

BÀI GIẢNG 3: ĐO LƯỜNG CÁC HOẠT ĐỘNG KINH TẾ

ĐỖ THIÊN ANH TUẤN
TRƯỜNG CHÍNH SÁCH CÔNG VÀ QUẢN LÝ
ĐẠI HỌC FULBRIGHT VIỆT NAM



Jon Berkeley 1

It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to fit facts.

—Sherlock Holmes

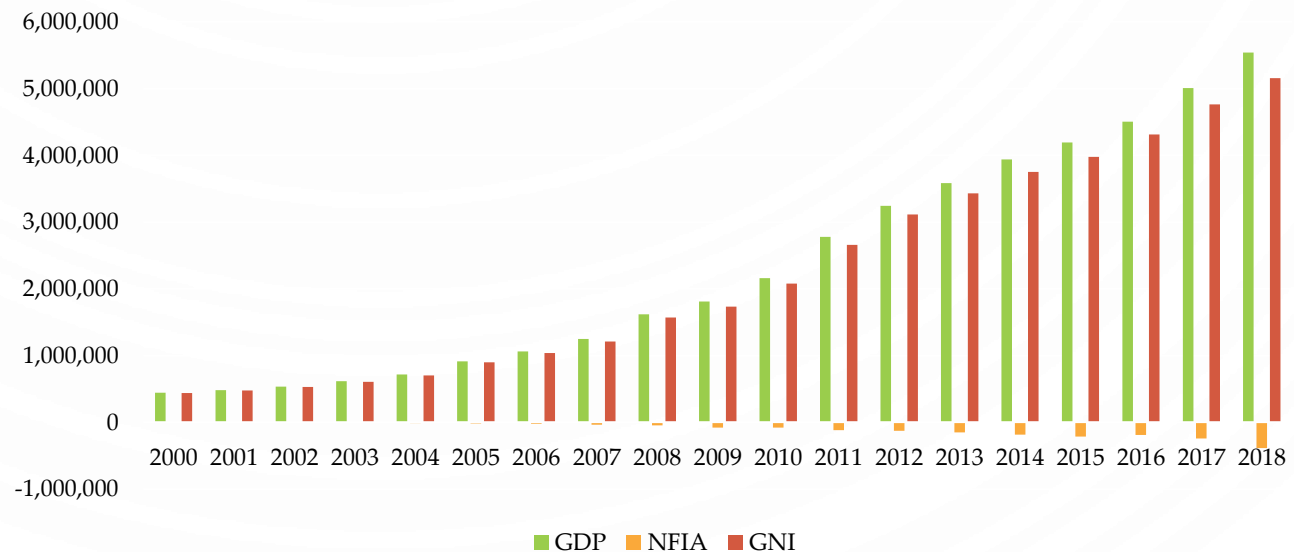
NATIONAL INCOME ACCOUNTING

- $GDP = Y = C + I + G + EX - IM = C + I + G + NX$
- $GNI = GDP + NFIA$
- $GNDI = GNI + NTR$
- $A = C + I + G$
- $NX = Y - A$
- $CA = NX + NFIA + NTR$

GDP, GNI, NFIA, NTR, GNDI



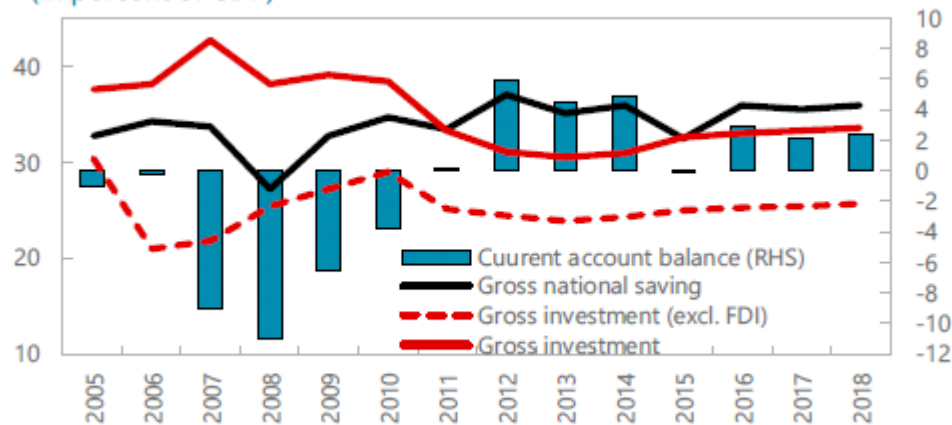
GDP vs. GNI of Vietnam (VND billion)



NATIONAL INCOME ACCOUNTING

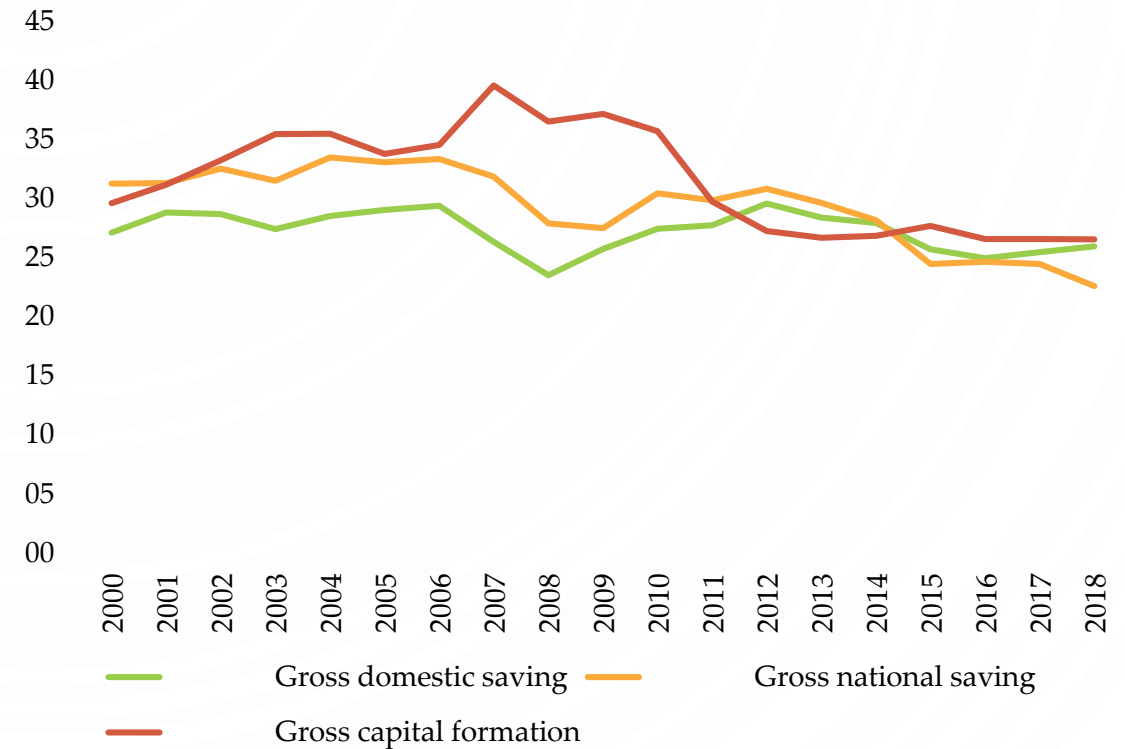
- $GDP = Y = C + I + G + NX$
- $Y_d = Y - T = C + S_p$
- $Y = C + S_p + T$
- $I + G + EX = S_p + T + IM$
- $S_p - T + (T - G) = EX - IM$
- $I = S_p + (T - G) + (IM - EX)$
- $I = S_p + S_g + S_f$

Vietnam: Savings, Investment and Current Account
(In percent of GDP)



Sources: Vietnamese authorities; and IMF staff estimates.

Savings and Investment (% of GDP)



Source: ADB Key Economic Indicator

CPI VS. GDP DEFLATOR

- Consumer price index (Laspeyres index)

$$CPI_t = \frac{\sum_{i=1}^N Q_i^0 P_i^t}{\sum_{i=1}^N Q_i^0 P_i^0}$$

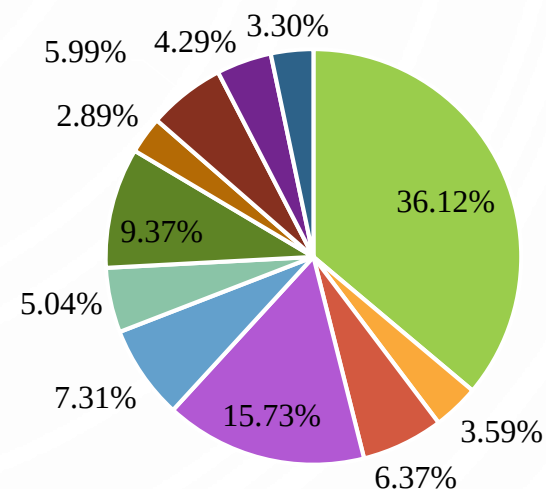
- GDP deflator (Paasche index)

