



# THAILAND

## SELECTED ISSUES

June 2016

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# THAILAND

## SELECTED ISSUES

May 6, 2016

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Department**

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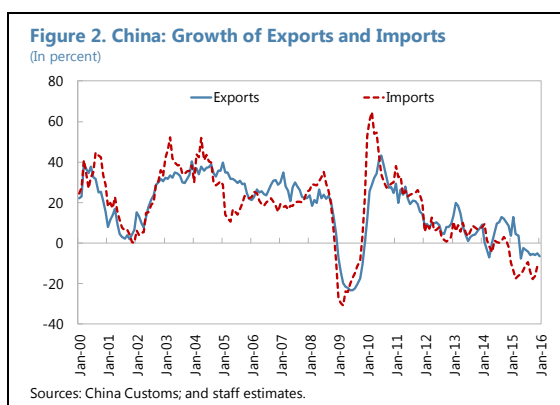
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# SPILOVERS FROM CHINA TO THAILAND AND OTHER ASEAN-5 COUNTRIES<sup>1</sup>

The Chinese economy is transitioning to a new model, with slower growth and rebalancing in its drivers. Thailand is exposed to the slowdown, as China is one of Thailand's main trading partners. Model estimates suggest that a one percent decline in China's GDP lowers Thailand's output by about 0.2 percent. The impact may be larger if China's transition triggers financial market volatility. On the other hand, rebalancing from investment- to consumption-led growth in China is likely to be broadly neutral for Thailand, while the rapid growth in Chinese tourism has benefited Thailand.

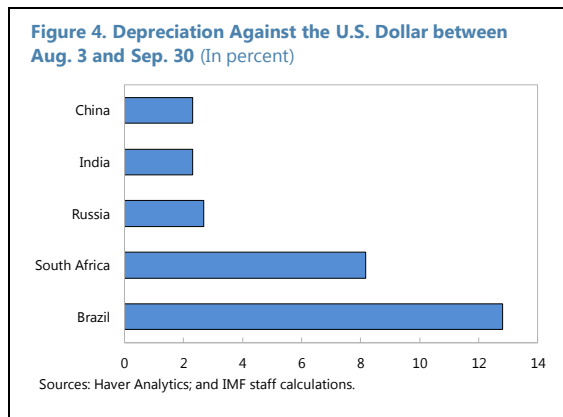
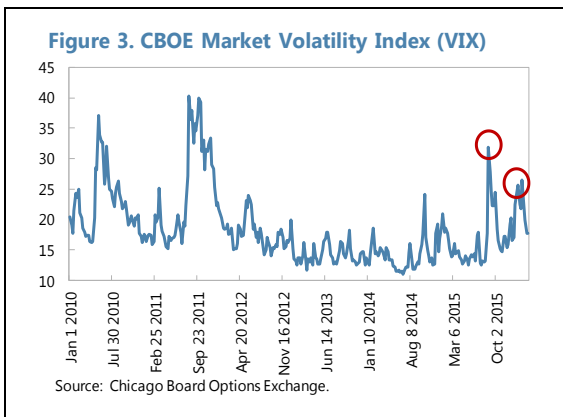
## A. Context

**1. The Chinese economy is transitioning to a new model, with slower but more sustainable growth, in which market forces are expected to play a more decisive role.** The shares of investment and manufacturing in GDP are falling, while those of consumption and services are increasing (Figure 1). China's trade has also contracted, with both exports and, even more so, imports declining substantially in 2015 (Figure 2). Given the large size of China's economy, its slowdown and rebalancing, as well as the contraction in trade, can have significant spillovers to China's trading partners, including those in Asia.



**2. The transition in China has also resulted in bouts of global financial volatility.** In particular, the VIX spiked in August 2015 (Figure 3), when China's stock market collapsed despite official support, and when the renminbi fixing mechanism was adjusted to make it more market-based, leading in the first instance to renminbi depreciation vis-à-vis the U.S. dollar. The VIX spiked again in January 2016 on renewed concerns about the prospects of the Chinese economy. These bouts of volatility have led to capital outflows and currency depreciation in many emerging markets (Figure 4), highlighting another channel of spillovers from China to the world economy.

<sup>1</sup> Prepared by Vladimir Klyuev.

