable.

3. Trade Development

3.1. Trade Balance, Trade Volume and Terms-of-Trade

Throughout January-April 2018, Indonesia's trade balance cumulatively recorded a USD1.3 billion deficit, with the total value of imported goods reached USD60 billion while merchandise exports recorded at USD58.7 billion (see Table 1). This deficit contrasts the trade balance in the same period in 2016 and 2017 which recorded a surplus of USD2.64 and 5.43 billion, respectively. However, the trade balance deficit was not mainly caused by the weakening of exports but rather the surge in imports. In the last three years the exports increased steadily but in 2017–2018 its growth was much slower than import growth.

In terms of sectoral trade balance, Table 1 shows that the total trade balance deficit in January–April 2018 was caused by the deficit in oil-and-gas balance which exceeded surplus in non-oil-and-gas balance. Although non-oil-and-gas export and import accounted for around 91.1% and 85% of the total export and import, respectively, its trade balance surplus of USD2.5 billion in the first four months of 2018 was unable to offset the USD3.81 billion deficit in the oil-and-gas balance. From trade flows perspective, during the period the accumulated oil-and-gas and non-oil-and-gas exports rose by 3.95% and 9.27%, respectively, as compared to the same

period in 2017. However, those rises in exports were insufficient to offset sharp rise in oil-and-gas and non-oil-and-gas imports which in the same period recorded an increase of 10.07% and 26.42%, respectively.

Changes in the value of exports and imports are caused by the changes in the volume or in prices of merchandises traded, or both. Table 2 and 3 present the volume and the average prices of traded commodities during January–April 2016 to 2018, respectively. Table 2 shows that in terms of volume the non-oil-and-gas exports steadily increased, the oil-and-gas exports shrank, while the imports of both commodities fluctuated. However, in terms of commodity prices Table 3 shows that the average price of exported as well as imported oil-and-gas commodities continually rose, the price of imported non-oil-and-gas commodities tended to increase while the price of exported non-oil-and-gas commodities fluctuated. In other words, while Indonesia's non-oil-and-gas export has still been sturdy and growing, Indonesia's trade balance problem lies in the decline in the terms-of-trade of non-oil-and-gas commodities traded, and the decline in oil-and-gas production and export.

The trade volume and commodity prices data in Table 2 and 3 imply that the decline in the terms-of-trade of non-oil-and-gas commodities has been mainly affected by Indonesia's specialization in export-oriented industries and commodities that tend to have lower world prices than its imported commodities. However, the declining terms of trade can also be caused by increasing value-added of Indonesia's import commodities as compared to its export commodities (Baldwin & Lopez-Gonzalez 2015). Thus, the selection of high value export-oriented industries and commodities and the movement up the value chain in each industry could be a pivotal strategy to improve the terms of trade and subsequently the trade balance in the future.

Table 1: January-April Trade Balance, 2016–2018

Trade Balance, Exports, Imports	Value, January – April (million USD)			Change y-on-y, in % and value (million USD)			
	2016	2017	2018	2016–2017		2017–2018	
				%	Value	%	Value
Total export	45.4	54.0	58.7	18.95		8.77	
Total import	42.8	48.6	60.0	13.59		23.65	
Total balance	2.6	5.4	-1.3		2.8		-6.7
Oil-and-gas export	4.4	5.0	5.2	15.79		3.95	
Oil-and-gas import	5.3	8.2	9.0	56.39		10.07	
Oil-and-gas balance	-0.9	-3.2	-3.8		-2.3		-0.6
Non-oil-and-gas-export	41.0	48.9	53.5	19.28		9.27	
Non-oil-and-gas import	37.5	40.3	51.0	7.58		26.42	
Non-oil-and-gas balance	3.5	8.6	2.5		5.1		-6.1

Source: BPS-Statistics Indonesia (2016,2017,2018)