$$GDP_{def(t)} = \frac{\sum_{i=1}^N Q_i^t P_i^t}{\sum_{i=1}^N Q_i^t P_i^0}$$

- Inflation rate

$$\pi_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} \times 100$$

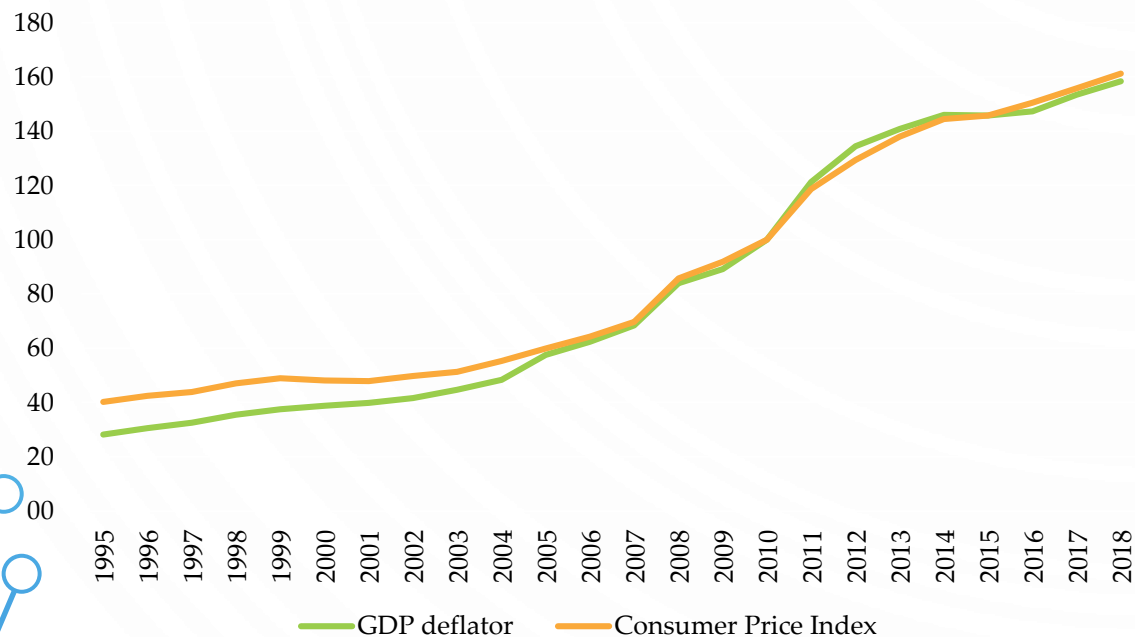
Quyền số tính chỉ số CPI 2015-2020



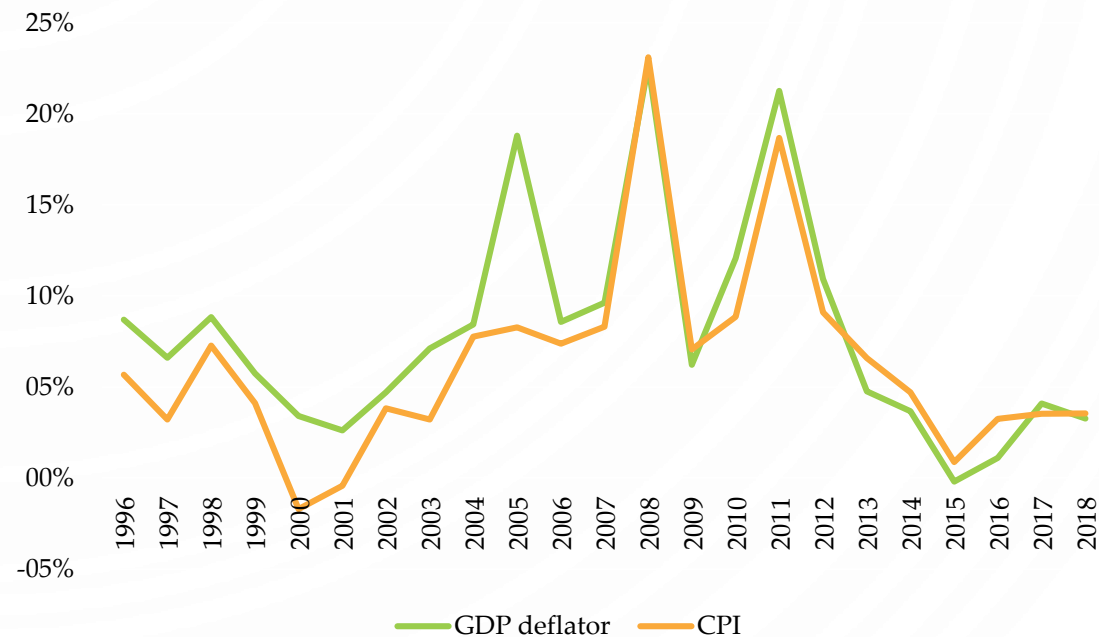
- | | |
|--------------------------------|--------------------------------------|
| ■ Hàng ăn và dịch vụ ăn uống | ■ Đồ uống và thuốc lá |
| ■ May mặc, mũ nón, giày dép | ■ Nhà ở, điện nước, chất đốt và VLXD |
| ■ Thiết bị và đồ dùng gia đình | ■ Thuốc và dịch vụ y tế |
| ■ Giao thông | ■ Bưu chính viễn thông |
| ■ Giáo dục | ■ Văn hóa, giải trí và du lịch |
| ■ Hàng hóa, dịch vụ khác | |

GDP DEFLATOR VS. CPI IN VIETNAM

GDP deflator vs. CPI (base year = 2010)



% annual change



Source: WDI

THẤT NGHIỆP (UNEMPLOYMENT)

- Theo ILO:
 - “**Thất nghiệp** là việc ngừng thu nhập do không có khả năng tìm được một việc làm thích hợp trong trường hợp người đó có khả năng làm việc và sẵn sàng làm việc.”
 - “**Người thất nghiệp** bao gồm toàn bộ số người ở độ tuổi làm việc theo quy định trong thời gian điều tra, có khả năng làm việc, nhưng không có việc làm và vẫn đang đi tìm kiếm việc làm.”

Pop = Tổng dân số

LF = Lực lượng lao động = U + E

LFpop = Dân số trong độ tuổi lao động

p = Tỷ lệ tham gia lực lượng lao động = LF / LFPop

E = Số người có việc làm

e = Tỷ lệ có việc làm = E / LF

U = Số người thất nghiệp

u = Tỷ lệ thất nghiệp = U / LF

Dân số

Một ví dụ của Việt Nam (triệu người)

Dân số	97.0
Dân số từ 15 tuổi trở xuống	7.8
Số người không tham gia lực lượng lao động	34.1
Lao động từ 15 tuổi trở lên	55.1
Số người có việc làm	54.0
Số người không có việc làm	1.1

Người dưới 15 tuổi
(hoặc 1 độ tuổi nhất định)

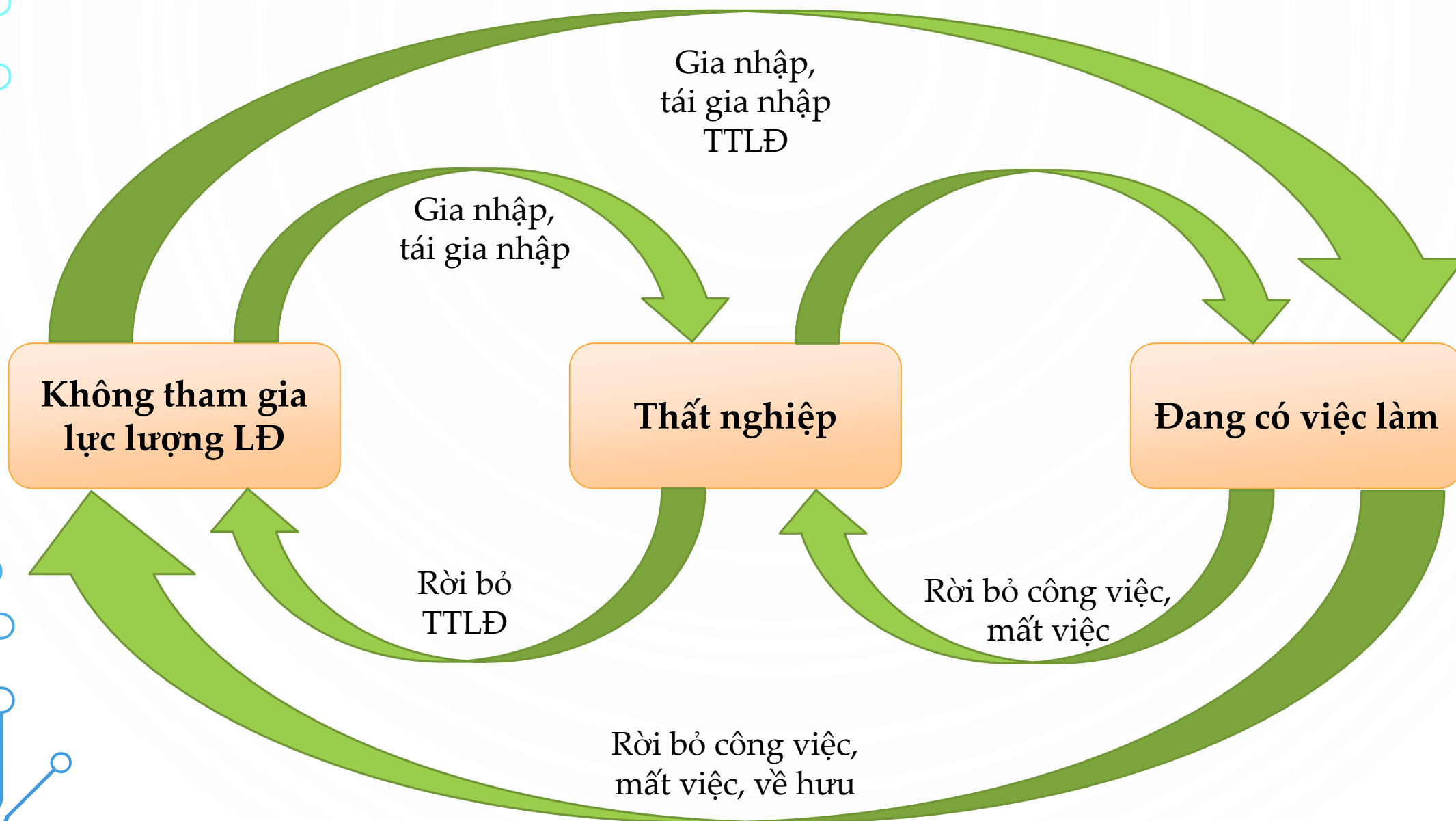
**Người không
tham gia lực
lượng lao động**