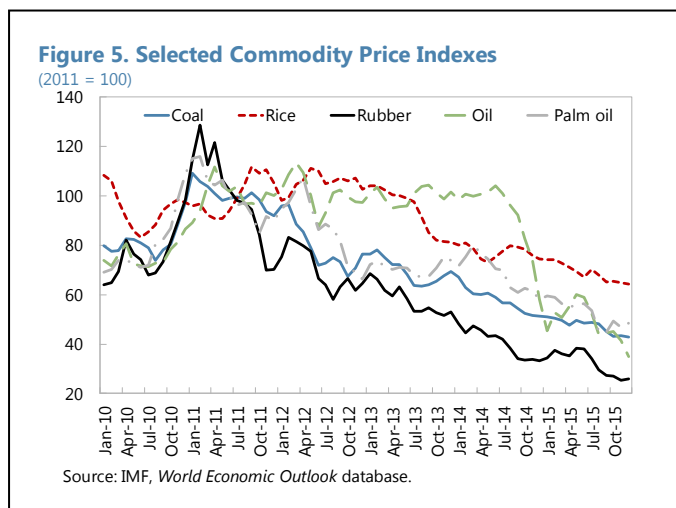


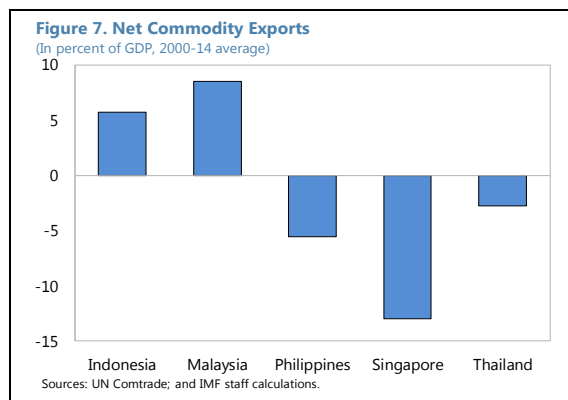
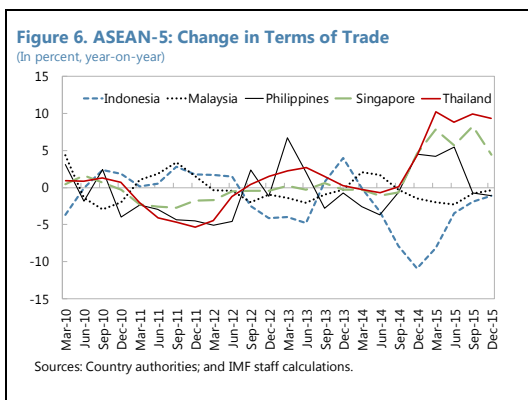
## B. Spillover Channels

**3. The impact of China’s transition on the rest of the world transmits primarily through commodity price and trade channels and can be amplified via financial channels.**

### Commodity Price Channel

**4. The fall in global oil prices, partly triggered by China’s slowdown and rebalancing, is a positive development for Thailand.** China is an important commodity producer, but its demand for commodities exceeds domestic supply. For example, China accounts for about 50 percent of global demand for base metals. Lower actual and expected growth of China’s economy (and investment in particular)—along with increasing supply—has put downward pressure on the prices of fuel (including oil and coal), metals, and agricultural products such as rice and rubber (Figure 5). This has had a negative impact on the terms of trade of the ASEAN–5 net commodity exporters—Indonesia and Malaysia (Figure 6). On the other hand, the terms of trade have improved for the Philippines, Singapore, and Thailand, which are net commodity importers (Figure 7). However, the negative shock for commodity exporters all over the world has partially spilled over to their trading partners (including the ASEAN–5) via lower demand and depreciated currencies.





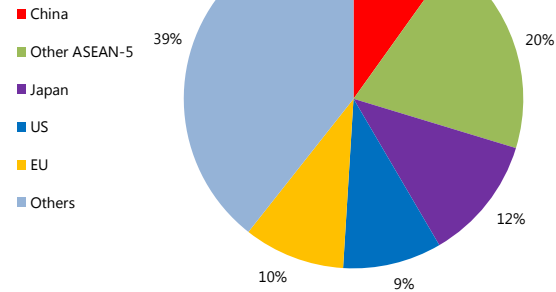
### Trade Channel

**5. Since late 2014, China’s imports have been contracting in double digits in value terms.** To a significant extent, this reflects lower commodity prices, but import volumes have declined as well (Figure 8). China’s share in exports is broadly constant across all ASEAN–5 economies, and thus exposure of the ASEAN–5 economies to import demand from China varies roughly with their trade openness (Figure 9). Correspondingly, Indonesia and the Philippines are the least exposed, Singapore is the most exposed, and Malaysia and Thailand are in the middle range—with exports to China for the latter two countries between 6 and 8 percent of GDP (Figure 10). It should be noted that for the ASEAN–5 economies China is not a dominant, and for some of them, not the most important trading partner. Indeed, the share of exports of the ASEAN–5 countries to other ASEAN–5 is as large or larger than the share of exports to China.



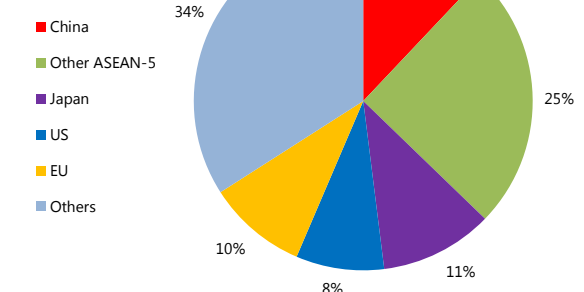
**Figure 9. Composition of Exports of Goods by Trading Partners, 2014**

**Indonesia**  
(In percent)



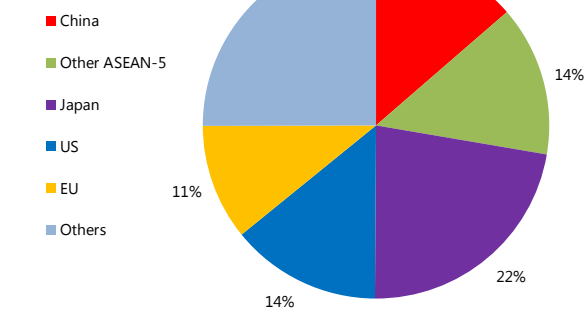
Sources: Bank Indonesia; and IMF staff calculations.

**Malaysia**  
(In percent)



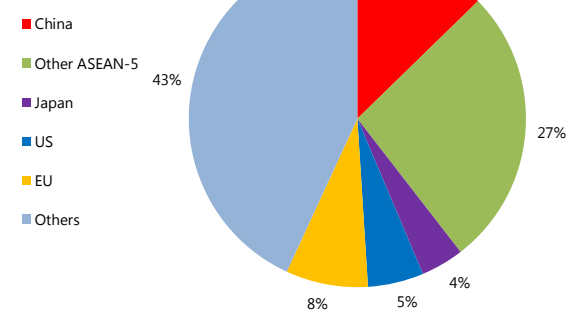
Sources: Malaysia, Department of Statistics; and IMF staff calculations.

**Philippines**  
(In percent)



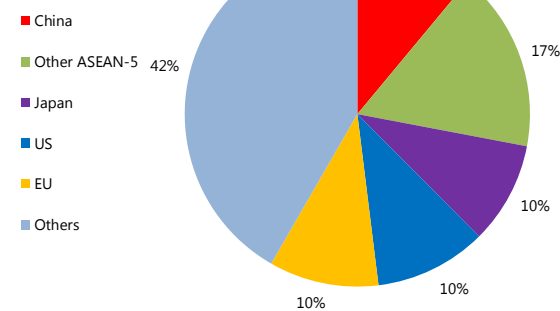
Sources: Philippines, National Statistics Office; and IMF staff calculations.