Table 2: January-April Trade Volume, 2016–2018

Commodities	Volume, January-April (million tons)			Change y-on-y (%)			
	2016	2017	2018	2016–2017		2017–2018	
				%	Value	%	Value
Export	Total	160.9	173.1	193.6	7.57		11.89
	Oil-and-gas	14.5	13.3	12.9	-7.97		-3.30
	Non-oil-and-gas	146.4	159.7	180.8	9.11		13.16
Import	Total	50.3	50.2	54.7	-0.06		8.99
	Oil-and-gas	15.4	16.6	15.8	8.13		-4.84
	Non-oil-and-gas	34.9	33.6	38.9	-3.67		15.83

Source: BPS-Statistics Indonesia (2016,2017,2018)

Table 3: Average Prices of Traded Commodities, January–April, 2016–2018

Commodities	Average Price January–April (USD/ton)			Change y-on-y (%)			
	2016	2017	2018	2016–2017		2017–2018	
				%	Value	%	Value
Export	Total	282.20	312.04	303.34	10.57		-2.79
	Oil-and-gas	300.53	378.14	406.52	25.82		7.51
	Non-oil-and-gas	280.39	306.53	295.98	9.32		-3.44
Import	Total	850.79	967.00	1097.07	13.66		13.45
	Oil-and-gas	342.14	494.86	572.39	44.64		15.67
	Non-oil-and-gas	1,074.93	1,200.53	1,310.28	11.68		9.14

Source: BPS-Statistics Indonesia (2016,2017,2018)

3.2. Export Performance

3.2.1. Export Composition

Table 4 shows the composition of export by commodity and economy sector. Over the last three years, export for the January–April period has been dominated by non-oil-and-gas commodities, whereas oil-and-gas commodities accounted for less than 10% of the total export value. In addition, there is a growing trend of non-oil-and-gas export share through time.

Within the non-oil-and-gas commodity group, Table 4 shows that the manufacturing sector has been the largest contributor of merchandise exports, followed by mining and quarrying sector, while the role of the agricultural sector is minuscule. Nevertheless, in terms of growth, in the last three years there has been a steady rise in the export share of mining and quarrying sector, mainly due to the rapid rise of coal export. By contrast, the role of manufacturing sector in export tends to decline and the role of the agricultural sector tends to fluctuate through time.²

²Prior to 1987, Indonesia's exports were still dominated by

Table 4: January–April Export Composition by Commodity and Economy Sector, 2016-2018

Sector	Export share January-April (%)		
	2016	2017	2018
Oil-and-gas	9,59	9,33	8,92
Non-oil-and-gas	90,41	90,67	91,08
Total export	100%	100%	100%
Non-oil-and-gas:			
Agriculture	2,2	2,31	2
Mining and quarrying	12,51	14,92	18,21
Manufacturing	85,28	82,77	79,78
Total non-oil-and-gas export	100%	100%	100%

Source: BPS-Statistics Indonesia (2016,2017,2018)

Table 5 provides Indonesia's five main export commodity groups (at HS 2 digits) based on their export values in the period of January–April 2016 to 2018. Two major contributors of non-oil-and-gas exports in the last three years were *Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral...(27)* and *Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal...(15)*. Three of the following four commodity groups have always been among the 3rd to 5th most important export contributors, albeit in different orders across the years: *Vehicles other than railway or tramway rolling stock, and parts and accessories thereof (87)*, *Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad...(71)*, *Rubber and articles thereof (40)*, and *Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television...(85)*. More importantly, more than 40% of total merchandise exports were contributed by only top five commodity groups, indicating a high concentration and reliance on certain commodity groups.