**Người
đang có
việc làm**

Người thất nghiệp

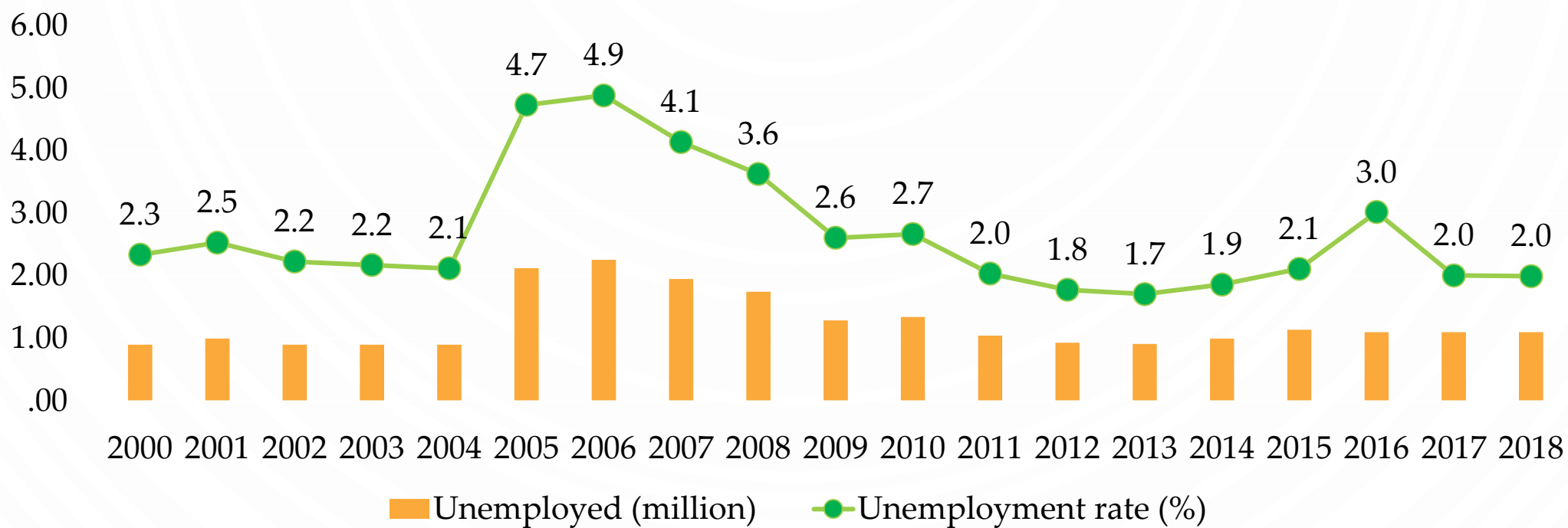
**Lực lượng
lao động**

DÒNG CHU CHUYỂN TRÊN THỊ TRƯỜNG LAO ĐỘNG



UNEMPLOYMENT IN VIETNAM

Unemployed and Unemployment rate in Vietnam



Source: ADB Key Economic Indicators

Table 1. Vietnam: Selected Economic Indicators, 2014–20 1/

	2014	2015	2016	Est. 2017	Projections		
					2018	2019	2020
Output							
Real GDP (percent change)	6.0	6.7	6.2	6.8	7.1	6.5	6.5
Prices (percent change)							
CPI (period average)	4.1	0.6	2.7	3.5	3.5	3.6	3.8
CPI (end of period)	1.8	0.6	4.7	2.6	3.0	3.7	3.8
Core inflation (end of period)	2.7	1.7	1.9	1.3	1.7	2.1	2.2
Saving and investment (in percent of GDP)							
Gross national saving	35.9	32.5	36.0	35.5	36.0	35.6	35.3
Gross investment	31.0	32.6	33.0	33.4	33.5	33.4	33.4
Private	18.6	20.2	20.7	21.5	22.4	22.6	22.7
Public	12.4	12.4	12.4	11.9	11.2	10.8	10.7
State budget finances (in percent of GDP) 2/							
Revenue and grants	22.2	23.8	24.0	24.5	24.5	23.4	23.3
Of which: Oil revenue	2.5	1.6	0.9	1.0	1.0	0.7	0.6
Expenditure	28.5	30.2	27.8	29.2	28.8	27.8	27.6
Expense	20.4	21.4	20.4	21.3	20.8	20.1	20.0
Net acquisition of nonfinancial assets	8.1	8.8	7.4	8.0	8.0	7.6	7.6
Net lending (+)/borrowing(-) 3/	-6.3	-6.4	-3.9	-4.7	-4.4	-4.4	-4.2
Net lending /borrowing including EBFs	...	...	...	-2.9	-2.6	-2.6	-2.6
Public and publicly guaranteed debt (end of period)	54.7	57.1	59.7	58.2	55.6	54.4	53.3

	2014	2015	2016	Est. 2017	Projections		
					2018	2019	2020
Money and credit (percent change, end of period)							
Broad money (M2)	17.7	16.2	18.4	15.0	12.4	15.5	14.9
Credit to the economy	13.8	18.8	18.8	17.4	12.7	13.7	13.1
Interest rates (in percent, end of period)							
Nominal three-month deposit rate (households) 4/	5.0	4.8	4.9	5.9	5.9	...	...
Nominal short-term lending rate (less than one year) 4/	8.5	7.2	7.2	8.7	8.7	...	...
Balance of payments (in percent of GDP, unless otherwise indicated)							
Current account balance (including official transfers)	4.9	-0.1	2.9	2.1	2.4	2.2	1.9
Exports f.o.b.	80.9	84.7	87.7	97.6	101.2	104.8	108.8
Imports f.o.b.	74.3	80.8	82.2	92.7	94.6	98.7	103.0
Capital and financial account 5/	3.0	0.5	4.6	9.0	0.0	2.0	2.2
Gross international reserves (in billions of U.S. dollars) 6/	34.3	28.3	36.7	49.2	55.3	66.2	77.7
In months of prospective GNFS imports	2.4	1.9	2.0	2.4	2.4	2.5	2.6
Total external debt (end of period)	38.3	42.0	44.8	49.0	46.0	47.2	47.5
Nominal exchange rate (dong/U.S. dollar, end of period)	21,200	21,951	22,372	22,709	23,175	...	...
Nominal effective exchange rate (end of period)	93.9	97.6	97.7	91.2	93.1	...	...
Real effective exchange rate (end of period)	124.7	129.8	134.0	126.2	131.0	...	...
Memorandum items:							
GDP (in trillions of dong at current market prices)	3,938	4,193	4,503	5,006	5,535	6,084	6,695
GDP (in billions of U.S. dollars)	185.8	191.3	201.3	220.4	241.3	260.5	282.4
Per capita GDP (in U.S. dollars)	2,047	2,086	2,172	2,353	2,551	2,728	2,929

Table 3. Vietnam: Medium-Term Projections, 2014–2024

	2014	2015	2016	Est. 2017	2018	2019	2020	2021	2022	2023	2024
Output					(Percent change)						
Real GDP	6.0	6.7	6.2	6.8	7.1	6.5	6.5	6.5	6.5	6.5	6.5
Prices											
CPI (period average)	4.1	0.6	2.7	3.5	3.5	3.6	3.8	3.8	3.9	4.0	4.0
CPI (end of period)	1.8	0.6	4.7	2.6	3.0	3.7	3.8	3.9	3.9	4.0	4.0
GDP deflator	3.7	-0.2	1.1	4.1	3.3	3.2	3.3	3.3	3.5	3.7	4.0
Saving and investment					(In percent of GDP, unless otherwise indicated)						
Gross national saving	35.9	32.5	36.0	35.5	36.0	35.6	35.3	35.3	35.0	34.9	34.9
Gross investment	31.0	32.6	33.0	33.4	33.5	33.4	33.4	33.6	33.6	33.7	33.9
Private investment	18.6	20.2	20.7	21.5	22.4	22.6	22.7	23.0	23.1	23.3	23.5
Public investment	12.4	12.4	12.4	11.9	11.2	10.8	10.7	10.6	10.5	10.4	10.3
State budget finances 1/											
Revenue and grants	22.2	23.8	24.0	24.5	24.5	23.4	23.3	23.2	23.2	23.2	23.1
Expenditure	28.5	30.2	27.8	29.2	28.8	27.8	27.6	27.1	26.9	26.7	26.5
Expense	20.4	21.4	20.4	21.3	20.8	20.1	20.0	19.6	19.4	19.3	19.1
Net acquisition of nonfinancial assets	8.1	8.8	7.4	8.0	8.0	7.6	7.6	7.5	7.5	7.4	7.4
Net lending (+)/borrowing(-) 2/	-6.3	-6.4	-3.9	-4.7	-4.4	-4.4	-4.2	-3.9	-3.7	-3.5	-3.4
Net lending /borrowing including EBFs	...	...	...	-2.9	-2.6	-2.6	-2.6	-2.4	-2.3	-2.3	-2.4
Non-oil primary balance	-7.1	-6.1	-2.8	-3.7	-3.4	-3.0	-2.7	-2.5	-2.2	-1.9	-1.8
Public and publicly guaranteed debt (end of period)	54.7	57.1	59.7	58.2	55.6	54.4	53.3	52.5	51.5	50.4	49.3

Table 4b. Vietnam: Consolidated State Budgetary Operations, 2013–2019 1/
(In percent of GDP, unless otherwise indicated)

				Estimate	Budget	Staff Estimate	Budget	Staff Estimate
	2013	2014	2015	2016 2/	2017	2018	2018	2019
(In percent of GDP, unless otherwise indicated)								
Total revenue and grants	23.1	22.2	23.8	24.0	24.5	22.6	24.5	22.3
Tax revenue	19.1	18.2	18.0	18.0	18.6	18.6	18.5	18.3
Oil revenues	3.4	2.5	1.6	0.9	1.0	0.6	1.0	0.7
CIT	2.5	1.8	1.2	0.6	0.7	0.4	0.7	0.5
Natural resource tax	0.8	0.7	0.4	0.3	0.3	0.2	0.3	0.2
Non-oil tax revenues	15.8	15.7	16.4	17.1	17.6	17.9	17.5	17.6
PIT	1.3	1.2	1.4	1.5	1.6	1.8	1.7	1.9
CIT	3.9	3.4	3.6	3.6	3.6	3.9	3.9	4.0
VAT	5.8	6.1	6.0	6.0	6.3	6.4	6.2	6.1
Trade	2.2	2.4	2.4	2.1	1.9	1.6	1.6	1.3
Others	2.5	2.5	3.1	3.9	4.1	4.2	4.1	4.2
Grants	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1
Other revenue	3.7	3.7	5.4	5.8	5.8	4.0	5.9	4.0
Expenditure	30.5	28.5	30.2	27.8	29.2	27.3	28.8	26.8
Expense	21.6	20.4	21.4	20.4	21.3	20.3	20.8	19.9
Interest	1.5	1.7	2.0	1.9	2.0	2.0	2.0	2.1
Other expense	20.1	18.7	19.4	18.5	19.3	18.2	18.9	17.3
Of which: Wages	...	...	...	...	9.0	9.1	9.1	8.9
Net acquisition of non-financial assets	9.0	8.1	8.8	7.4	8.0	7.0	8.0	6.9
Net lending (+)/borrowing (-)	-7.4	-6.3	-6.4	-3.9	-4.7	-4.6	-4.4	-4.5

Table 5. Vietnam: Monetary Survey, 2014–2020 1/

(In trillions of Dong, unless otherwise indicated)

	2014	2015	2016	2017	2018	Projections	
						2019	2020
Net foreign assets	826	836	949	1,264	1,540	1,964	2,420
State Bank of Vietnam (SBV)	722	614	806	1,097	1,263	1,547	1,847
Commercial banks	104	222	143	167	277	418	574
Net domestic assets	4,353	5,184	6,177	6,930	7,672	8,672	9,797
Domestic credit	4,480	5,381	6,307	7,102	7,852	8,906	10,055
Net claims on government	530	689	732	556	473	514	560
SBV	7	83	31	-10	-97	...	...
Credit institutions	523	606	701	566	570	...	...
Credit to the economy	3,950	4,693	5,575	6,546	7,379	8,393	9,495
Claims on state-owned enterprises (SOEs)	644	723	741	533	473	...	...
Claims on other sectors	3,306	3,970	4,834	6,014	6,906	...	...
In dong	3,458	4,267	5,127	6,054	6,911	...	...
In foreign currency	491	425	448	492	468	...	...
By state-owned banks (SOCBs)	1,850	2,304	2,723	3,174	3,523	...	...
By non-SOCBs	2,100	2,389	2,852	3,372	3,856	...	...
Other items net	-127	-198	-129	-172	-180	-234	-258
Total liquidity (M2)	5,179	6,020	7,126	8,195	9,212	10,636	12,217
Dong liquidity	4,613	5,370	6,505	7,539	8,460	...	...
Deposits	3,988	4,643	5,654	6,561	7,375	...	...
Currency outside banks	625	727	851	978	1,085	...	...
Foreign currency deposits	566	650	621	656	752	...	...