**Singapore**  
(In percent)



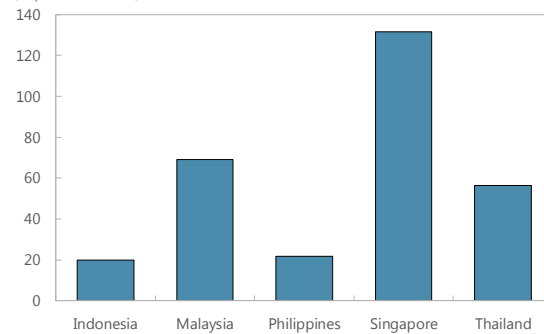
Sources: International Enterprise Singapore; and IMF staff calculations.

**Thailand**  
(In percent)



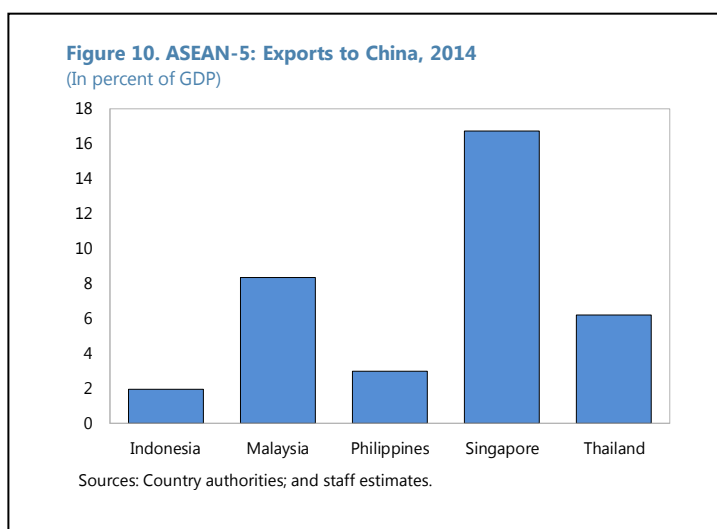
Sources: Thailand, Customs Department; and IMF staff calculations.

**Total Exports**  
(In percent of GDP)

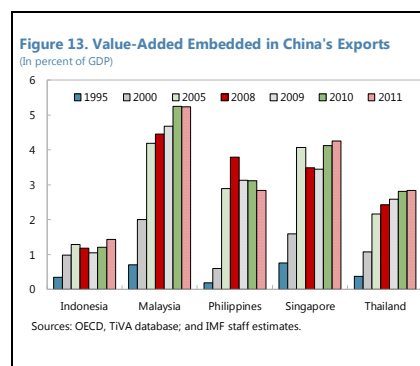
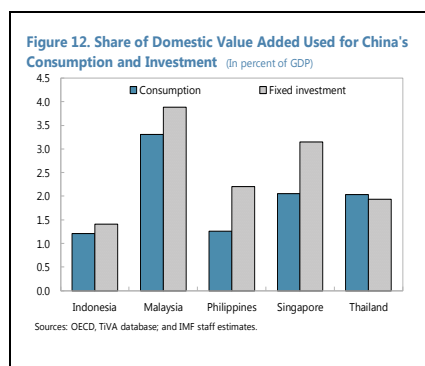
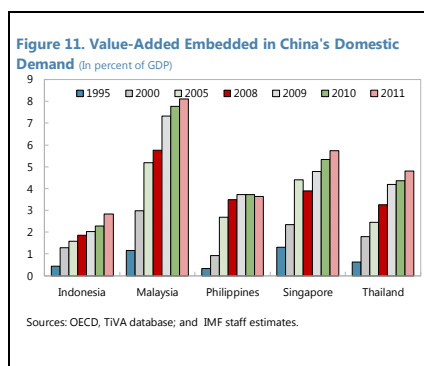


Sources: Country authorities; and IMF staff calculations.

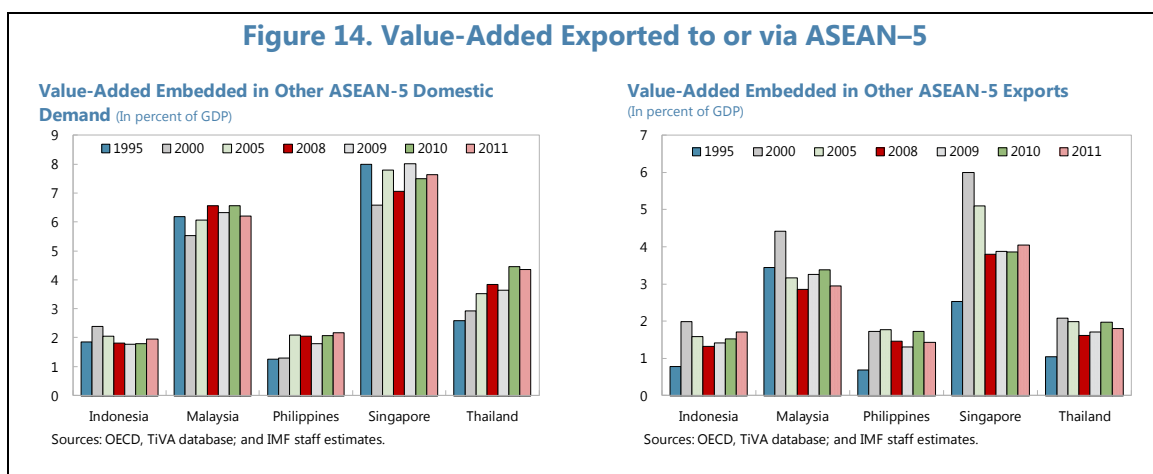




**6. Value-added trade data provides a complementary perspective.** The value added embedded in exports for China's final demand is highest in Malaysia (8 percent of GDP in 2011, last year with available value-added data), indicating its considerable exposure to changes in China's domestic demand (Figure 11). Thailand's exposure is smaller—5 percent of GDP in 2011—but has grown over time. It should also be noted that in contrast to the rest of the ASEAN-5, in Thailand value-added embedded in exports destined for China's consumption is slightly higher than for investment (Figure 12). Thus rebalancing from investment to consumption in China could be a positive development for Thailand.