However, further examination on the export data from ITC (2018) suggests that importance of a com-

oil-and-gas commodities. This export composition changed in 1987 when the contribution of non-oil-and-gas export began to surpass those of oil-and-gas. Since 1987, non-oil-and-gas export contribution has increased and far exceeded those of oil-and-gas. Since 2016, non-oil-and-gas export contribution has exceeded 90% of Indonesia's total merchandise export value.

modity group in export does not necessarily imply the equal importance of all commodities within the group. For example, the export of HS 27 is dominated by one commodity: *Coal; briquettes, ovoids and similar solid fuels manufactured from coal (2711)*. Export of HS 15 is predominantly in the form of *Palm oil and its fractions, whether or not refined (excluding chemically modified) (1511)*. Export of HS 87 is mainly contributed by only two commodities: *Motor cars and other motor vehicles principally designed for the transport of persons, incl....(8703)* and *Parts and accessories for tractors, motor vehicles for the transport of ten or more persons,...(8708)*. Export of HS 71 is largely contributed by two commodities: *Articles of jewellery and parts thereof, of precious metal or of metal clad with precious metal...(7113)* and *Gold, incl. gold plated with platinum, unwrought or not further worked than semi-manufactured...(7108)*. Export of HS 40 is dominated by *Natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums, in primary... (4001)*. Finally, export of HS 85 is dominated by two commodities: *Insulated "incl. enamelled or anodised" wire, cable "incl. coaxial cable" and other insulated...(8544)* and *Monitors and projectors, not incorporating television reception apparatus; reception apparatus...(8528)*.

It can be inferred that although Indonesia's exports are no longer dependent on oil-and-gas commodities, the non-oil-and-gas exports have not been fully driven by the manufacturing sector but still rather rely heavily on extraction activities (mining and quarrying sector). This reliance is unlikely to change in the near future given the upward trend of coal prices in the international market that will attract even more economic resources into the mining and quarrying sector. In addition, the highly fluctuating Rupiah exchange rate can pile more pressure to the manufacturing sector given its dependence on imports of raw materials, auxiliary materials and capital goods. In order to strengthen the exports of the manufac-

Table 5: Top Five Export Commodities (2 Digits HS), January–April 2016–2018

Rank	January-April 2016		January–April 2017		January–April 2018	
	Product	Share (%)	Product	Share (%)	Product	Share (%)
1	Mineral fuels, mineral oils and products of their distillation...(27)	12.84	Mineral fuels, mineral oils and products of their distillation...(27)	16.46	Mineral fuels, mineral oils and products of their distillation...(27)	15.16
2	Animal or vegetable fats and oils and their cleavage products...(15)	10.58	Animal or vegetable fats and oils and their cleavage products...(15)	13.79	Animal or vegetable fats and oils and their cleavage products...(15)	12.69
3	Electrical machinery and equipment and parts thereof...(85)	6.66	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad...(71)	5.91	Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof... (87)	4.40
4	Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof...(87)	6.48	Rubber and articles thereof (40)	5.49	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad...(71)	4.26
5	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad...(71)	4.22	Electrical machinery and equipment and parts thereof...(85)	3.73	Rubber and articles thereof (40)	4.21
	Total	40.78	Total	45.38	Total	40.72

Source: BPS-Statistics Indonesia (2016,2017,2018) and ITC (2018)

turing sector, more efforts are needed to diversify the types of export-oriented products, increase the productivity of workers and gradually shift the development of industries toward skill-intensive and technology-intensive commodities.

3.2.2. Export by Province of Origin and Destination Markets

More than 50% of Indonesia's merchandise exports are originated from five provinces in three major islands: Jawa Barat, Jawa Timur and Banten Provinces in Jawa Island; Kalimantan Timur Province (in Kalimantan Island); and Riau Province (in Sumatra Island). This indicates that production activities for export oriented and internationally competitive commodities are still concentrated in certain areas, mainly the more economically developed regions.