						Projections	
	2014	2015	2016	2017	2018	2019	2020
Memorandum items:							
Money multiplier 2/	6.3	6.1	6.4	6.1	6.4	6.4	6.4
Velocity	0.8	0.7	0.6	0.6	0.6	0.6	0.5
Reserve money (year-on-year percent change)	18.7	19.3	12.8	20.4	6.9	16.2	15.8
Liquidity (M2; year-on-year percent change)	17.7	16.2	18.4	15.0	12.4	15.5	14.9
Currency/deposits (in percent)	13.7	13.7	13.6	13.6	13.4	...	...
Credit/deposits (total, in percent)	86.7	88.7	88.9	90.7	90.8	89.4	88.1
Credit/deposits (dong, in percent)	86.7	91.9	90.7	92.3	93.7	...	...
Credit/deposits (foreign currency, in percent)	86.8	65.5	72.2	75.1	62.3	...	...
Credit to the economy							
Total (in percent of GDP)	100.3	111.9	123.8	130.8	133.3	137.9	141.8
Total (year-on-year percent change)	13.8	18.8	18.8	17.4	12.7	13.7	13.1
In dong (year-on-year percent change)	14.9	23.4	20.2	18.1	14.2	...	...
In FC (year-on-year percent change)	6.9	-13.4	5.2	10.0	-5.0	...	...
In FC at constant exchange rate (year on year percent change)	6.0	-16.3	3.1	8.3	-6.2	...	...
To SOEs (year-on-year percent change)	12.5	12.3	2.6	-28.1	-11.3	...	...
To other sectors (year-on-year percent change)	14.1	20.1	21.7	24.4	14.8	...	...
To SOEs (percent of total)	16.3	15.4	13.3	8.1	6.4	...	...
Dollarization							
Foreign currency deposits/total deposits (in percent)	12.4	12.3	9.9	9.1	9.3	...	...
Foreign currency loans/total loans (in percent)	12.4	9.1	8.0	7.5	6.3	...	...
Banks' net foreign exchange position (millions of U.S. dollars) 3/	1,372	-106	-1,347	151	-274.8	...	...
Government deposits (in percent of GDP)	2.3	1.6	2.5	6.2	8.3	...	...
Nominal GDP (in trillions of dong)	3,938	4,193	4,503	5,006	5,535	6,084	6,695

Table 6. Vietnam: Financial Soundness Indicators, 2013–18 1/

(In Percent)

	2013	2014	2015	2016	2017	2018
Regulatory Capital to Risk-Weighted Assets	13.4	11.8	12.8	12.6	12.1	12.1
Regulatory Tier 1 Capital to Risk-Weighted Assets	12.1	10.6	10.1	9.4	8.8	n.a.
Non-performing Loans Net of Provisions to Capital	12.8	14.2	11.0	11.4	10.7	n.a.
Non-performing Loans to Total Gross Loans 2/	3.1	2.9	2.3	2.5	1.8	1.9
Return on Assets 3/	0.5	0.3	0.4	0.5	0.6	0.7
Return on Equity 3/	5.8	3.2	5.4	6.6	8.3	9.8
Interest Margin to Gross Income	73.4	69.4	74.4	72.3	70.2	n.a.
Non-interest Expenses to Gross Income	55.1	56.7	55.8	55.3	51.0	n.a.
Liquid Assets to Total Assets (Liquid Asset Ratio)	13.0	15.5	13.2	13.2	12.7	n.a.

Source: Financial Soundness Indicators (FSI)

1/ Depository corporations only

2/ A more broadly defined NPL ratio, which includes NPLs sold to VAMC and loans previously restructured under Decision 780, is 6.5 percent of total loans as of December 2018.

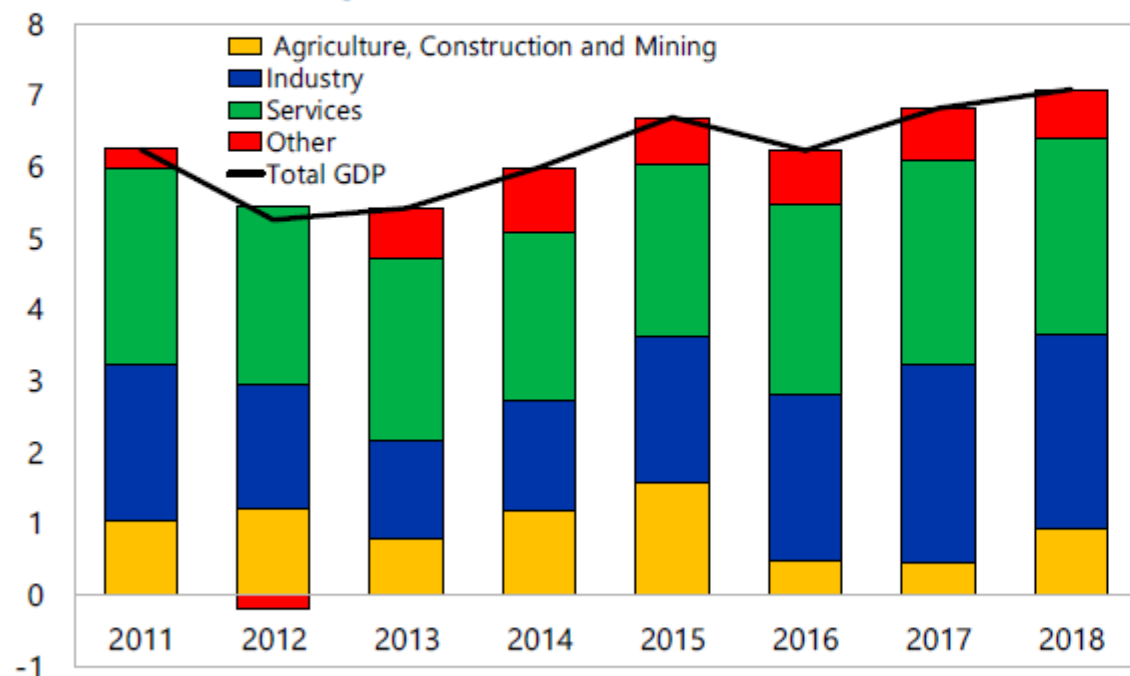
3/ The values for 2018 is based on those until 2018Q3.

CONTRIBUTION TO GDP

Economic growth has been strong, led by the service sector and industrial activity...

Contribution to GDP Growth by Economic Activities (2010 prices)

(Year-on-Year Percent Change)

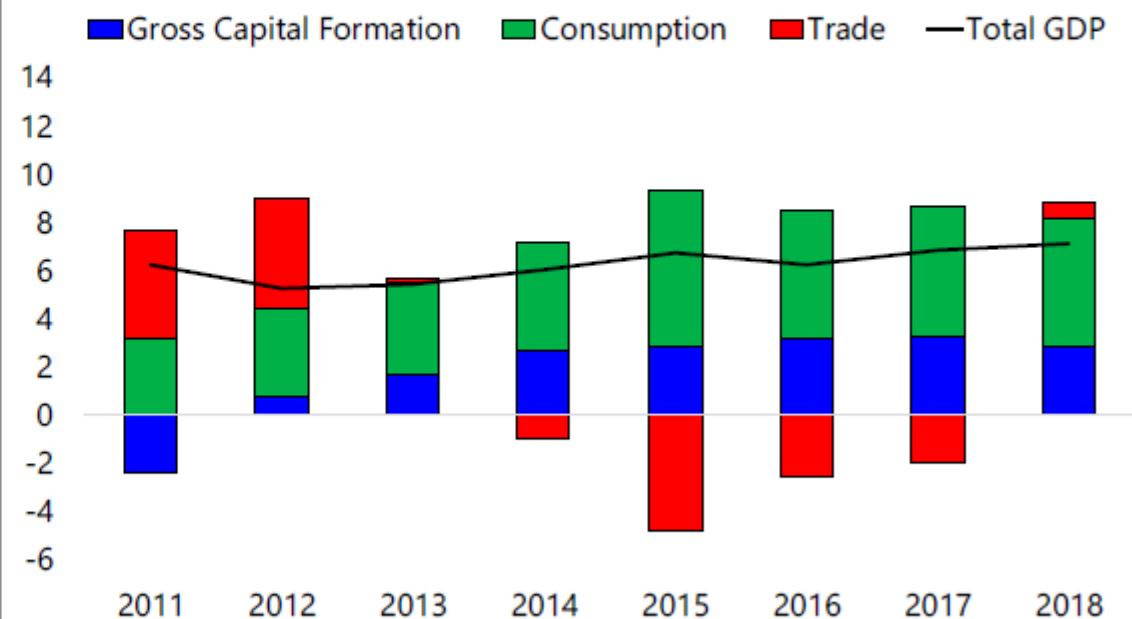


Sources: National authorities; and IMF staff calculations.

...reflected in strong domestic demand.

Contribution to GDP Growth by Expenditure (2010 prices)

(Year-on-Year Percent Change)



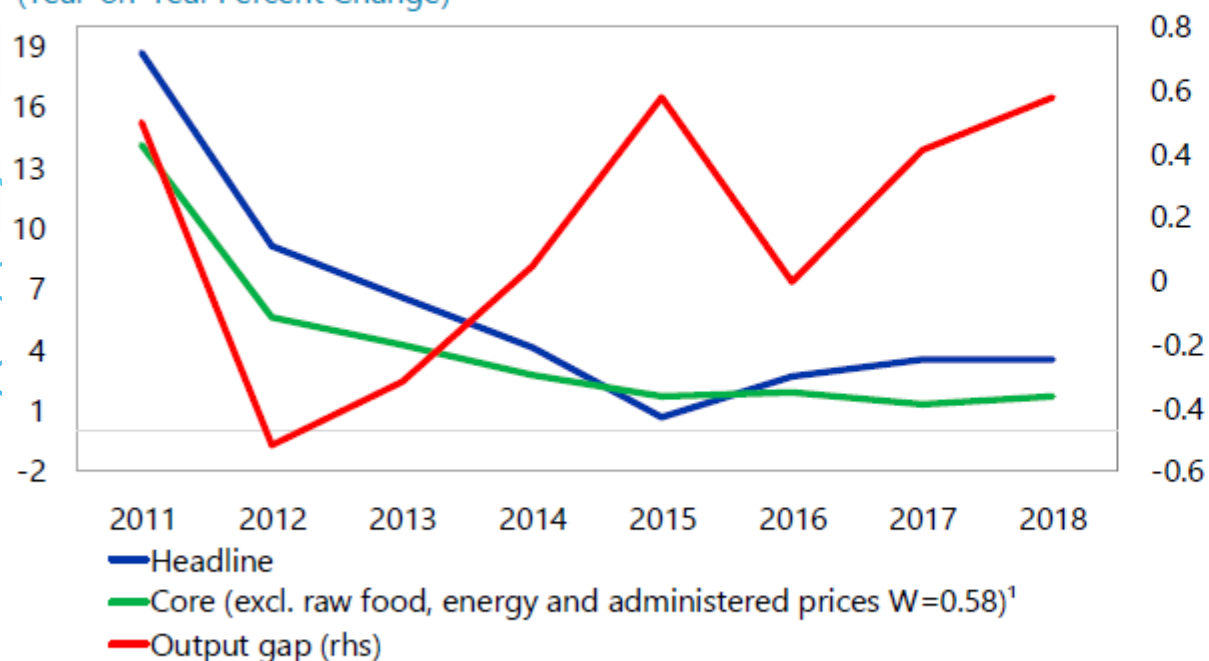
Sources: National authorities; and IMF staff calculations.