**7. Importantly, it is not just China's final demand that matters for ASEAN-5.** Given China's role as a final assembly point in global value chains, a decline in China's exports (e.g., because of an increase in production cost) would have repercussions down the supply chain. Should final assembly of certain goods be moved elsewhere, the supply chains might shift as well. Here again, Malaysia would be the most vulnerable, but Thailand's exposure is non-trivial at almost 3 percent of GDP (Figure 13). Finally, both exports for China's domestic demand and inputs into China's export production are vulnerable to onshoring—a shift toward domestic production of final and particularly intermediate goods in China. As was the case for gross exports, value-added exposures to other ASEAN-5 domestic demand and exports are comparable to that to China, although they are mostly smaller and have generally not exhibited a trend increase (Figure 14).



## 8. Export value growth turned sharply negative in all of ASEAN-5 in mid- to late-2014.

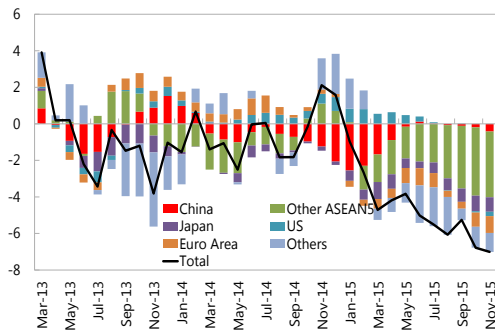
Except for Thailand—where export growth was negative for much of the preceding period as well, thus lowering the base—declines reached double digits (Figure 15). It should be noted, however, that except for the Philippines, exports to China account for a relatively small portion of the overall decline in export growth, particularly in the second half of 2015. The fall in exports to their ASEAN-5 partners has played a bigger role; it appears that the ASEAN-5 countries are pulling one another down. To some extent the decline in inter-ASEAN-5 exports might be due to an indirect effect of the China shock, including through global value chains, but it is hard to attribute all of it to China.<sup>2</sup>

<sup>2</sup> Even considering an extreme case with all ASEAN-5 exports ultimately feeding into exports to China, the percentage decline in inter-ASEAN-5 exports would equal the decline in their exports to China, unless additional shifts take place within supply chains. Second-round effects (Keynesian multiplier) are likely, but it is not clear why they would be so large and concentrated among the ASEAN-5. It does appear that the import content of domestic demand and/or exports has shrunk in the ASEAN-5. This was very pronounced in Thailand in 2015, when merchandise imports contracted 0.6 percent in real terms while domestic demand grew 2.7 percent.

**Figure 15. ASEAN-5: Export Values Growth Contribution by Destination**

**Thailand: Export Values Growth Contribution**

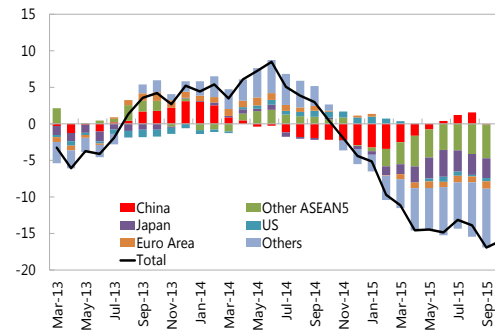
(In percent, 3-mma year-on-year growth)



Sources: IMF, *Direction of Trade Statistics*; and IMF Staff estimates.

**Malaysia: Export Values Growth Contribution**

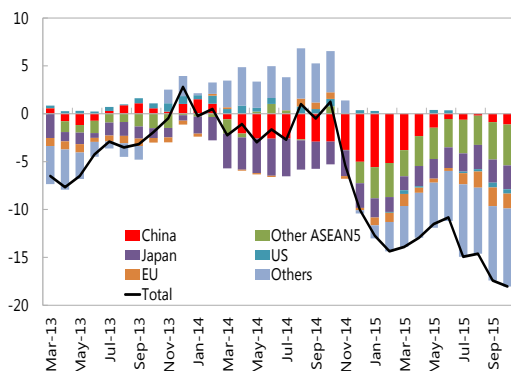
(In percent, 3-mma year-on-year growth)



Sources: IMF, *Direction of Trade Statistics*; and IMF Staff estimates.

**Indonesia: Export Values Growth Contribution**

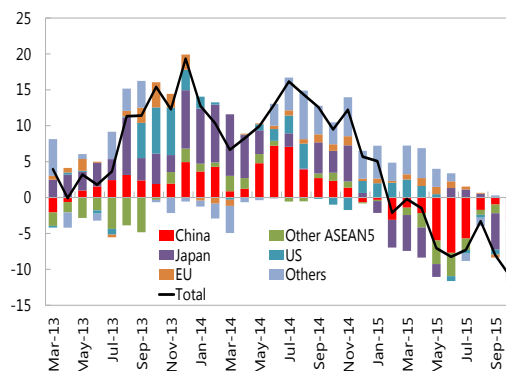
(In percent, 3-mma year-on-year growth)



Sources: IMF, *Direction of Trade Statistics*; and IMF Staff estimates.

**Philippines: Export Values Growth Contribution**

(In percent, 3-mma year-on-year growth)

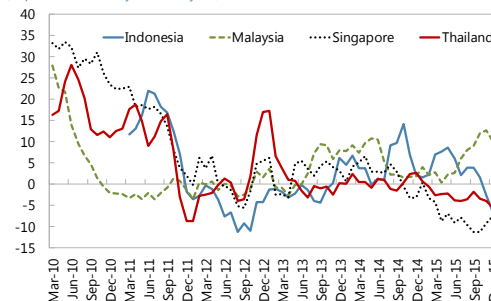


Sources: IMF, *Direction of Trade Statistics*; and IMF Staff estimates.