Nevertheless, Table 6 shows that in January-April period in the last three years there has been a decline in the role of those five major provinces in

national merchandise exports. This may give an early indication of increasing role of other provinces in producing export oriented commodities. Hence, the government should continue and accelerate the current policy of developing energy and water-related infrastructure throughout the country along with industrial clusters in various provinces. In turn, this policy may further spur the dispersion of industrial activities, especially the production of export oriented commodities. For example, the special economic zone and industrial estate projects in Sei Mangke and Kuala Tanjung are expected to enhance exports from Sumatera Utara Province, as well as the industrial cluster projects in other provinces such as Tanjung Api-Api (Sumatera Selatan Province), Bitung (Sulawesi Utara Province) and Bantaeng (Sulawesi Selatan Province).

On top of those industrial support policy, a dispersion of export oriented commodities production base also requires more equitable distribution of transport infrastructure, mainly roads and ports. Three rightmost columns in Table 6 show that the

Table 6: Main Provinces of Export Origin and their Ports, January-April, 2016-2018

Province	Share of Total National Export Production (%)			Share of Province's Export Shipped from Own Ports (%)		
	2016	2017	2018	2016	2017	2018
Jawa Barat	18.14	17.14	17.08	2.25	1.07	0.81
Jawa Timur	14.41	11.04	10.75	98.63	98.11	97.74
Kalimantan Timur	9.76	10.58	10.11	99.37	99.42	98.45
Riau	8.95	10.39	9.16	98.84	97.89	98.56
Banten	6.39	6.91	6.62	12.41	18.57	16.51
Total	57.65	56.06	53.72			

Source: BPS-Statistics Indonesia (2016,2017,2018)

majority of export shipments of Jawa Barat and Banten Provinces still have to be administered through ports in other provinces, especially in neighbouring DKI Jakarta Province. This is also true for export commodities produced by Jambi, Bengkulu, Kalimantan Tengah, Kalimantan Barat, DI Yogyakarta, Bali, NTT and Maluku Provinces, most of which must be transported to other provinces for overseas shipment. The inclusion of some port development projects in the national strategic projects such as Kupang Port (NTT Province), Kijing (Kalimantan Barat Province) and Patimban (Jawa Barat Province) are expected to facilitate the growth and spread of export production and shipment throughout the country in the future.

Table 7 gives the five most important markets for Indonesia's non-oil-and-gas exports in January-April period in the last three years. It shows that Indonesia's exports are still concentrated in several destination countries. In the first four months of 2018, more than 50% of the total merchandise exports is shipped to China, Japan, United States, India and Singapore. These five countries were also the top export destinations in the first four months of 2017 and 2016, albeit different rank of importance. On top of that, the five countries altogether gain more importance as export destination over the years, indicating increasing concentration of Indonesia's export markets.

Outside those five main destination countries, the other important markets have exhibited a dynamic

pattern, where the shares of Indonesia's export to Thailand, Australia and Taiwan are growing while the roles of Malaysia, Germany, the Netherlands, Italy and South Korea as destination markets tend to shrink. In general, at the regional level the roles of countries in ASEAN, East Asia and Australia as export destinations tend to increase while the share of export shipped to countries in Europe, Africa and America tend to decline. These may indicate that at the regional level Indonesia's non-oil-and-gas export destinations are increasingly concentrated in areas with proximity or with which Indonesia has free trade agreements, although in each region export destinations are increasingly spread in a larger number of countries. More efforts are needed to diversify Indonesia's export destinations to non-traditional regions such as South America, Africa, Middle East, Europe and Central Asia.

3.3. Import Development

3.3.1. Import Composition

Table 8 provides the composition of Indonesia's merchandise imports according to end-use. In the first four months of 2018 most of the imports (74.58%) were used as raw and auxiliary materials, followed by capital goods (16.34%) and a small share for consumer goods (9.08%). This import composition by end-use is quite similar from the same period in 2016 and 2017. On the one hand, this suggests that domestic industries are not yet capable to pro-

Table 7: Main Destination Markets of Indonesia's Exports, January–April 2016–2018

Negara	Share in non-oil-and-gas export January–April (%)		
	2016	2017	2018
China	9.55	12.81	15.24
United States	12.22	11.55	10.94
Japan	10.27	9.05	10.23
India	7.16	9.40	7.89
Singapore	7.31	5.88	5.95
Total	46.51	48.69	50.25

Source: BPS-Statistics Indonesia (2016,2017,2018)

duce all raw and auxiliary materials needed for the input for domestic production. On the other hand, this also suggests that the high import value in the last three years should not be overly concerned because it may indicate the growing domestic production activities which in turn demand larger amount of raw and auxiliary materials as well as capital goods.