INFLATION

Headline inflation has remained at low levels...

Inflation and Output Gap

(Year-on-Year Percent Change)



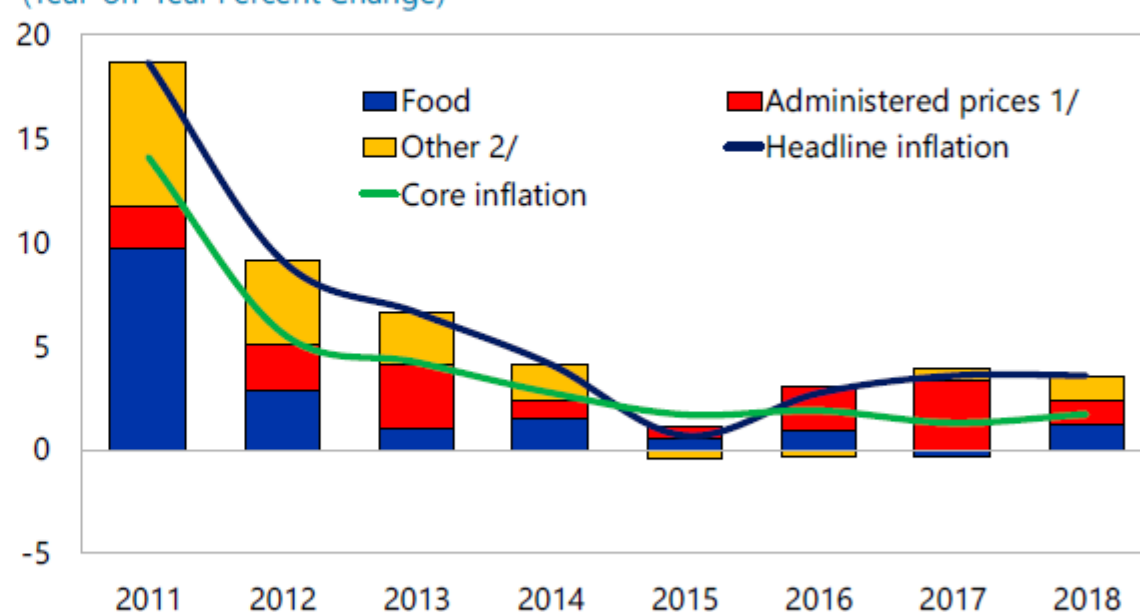
¹ W=2014 Weight

Sources: National authorities; and IMF staff calculations.

...and was mainly driven by food and administered prices.

Vietnam: Contribution to Headline Inflation

(Year-on-Year Percent Change)



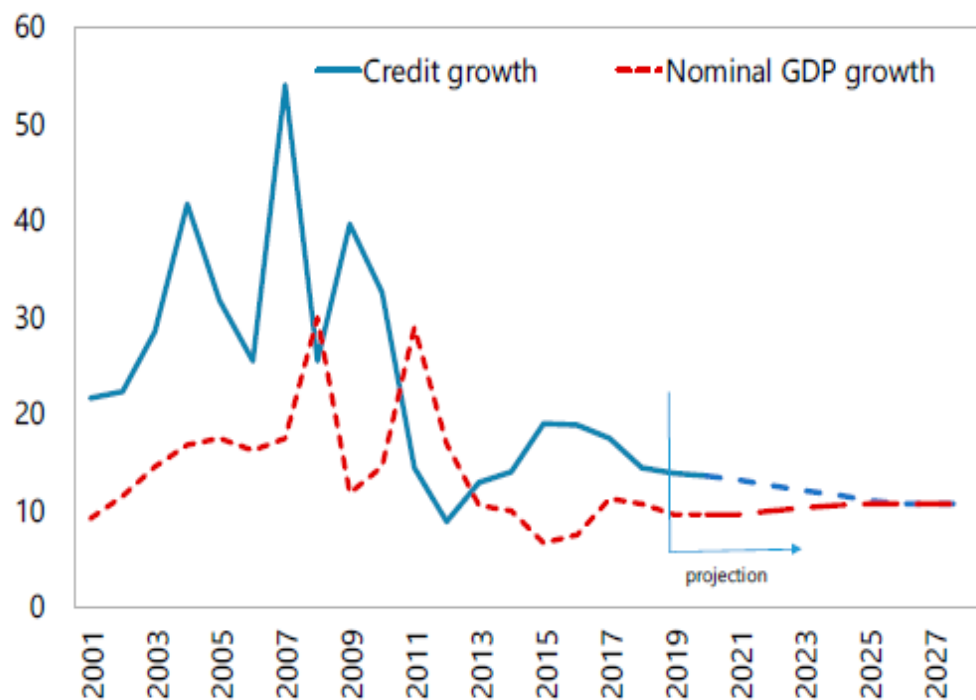
Sources: National authorities; and IMF staff calculations.

1/ Includes education and health care services.

2/ Includes beverage, housing, garment, medicine, transport, post and telecom, education, culture and other goods.

CREDIT TO GDP

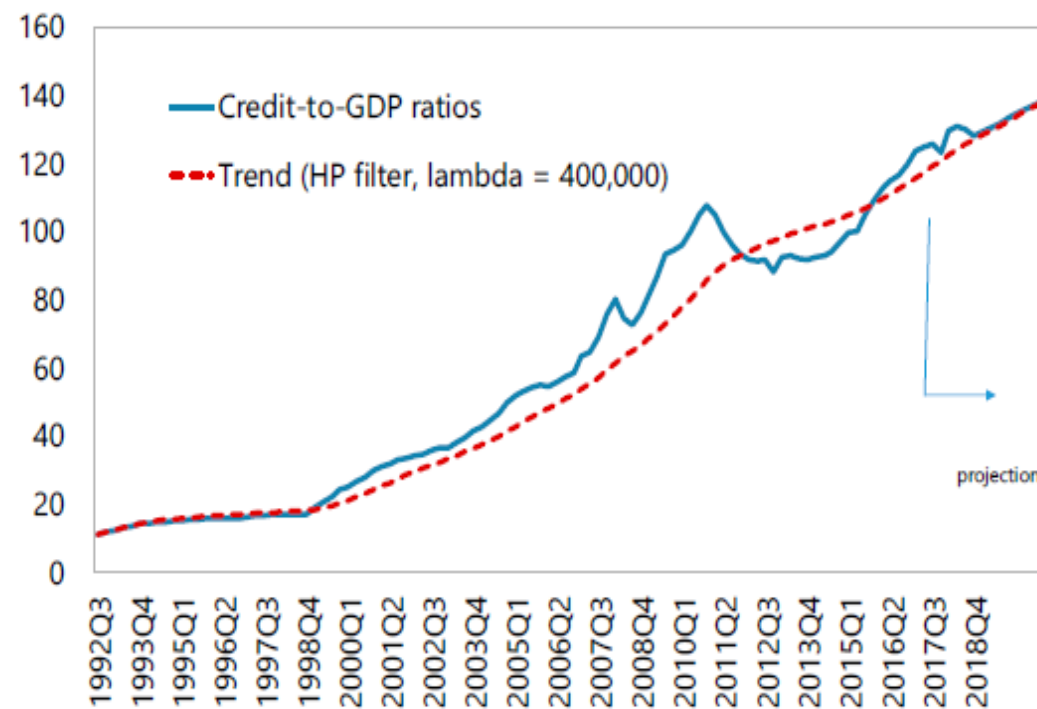
Vietnam: Credit growth and Nominal GDP growth



Sources: National authorities' data and IMF staff calculations.

Vietnam: Credit-to-GDP

(In Percent)



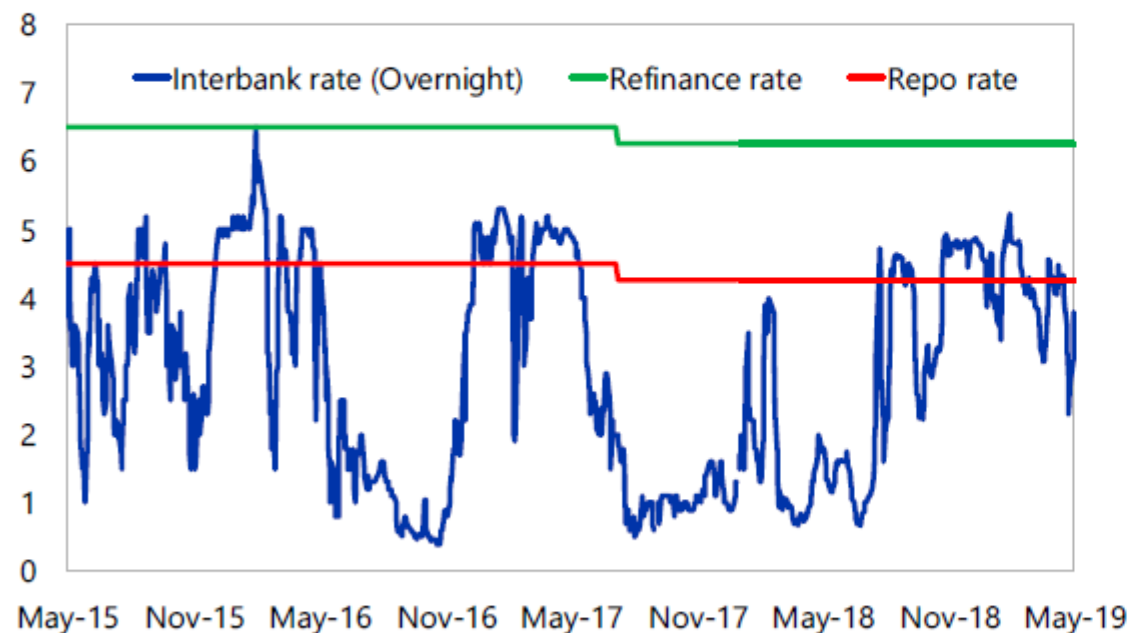
Sources: National authorities' data and IMF staff calculations.

MONETARY POLICY

Monetary policy has been tightened...