**9. Lower commodity prices explain only part of the export value decline.** Export volume growth has turned negative in Thailand and several other ASEAN-5 economies (Figure 16). In terms of value, it was not only commodity exports that suffered—exports of manufacturing goods have declined in all of ASEAN-5 (Figure 17).<sup>3</sup>

**Figure 16. ASEAN-5: Export Volume Growth**

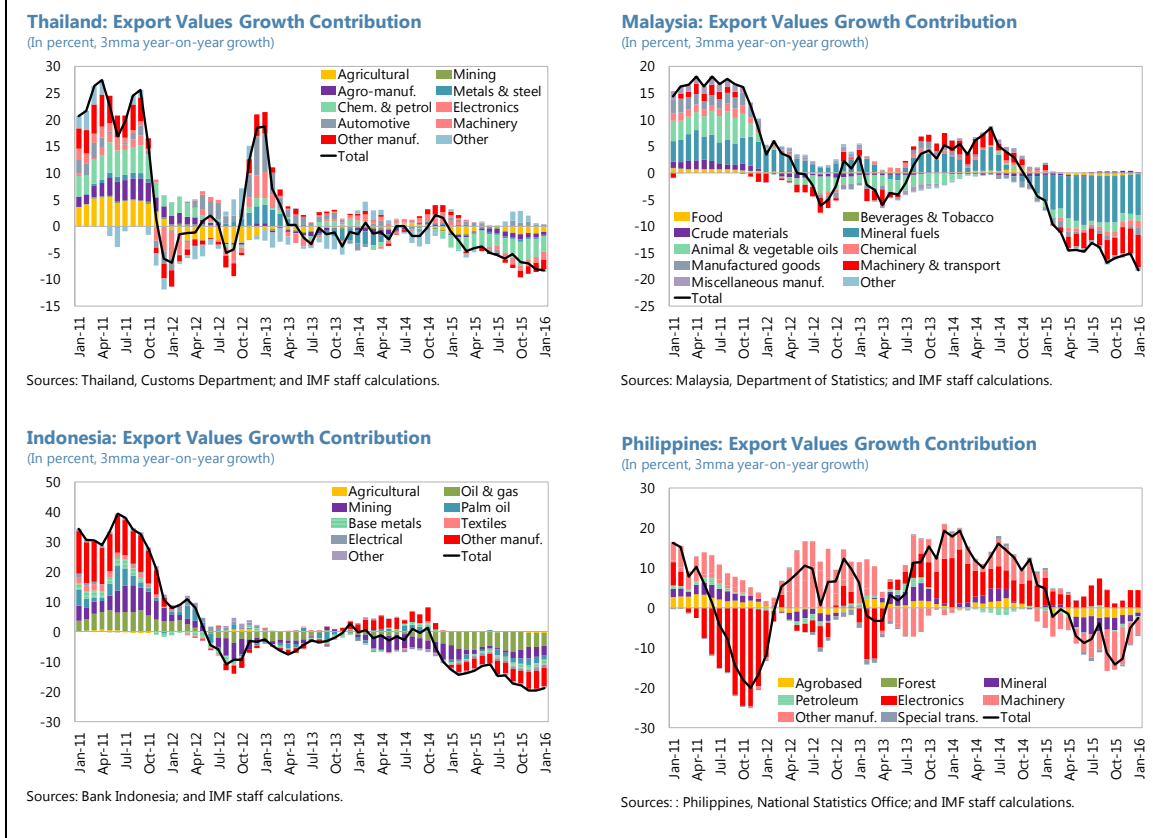
(In percent, 3MMA, year-over-year)



Sources: Country authorities and IMF staff calculations.

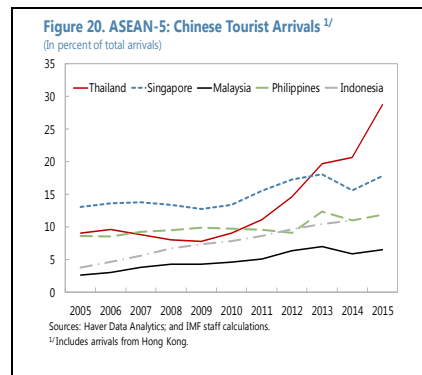
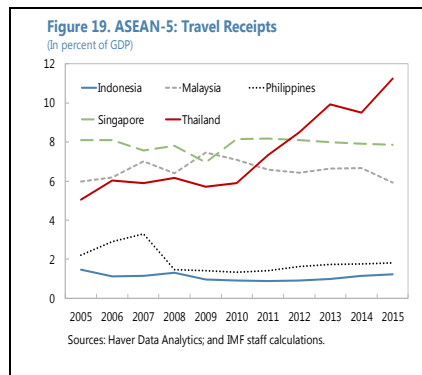
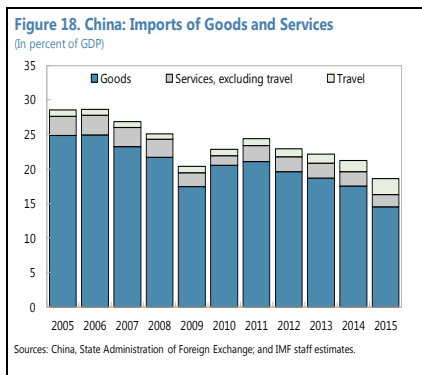
<sup>3</sup> This analysis is conducted at the aggregate level, as for most ASEAN-5 countries export deflators for a particular destination or a breakdown of exports by product and destination is not available.