Table 8: Imports by End-use, January–April 2016–2018

End-use	Share in total imports, January–April (%)		
	2016	2017	2018
Consumer goods	9,45	8,91	9,08
Raw/auxiliary materials	74,06	75,67	74,58
Capital goods	16,49	15,42	16,34
Total	100%	100%	100%

Source: BPS-Statistics Indonesia (2016,2017,2018)

In terms of commodity, in the first four months of 2018, the oil-and-gas imports were mostly of petroleum products, followed by crude oils, and small share of natural gas. This import composition tends to exhibit consistency in the last three years. However, the main non-oil-and-gas import commodities tend to vary over time. Table 9 shows that *Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof (HS 84)* has always been the most important imported commodity group. Within this commodity group, the most important import commodity is *Automatic data-processing machines and units thereof; magnetic or optical readers, machines...(8471)*, *Printing machinery used for printing by means of plates, cylinders and other*

printing components...(8443) and Self-propelled bulldozers, angledozers, graders, levellers, scrapers, mechanical shovels, excavators,...(8429).

3.3.2. Import by Country of Origin

Throughout January–April 2018 over 58% of Indonesia's non-oil-and-gas imports came from only five countries (See Table 10) and it is not much different from origins of import in the same period in 2017 and 2016. The three main sources of import have not changed in the last three years, namely China, Japan and Thailand. The 4th and 5th most important origin of imports have always been occupied by two of the following countries: Singapore, United States and South Korea.

3.4. Export and the Size of Exporting Firms

From the export development perspective, it is also of interest to analyse Indonesia's export in terms of the types of the exporting firms. Revindo (2017) reported the composition of direct export by the size of enterprises. He showed that large enterprises (LEs) have been the backbone of Indonesia's merchandise exports. LEs conducted more than 80% of the country's merchandise exports and the contribution tends to increase over time. On the contrary, Small and Medium-sized Enterprises (SMEs) performed only less than 15% of the country's total exports,

Table 9: Top Imported Commodity Groups, January–April 2016–2018

Rank	2016		2017		2018	
	Commodity Group	Share (%)	Commodity Group	Share (%)	Commodity Group	Share (%)
1	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof (84)	18.19	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof (84)	16.38	Machinery, mechanical appliances, nuclear reactors, boilers; parts thereof (84)	16.71
2	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof (87)	4.57	Plastics and articles thereof (39)	6.12	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television... (85)	13.57
3	Cereals (10)	3.83	Organic chemicals (29)	5.04	Iron and steel (72)	6.59
4	Articles of iron or steel (73)	2.75	Cereals (10)	2.02	Cereals (10)	2.05
5	Sugars and sugar confectionery (17)	1.49	Residues and waste from the food industries; prepared animal fodder (23)	1.91	Residues and waste from the food industries; prepared animal fodder (23)	1.64
Total		30.83		31.47		40.56

Source: BPS-Statistics Indonesia (2016,2017,2018) and ITC (2018)

Table 10: Origin of Indonesia's Non-oil-and-gas Import, January–April 2016–2018

Rank	2016		2017		2018	
	Country	Share (%)	Country	Share (%)	Country	Share (%)
1	China	25.76	China	25.70	China	27.28
2	Japan	10.94	Japan	11.49	Japan	11.72
3	Thailand	8.15	Thailand	7.16	Thailand	6.77
4	Singapore	6.43	South Korea	6.24	Singapore	6.36
5	United States	5.77	United States	5.98	United States	6.02
Total		57.05		56.57		58.15

Source: BPS-Statistics Indonesia (2016,2017,2018)

while the contribution of Micro Enterprises (MiEs) is diminutive.³ The MiEs' and SMEs' limited contributions to Indonesia's exports also tend to shrink further through time. Further, in terms of nominal export value, LEs are the only type of enterprise that managed to increase the export consistently as opposed to the fluctuating export value of other types of enterprises.