Vietnam: Interest Rates

(In Percent)

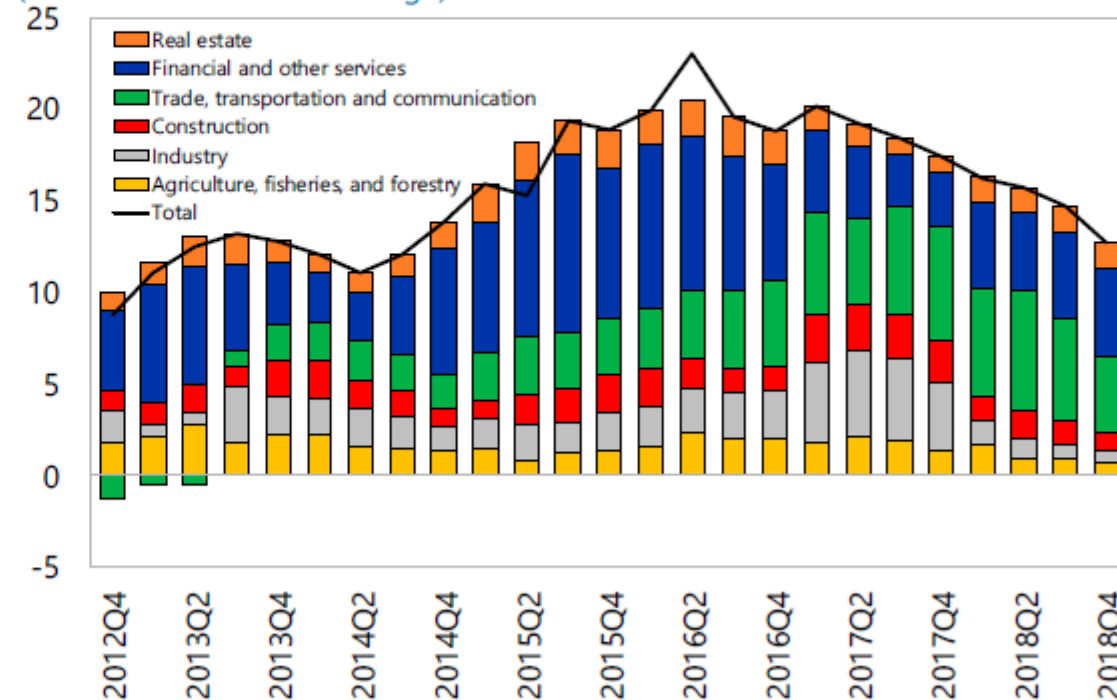


Sources: Vietnamese authorities; Bloomberg LP; and IMF staff estimates.

... and private sector credit growth has declined to below 13 percent y/y.

Contribution to Credit Growth

(Year-on-Year Percent Change)



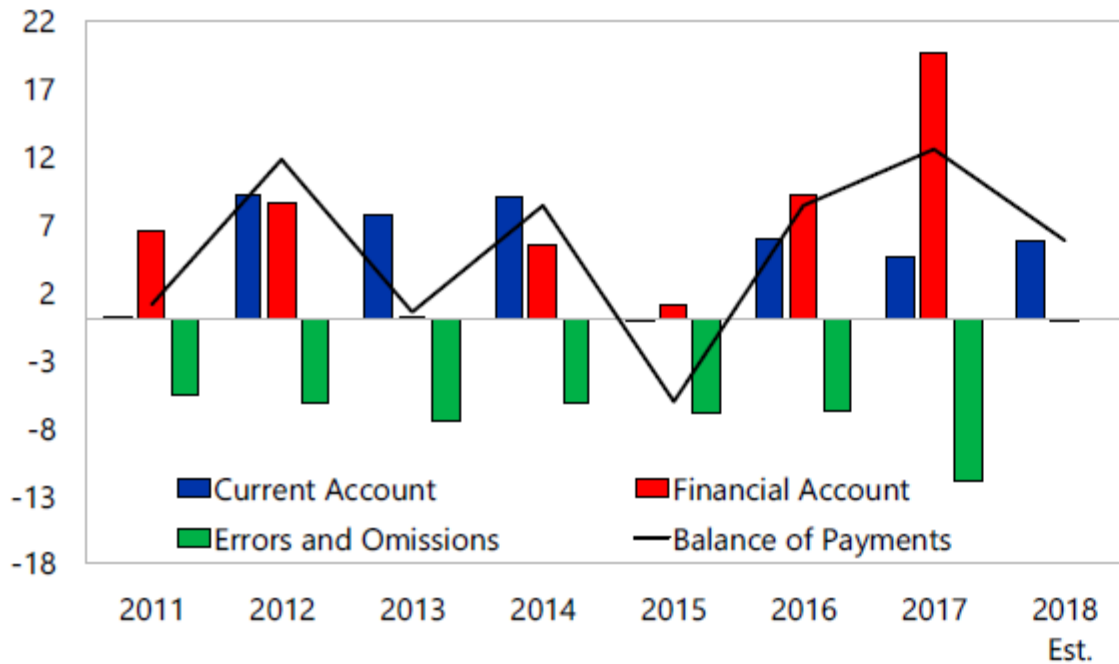
Sources: National authorities; and IMF staff calculations.

BALANCE OF PAYMENT

The balance of payments remained in surplus...

External Accounts

(In Percent of GDP)

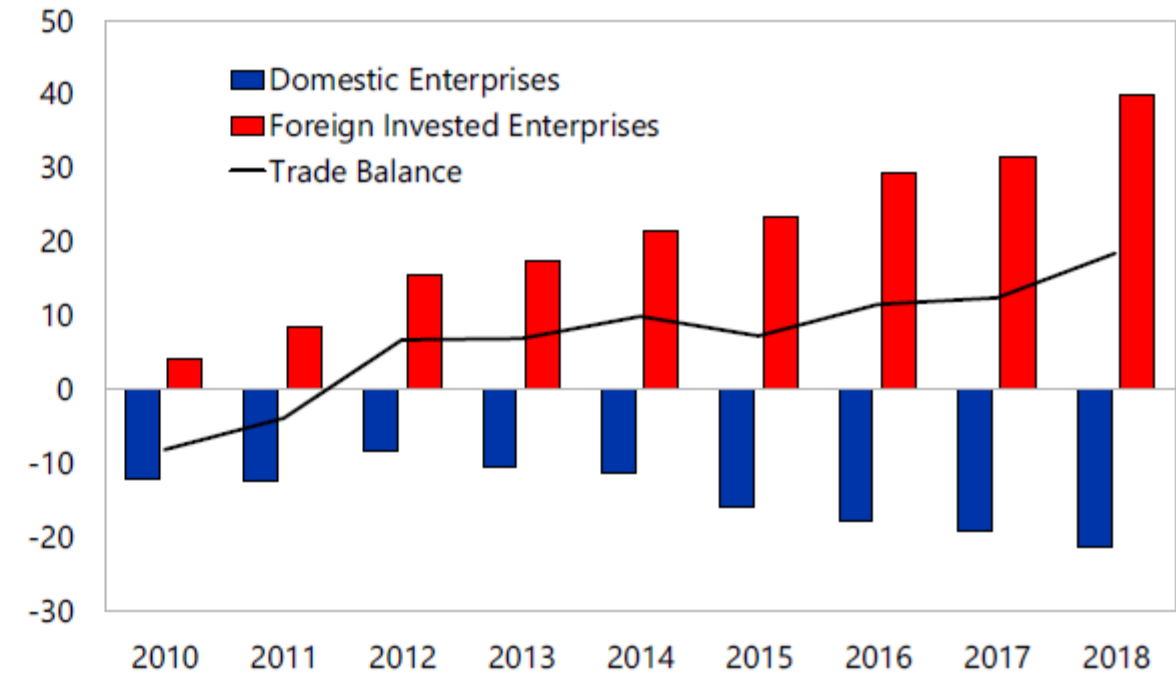


Sources: National authorities; and IMF staff calculations.

Strong net exports from the FDI sector more than offset the trade deficit elsewhere in the economy.

Trade Balance

(In Billions of USD)

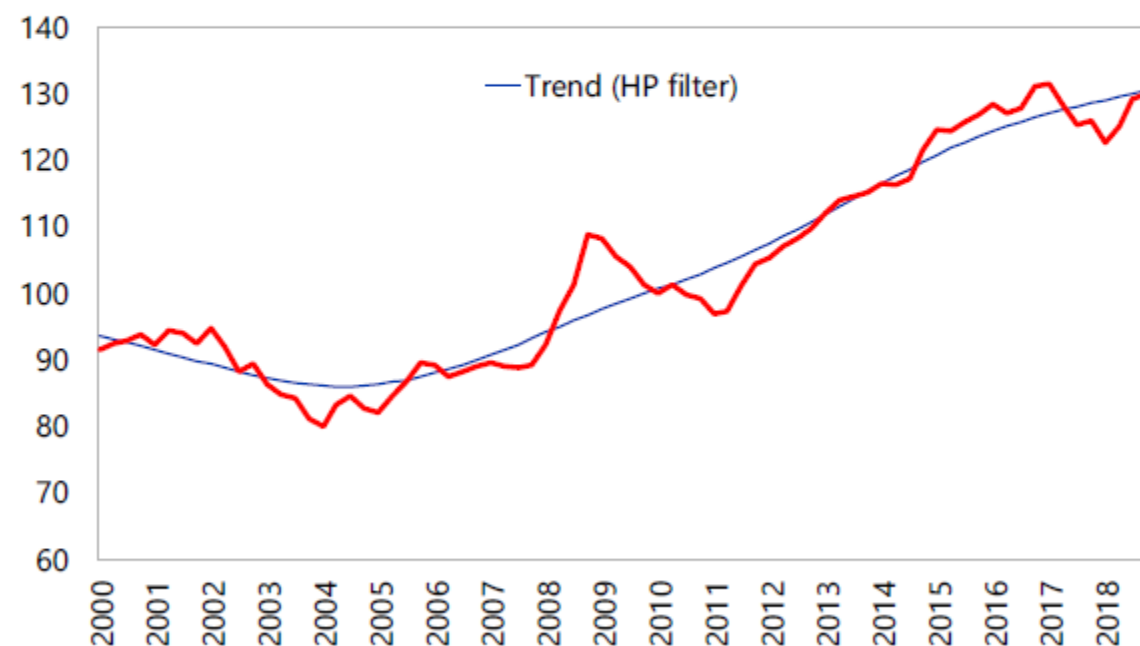


Sources: National authorities; and IMF staff calculations.

EXCHANGE RATE

The REER has resumed its appreciating trend.