Figure 17. ASEAN-4: Export Values Growth Contribution by Sector



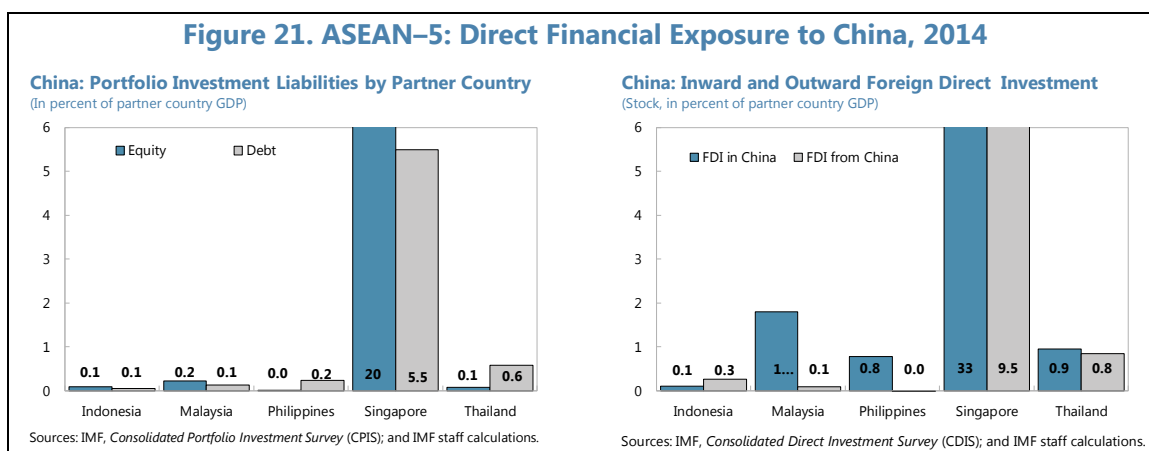
**10. Examining sectoral numbers in greater detail offers further insights.** Drilling deeper at a disaggregated level for the three countries where data is available (Malaysia, the Philippines, and Thailand), preliminary analysis indicates that exports to China underperformed relative to exports to other countries for those goods where China is already an important customer, but they fared better for non-traditional exports. The ASEAN-5 may be losing market share in its traditional exports to China, including but not limited to commodities, while gaining in other areas, offering some evidence of a differential effect of rebalancing across industries.

**11. Thailand stands to benefit from strong growth in China's tourism.** Unlike goods imports, imports of services have been growing in China (Figure 18). Among them, travel has become the dominant category. In 2015, service imports equaled a quarter of goods imports. Travel payments constituted almost 60 percent of all service debits, amounting to 2.3 percent of GDP. Thailand stands out among the ASEAN-5 as the country with the highest travel receipts (relative to the size of the economy) and the largest (and fastest-growing) share of tourists from China (Figures 19 and 20).

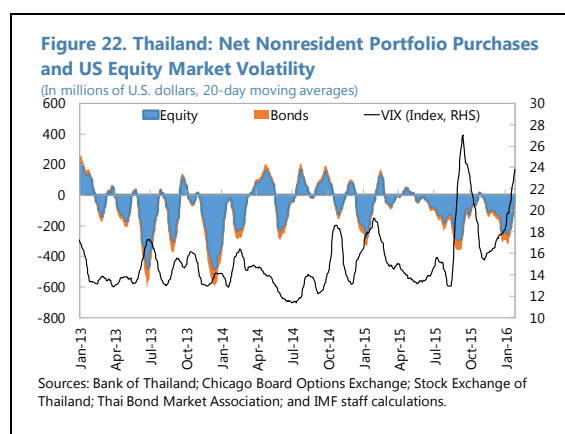


## Financial Channel

**12. Except for Singapore, residents of ASEAN-5 have limited direct exposure to a decline in China's asset prices or a pullback of Chinese investors from their countries.** Bilateral linkages between China and Singapore via portfolio and FDI are quite high (although a material fraction of money invested in China via Singapore may originate in other countries). For the other ASEAN-5 countries, the stocks of FDI and portfolio investment in China are less than 1 percent of GDP, while the stock of China's FDI exceeds 1 percent of GDP only in Malaysia (Figure 21).



**13. Thus, the main concern is the impact of developments in China on global financial conditions, which in turn affect local conditions in ASEAN-5.** Capital flows to the ASEAN-5, including Thailand, exhibit high negative correlation with the VIX (Figure 22). The spike in risk aversion prompted by the events in August triggered capital outflows, exchange rate depreciation, and stock market declines in all the ASEAN-5 countries (Figure 23). Indonesia also saw a spike in bond yields. Indonesia, and especially

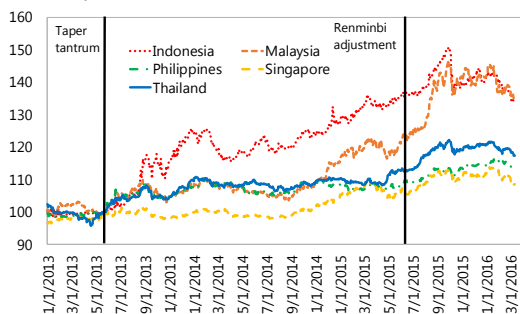


Malaysia, experienced the largest pressures on their currencies. In addition to global risk aversion, the impact on ASEAN-5 currencies may have reflected concerns about China gaining competitive advantage via renminbi depreciation, and idiosyncratic factors such as declines in commodity prices for commodity exporters and political uncertainty in Malaysia.

**Figure 23. ASEAN-5: Exchange Rates and Domestic Financial Conditions**

**Bilateral Exchange Rate versus the U.S. Dollar**

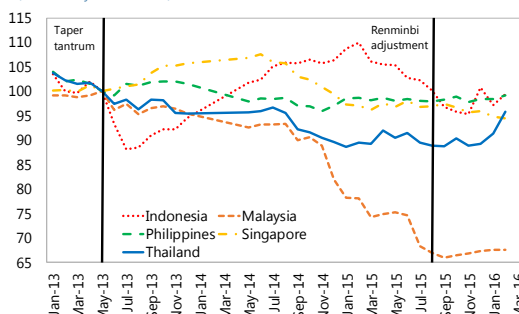
(Index, May 22 2013 = 100)



Sources: Country authorities; and IMF staff calculations.