The four types of enterprises also show different export activity concentration across the economy sectors and products. Table 11 shows agriculture, livestock, forestry, and fishery products make up more than 98% of MiEs' merchandise exports. More specifically, the two most important products exported by MiEs are products of plantation crops

³For the role of SMEs in Indonesia's export, see for example Revindo (2017,2018), Revindo & Gan (2016,2017,2018) and Revindo, Gan, & Nguyen (2015,2017)

(mainly rubber and palm oil) that contribute 81.46% and fisheries products that add up 11.09% of MiEs' total exports.

On the contrary, the merchandise exports of SMEs and LEs mostly consist of various products from the manufacturing sector. For SMEs, the notable export products are food, beverages and tobacco as well as machinery apparatus, followed by chemical, rubber and plastic products, textiles, apparels and leather products. The exports of LEs consist of various manufacturing products and mining commodities (including non-oil-and-gas). These export compositions show that as the firms' size grow, not only can they enter foreign markets more effectively but they can also export a wider range of products.

In addition to the role of each type of enterprise to Indonesia's total exports, it is also important to

Table 11: Types of Exported Products for Each Type of Enterprise

Sectors	MiE	SE	ME	LE
1. Agriculture, Livestock, Forestry, and Fishery	98.08%	2.33%	1.13%	0.62%
a Food crops	3.94%	0.17%	0.00%	-
b Plantation crops	81.46%	1.80%	0.11%	0.49%
c Livestock and its products	1.46%	0.16%	0.04%	0.01%
d Forestry	0.12%	0.05%	0.09%	0.01%
e Fisheries	11.09%	0.15%	0.90%	0.12%
2. Mining and Quarrying	0.74%	0.30%	1.01%	26.22%
a Oil and gas mining	-	-	-	8.55%
b Non-oil-and-gas mining	-	0.16%	0.93%	17.65%
c Quarrying	0.74%	0.14%	0.09%	0.02%
3. Manufacturing Industry	1.18%	97.38%	97.85%	73.15%
a Oil and gas manufacturing	-	-	-	10.87%
b Non-oil-and-gas manufacturing	1.18%	97.38%	97.85%	62.29%
1) Food, beverages and tobacco	0.13%	29.15%	26.66%	12.63%
2) Textile, wearing apparel, leather and shoes	0.30%	12.15%	12.24%	8.17%
3) Wood and wood products	0.06%	3.39%	3.69%	1.77%
4) Paper, paper products, printing and publishing	0.14%	17.70%	1.63%	3.63%
5) Chemical, chemical products, rubber and plastic products	0.35%	19.93%	16.05%	13.21%
6) Cement and other non-metal minerals	0.00%	2.96%	1.06%	0.55%
7) Basic metal, fabricated metal products except machinery and equipment	-	1.20%	10.63%	6.81%
8) Machinery, office and computer, transport equipment and apparatus	0.06%	7.92%	22.69%	15.04%
9) Other products	0.13%	2.98%	3.20%	0.46%
Total Export	100.00%	100.00%	100.00%	100.00%

Source: Revindo (2017)

examine how each contributes to Indonesia's export of specific sectors or product groups. Table 12 shows the contribution of the four types of enterprises to Indonesia's exports by the product groups. MiEs are the main exporters of almost all types of agricultural products, except the exports of forestry products that are mainly contributed by SMEs and LEs. SMEs also have some notable contributions in the export of fisheries and livestock products while LEs have notable contribution in the export of fisheries, livestock and plantation crop products.