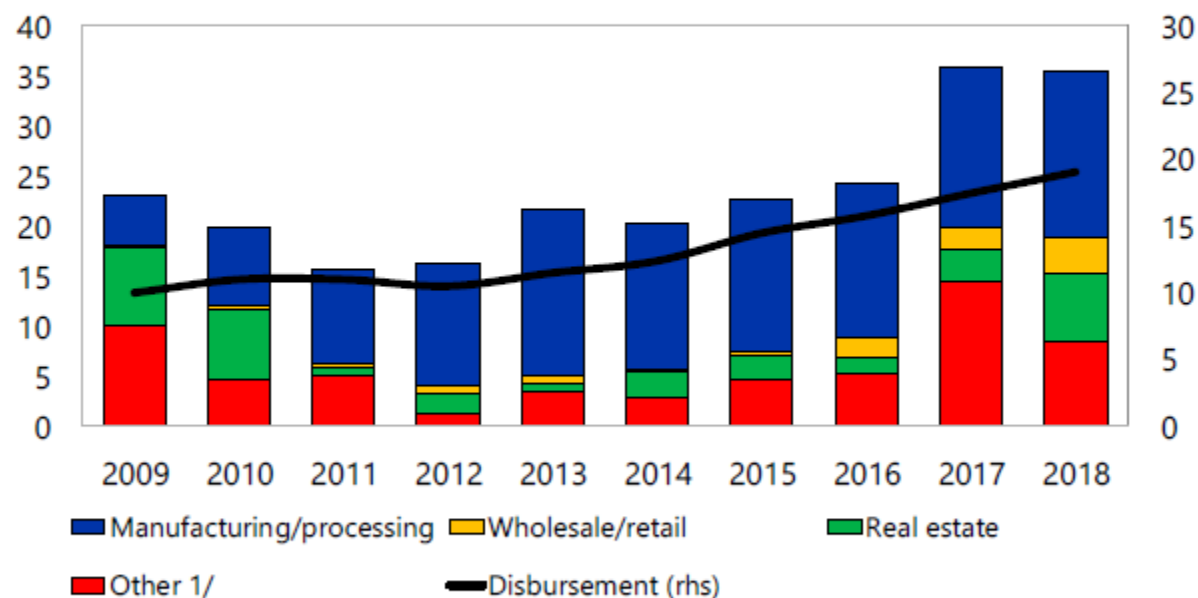
Vietnam: Real Effective Exchange Rate, 2000Q1—2018Q4
(2010=100)



Sources: INS; and IMF staff calculations.

FDI inflows remained strong, mainly focused in manufacturing and recently real estate.

FDI Commitments and Disbursements
(In Billions of USD)



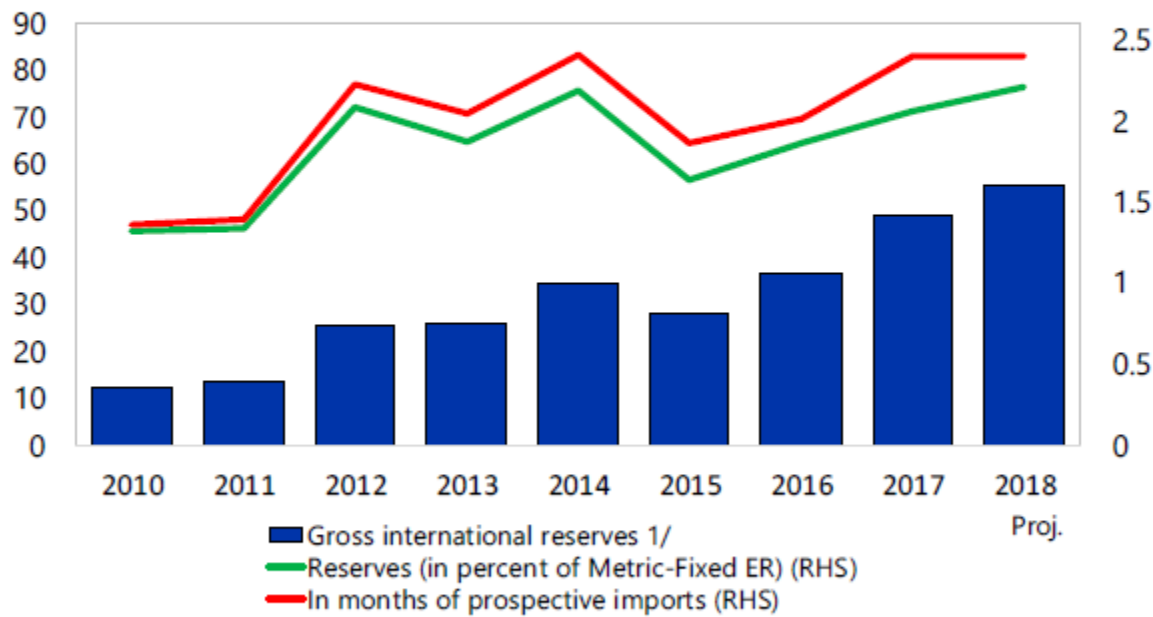
Source: National authorities; and IMF staff calculations.
1/Construction, Hotel and Restaurants, Mining, Agricultural, Forestry and Fishery, Electricity, Gas and AC production and other.

FOREIGN RESERVES

The strong external position permitted additional reserve accumulation, two way FX intervention...

Reserves

(In Billions of USD)

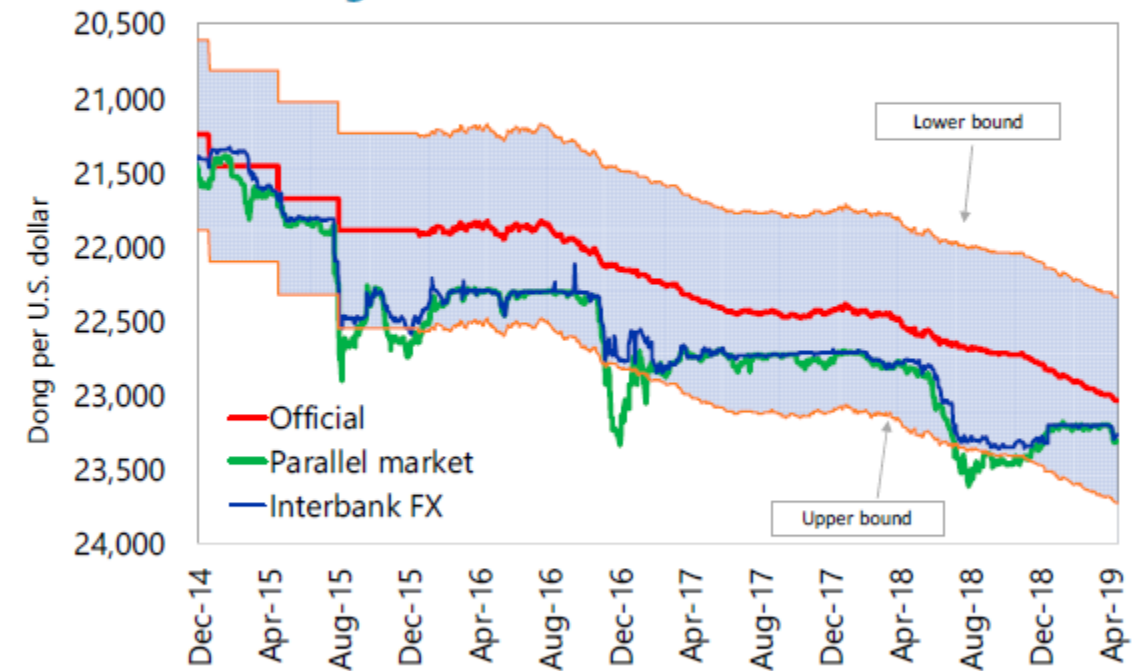


Sources: National authorities; and IMF staff calculations.

1/Excludes government deposits.

...which limited the depreciation of the Dong against the U.S. dollar.

Vietnam: Exchange Rates 1/



Sources: Vietnamese authorities; Bloomberg LP.

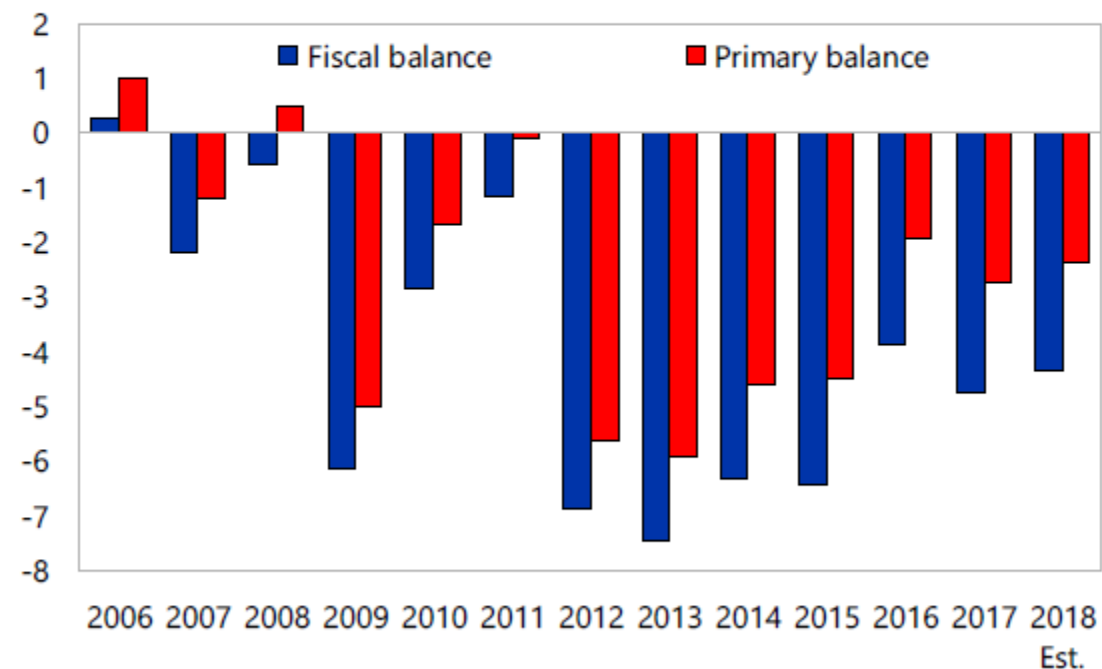
1/ An upward movement indicates an appreciation of the dong.

FISCAL SECTOR

The fiscal position improved in 2018...

Fiscal Balance

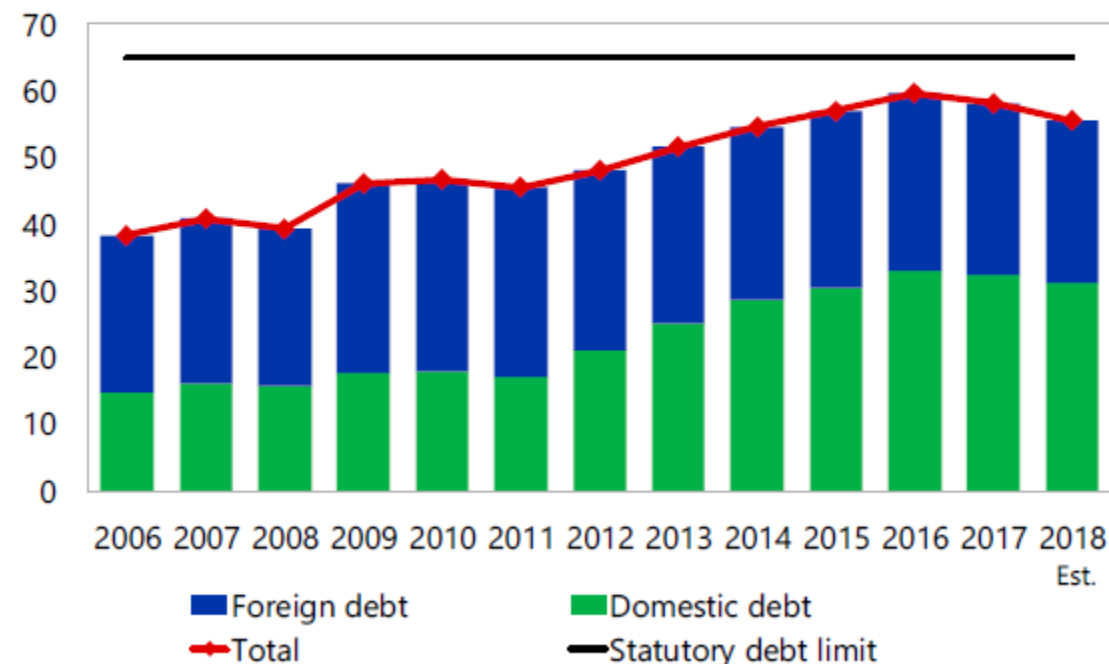
(In Percent of GDP)



...contributing to lower public debt levels.