**International Reserves in U.S. Dollars**

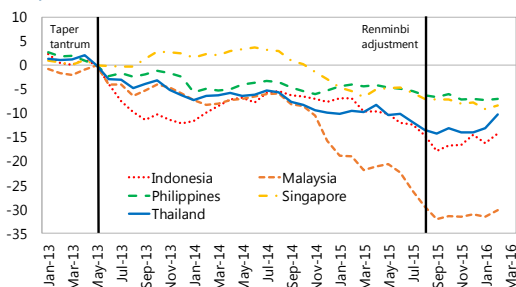
(Index, May 2013 = 100)



Sources: Country authorities; and IMF staff calculations.

**Exchange Market Pressure Index <sup>1/</sup>**

(May 2013 = 0)

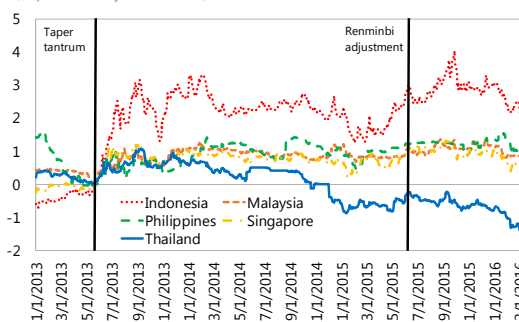


Sources: Country authorities; and IMF staff calculations.

<sup>1/</sup> Equal-weighted sum of exchange rate depreciation and international reserves movement, normalized at taper tantrum.

**10-Year Government Bond Yields**

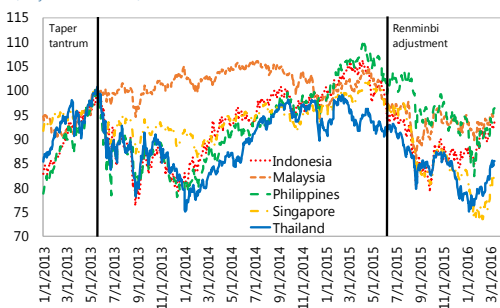
(In percent, May 22 2013 = 0)



Sources: Country authorities; and IMF staff calculations.

**Equity Price Index**

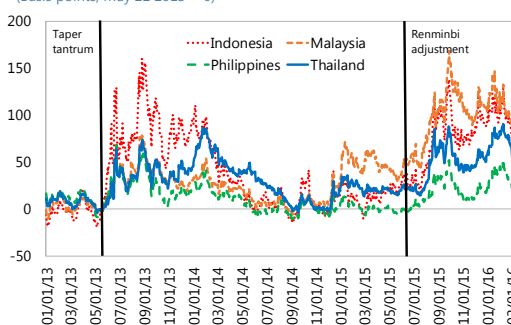
(May 22 2013 = 100)



Sources: Country authorities; and IMF staff calculations.

**Credit Default Swaps (CDS) Spreads**

(Basis points, May 22 2013 = 0)



Sources: Country authorities; and IMF staff calculations.

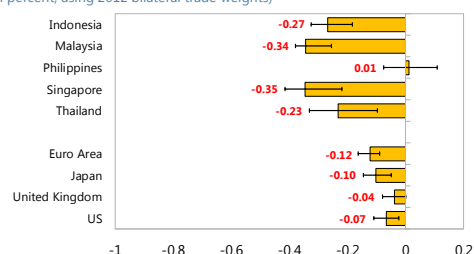
## C. Quantification of Spillovers

**14. A Global Vector Autoregression (GVAR) model is used to investigate how shocks to China's GDP and global financial conditions are transmitted to the ASEAN-5.**<sup>4</sup> The model takes into account trade and financial linkages among countries. It includes an endogenous response of the oil price, amplifying the effect of China's slowdown on fuel exporters and attenuating the impact on oil importers.<sup>5</sup>

**15. Lower growth in China would have substantial spillovers to Thailand, although smaller than to Malaysia or Singapore.** According to the estimates, a permanent one percent decline in China's real GDP would reduce the oil price by about 3 percent. After one year, it would reduce output in Indonesia, Malaysia, Singapore and Thailand by 0.2-0.3 percent, with Thailand benefitting from a terms-of-trade improvement that partially offsets the contraction in external demand (Figure 24).

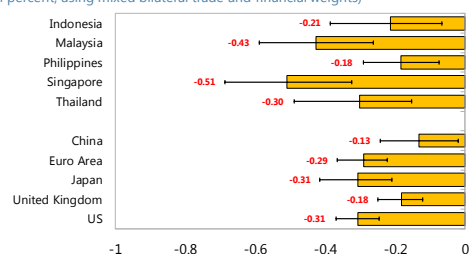
**16. A concomitant spike in global financial market volatility would aggravate the situation.** If a shock to China's GDP were combined with tighter financial conditions, the impact in most countries would be significantly larger. Figure 25 reports the average output responses to a one standard deviation increase in financial stress index over the first year,<sup>6</sup> together with the 16<sup>th</sup> and 84<sup>th</sup> percentile error bands. The results show that there is significant heterogeneity across countries in terms of their impulse responses. In ASEAN-5 countries, output falls between 0.2 and 0.5 percent below the pre-shock level, with these effects being statistically significant for all these countries, operating through trade and financial linkages. The impact on commodity exporters is exacerbated by an endogenous oil price decline (about 6.5 percent in the first quarter).

**Figure 24. Average GDP Response over the First Year Following a Negative GDP Shock in China**  
(In percent, using 2012 bilateral trade weights)



Sources: IMF staff estimates; and Cashin and others (2016).  
Note: Shows the percent change in GDP of each country associated with 1 percent permanent decline in China's GDP, together with the 16th and 84th percentile error bands.

**Figure 25. Average GDP Responses to an Increase in Global Financial Market Volatility over the First Year**  
(In percent, using mixed bilateral trade and financial weights)



Source: IMF staff estimates; and Cashin and others (2016).  
Note: Shows the percent change in GDP of each country associated with 1 standard deviation increase in the financial stress index, together with the 16th and 84th percentile error bands.