All types of mining and quarrying products are mostly exported by LEs while the roles of MiEs and SMEs are very limited except in the export of quarrying products. The roles of LEs are also dominant in the export of all types of manufacturing products. On the contrary, the roles of MiEs and SMEs in the export of various manufacturing products never exceed 20% except for the export of non-metal mineral products, food, beverages and tobacco as well as wood products.

The relationships between firm size and the types of exported commodities presented in Table 11 and 12 can be examined by the factor intensity nature of the industries. For example, none of MiEs and only very few SMEs export crude oil, natural gas and minerals as the mining and quarrying industries are capital-intensive. Likewise, none of MiEs and SMEs export oil and gas manufacturing products as the industry requires high capital-intensity. Rather, SMEs concentrate their export activities in several less capital-intensive commodities including food, tobacco, textile, apparel, leather, shoes, paper, paper products, chemical, chemical products, rubber, and plastic products. Further, within SMEs type of firm, SEs and MEs differ in their main export commodities. Very few SEs export medium and high capital-intensive commodities such as basic metal, fabricated metal products, machinery, office and computer, and transport equipment and apparatus, in contrast to MEs' notable contribution in the export of those products. Hence, Indonesia's sectorial

Table 12: Share of Each Type of Firm to Sectorial Exports

Sectors	Share in Sectorial Exports				Total	Sector's Share in National Export
	MIE	SE	ME	LE		
1. Agriculture, Livestock, Forestry and Fishery	62.38%	3.33%	5.45%	28.83%	100%	1.87%
a Food crops	90.75%	8.62%	0.63%	0.00%	100%	0.05%
b Plantation crops	66.83%	3.32%	0.65%	29.19%	100%	1.45%
c Livestock and its products	53.92%	13.37%	10.53%	22.18%	100%	0.03%
d Forestry	7.38%	6.88%	43.63%	42.11%	100%	0.02%
e Fisheries	41.38%	1.30%	25.47%	31.85%	100%	0.32%
2. Mining and Quarrying	0.04%	0.03%	0.40%	99.53%	100%	22.91%
a Oil and gas mining	0.00%	0.00%	0.00%	100.00%	100%	7.43%
b Non-oil and gas mining	0.00%	0.03%	0.54%	99.43%	100%	15.44%
c Quarrying	23.18%	9.95%	20.29%	46.58%	100%	0.04%
3. Manufacturing Industry	0.02%	3.43%	11.66%	84.89%	100%	75.22%
a Oil and gas manufacturing	0.00%	0.00%	0.00%	100.00%	100%	9.48%
b Non-oil and gas manufacturing	0.02%	3.93%	13.34%	82.71%	100%	65.74%
1) Food, beverages and tobacco	0.01%	5.44%	16.85%	77.69%	100%	14.19%
2) Textiles, wearing apparel, leather and shoes	0.04%	3.78%	12.86%	83.32%	100%	8.54%
3) Wood and wood products	0.04%	4.68%	16.90%	78.39%	100%	1.98%
4) Paper, paper products, printing and publishing	0.04%	12.40%	3.85%	83.71%	100%	3.79%
5) Chemical, chemical products, rubber and plastic products	0.03%	3.90%	10.62%	85.45%	100%	13.51%
6) Cement and other non-metal minerals	0.01%	11.87%	14.46%	73.66%	100%	0.66%
7) Basic metal, fabricated metal products except machinery and equipment	0.00%	0.45%	13.67%	85.88%	100%	6.94%
8) Machinery, office and computer, transport equipment and apparatus	0.00%	1.36%	13.25%	85.38%	100%	15.36%
9) Other products	0.19%	10.34%	37.32%	52.15%	100%	0.77%

Source: Revindo (2017)

comparative advantage to some extent can also be associated with firm size. The larger the firms, the stronger tendency that they have comparative advantage in capital-intensive commodities, and vice versa.

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