Public and Publicly Guaranteed Debt

(In Percent of GDP)

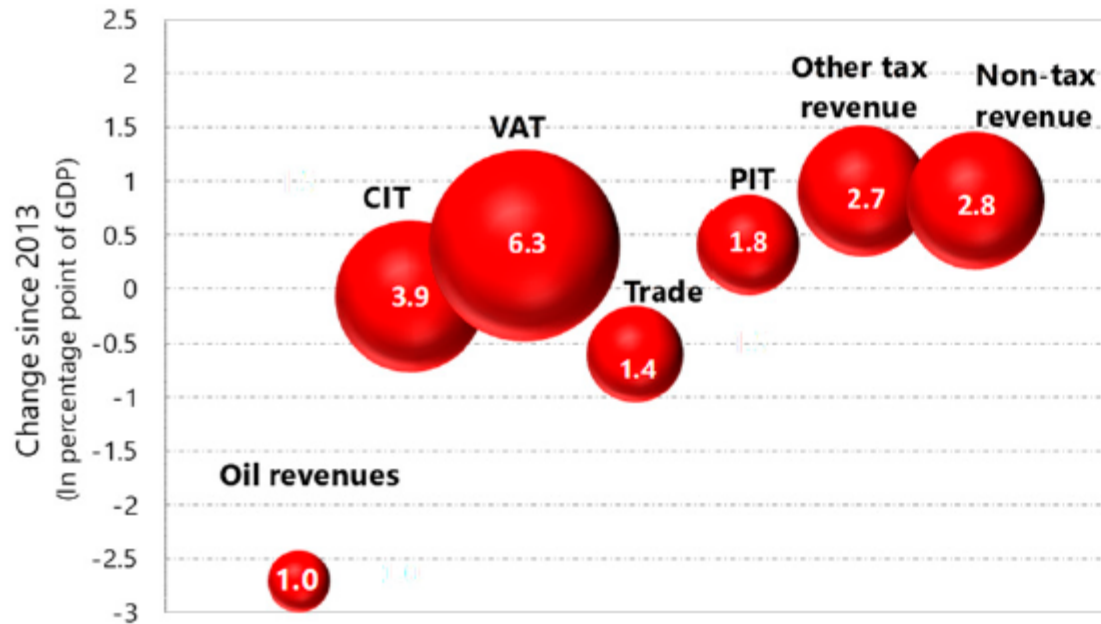


TAX REVENUE

While tax revenue collections have improved over time...

Revenue, 2018 1/

(Change since 2013, and percent of GDP)



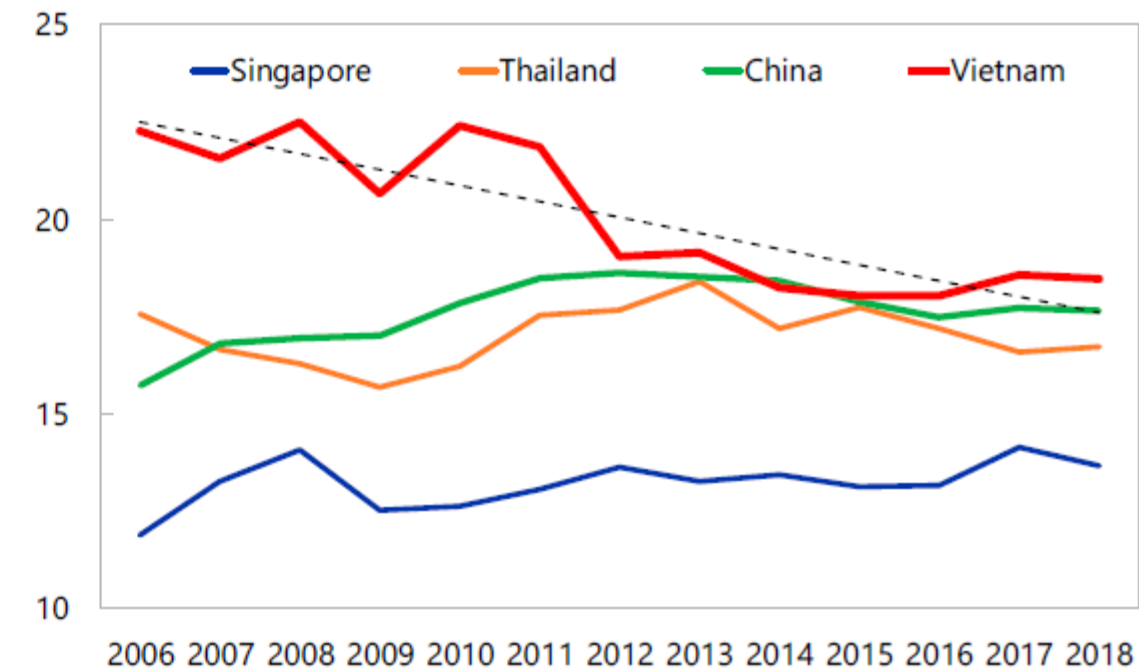
1/ Size of the bubble represents the share of GDP.

Sources: National authorities; and IMF staff calculations.

...they remain on a downward trend.

Tax Revenue

(In Percent of Fiscal Year GDP)



Sources: National authorities; and IMF staff calculations.

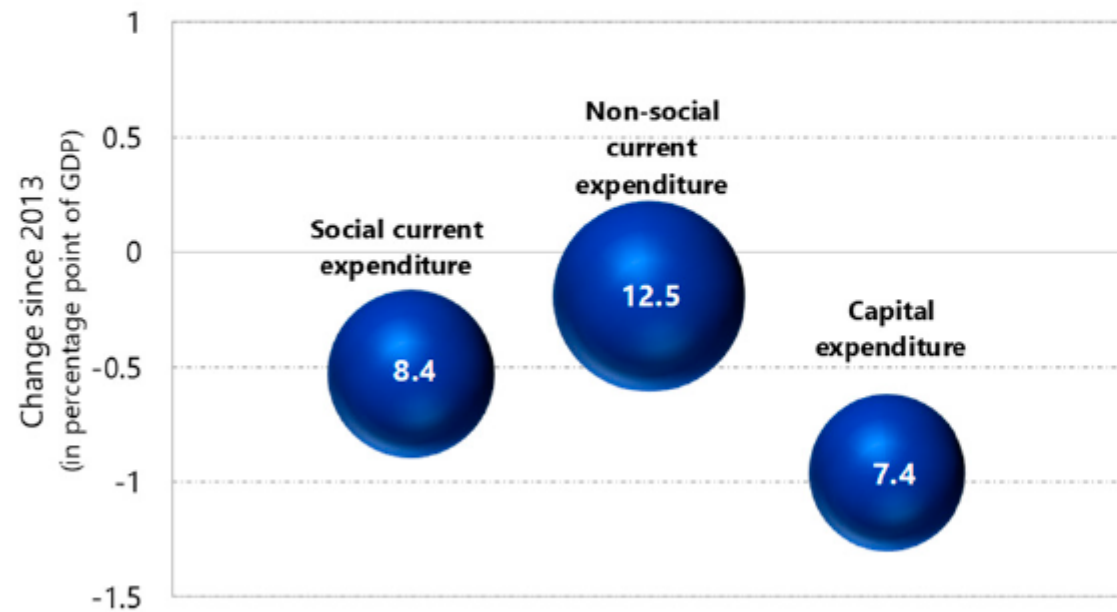
Est.

PUBLIC EXPENDITURES

Public expenditure has been driven mainly by non-social current spending...

Expenditure, 2018 1/

(Change since 2013, and percent of GDP)



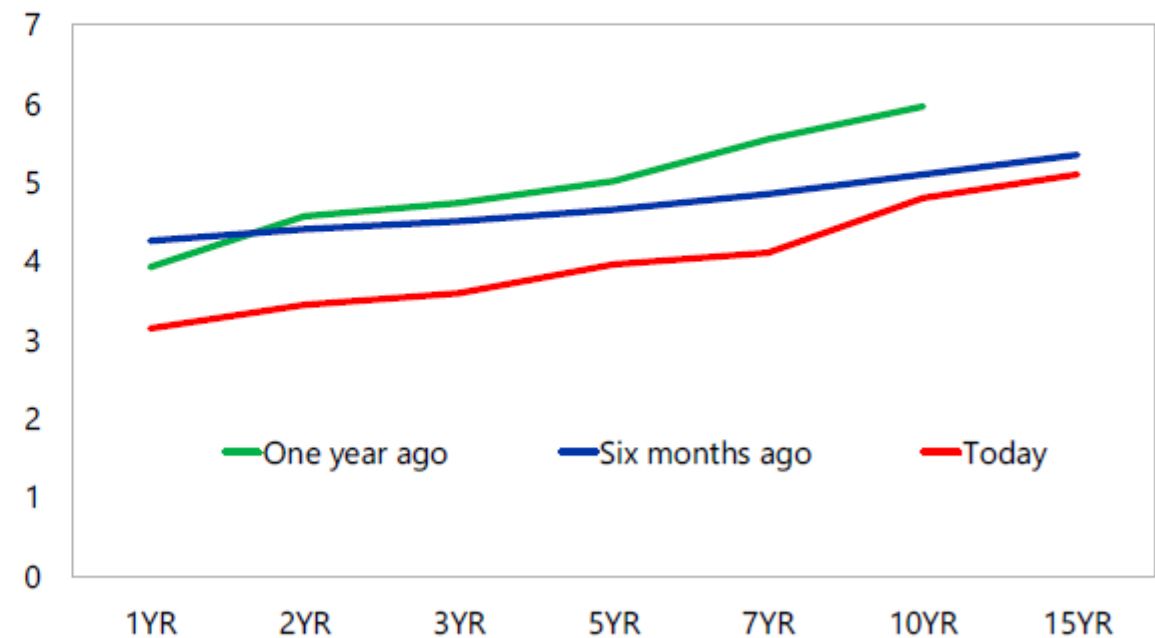
1/ Size of the bubble represents the share of GDP.

Sources: National authorities; and IMF staff calculations.

... although falling yields have moderated debt service costs.

Domestic Bond Yield Curve 1/

(Percent per Annum)



1/ Data as of May 10, 2019.

Sources: National authorities; and IMF staff calculations.