<sup>4</sup> The dynamic multi-country model is described in Cashin, Mohaddes, and Raissi (2016).

<sup>5</sup> The model was estimated over the period 1981:Q1 to 2013:Q1.

<sup>6</sup> This index measures price movements relative to trend, with a historical average value of zero (implying neutral financial market conditions). The magnitude of the shock is comparable to the 2002 episode of market volatility in advanced economies and is much smaller than the Global Financial Crisis shock.

**17. In summary, the impact of China’s transition on Thailand and other ASEAN–5 is significant, but not overwhelming.** Thailand’s elasticity to China’s GDP growth is about 0.2—somewhat lower than for most other ASEAN–5 economies. Moreover, unlike them, Thailand may not be adversely affected by rebalancing from investment to consumption in China, and it will continue gaining from rapid growth in Chinese tourism. Thailand’s financial markets have weathered relatively well bouts of financial volatility triggered by events in China in mid-2015 and early this year. On the other hand, merchandise exports declined in 2015 both in U.S. dollars and in real terms. Exports to China fell roughly as much (in percentage terms) as exports to the rest of the world. Intra-regional exports within the ASEAN–5 dropped considerably more than exports to China.

## Reference

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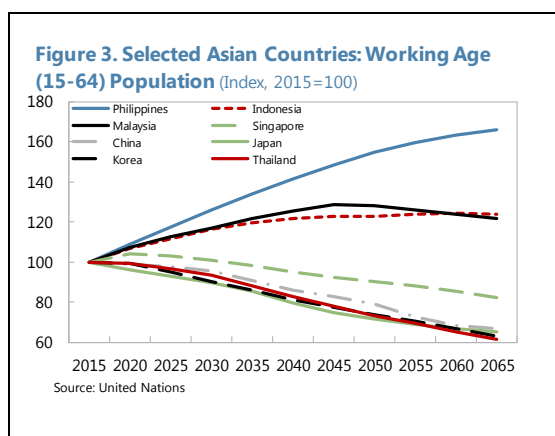
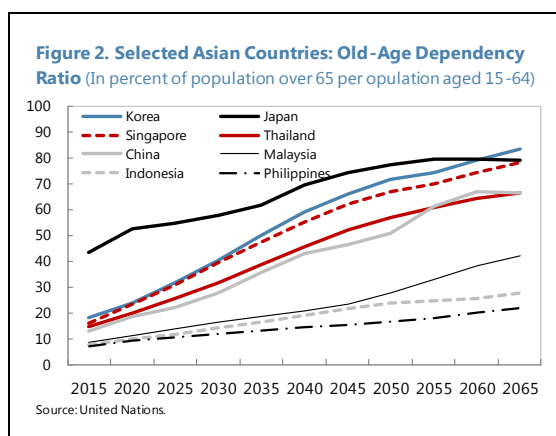
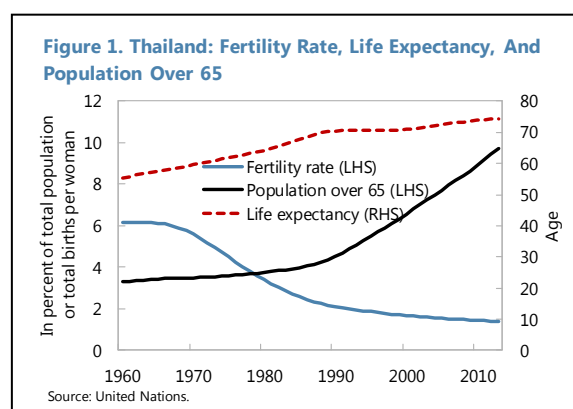


# POPULATION AGING AND ITS FISCAL IMPLICATIONS<sup>1</sup>

Thailand is rapidly aging. Already the second most aged country among ASEAN, the share of elderly population is increasing while the working age population will soon start to shrink. Thailand achieved universal health coverage in 2002, but pension benefits remain low, particularly for its still large informal sector. In this context, Thailand will face the dual challenge of increasing the coverage of the social security system and ensuring its long-term sustainability. The paper offers a menu of policy options to address these challenges.

## A. Context

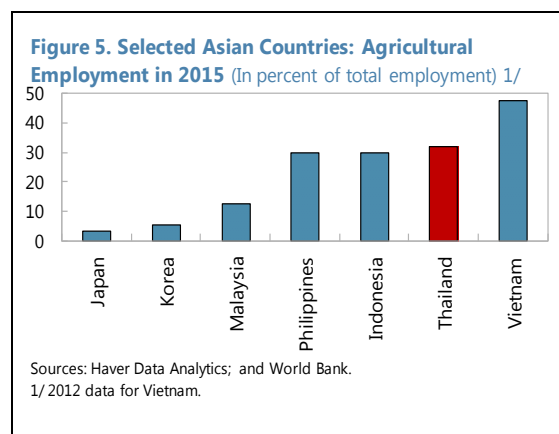
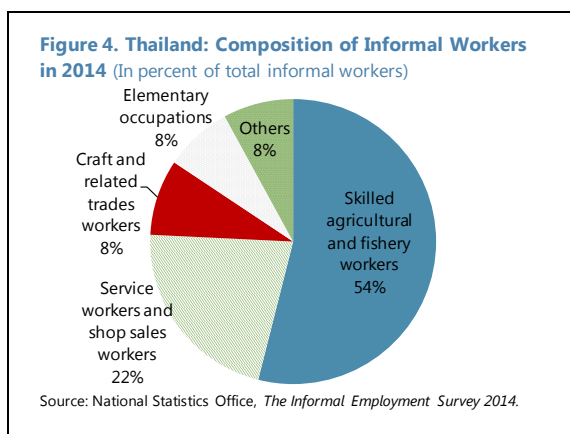
**1. Thailand is rapidly aging.** The fall in fertility, combined with rising life expectancy, has resulted in the rapid increase of the proportion of the elderly people (Figure 1). The contraction in the working age population will have implications for the social security system. In addition, it depresses Thailand's potential growth rate. Assuming employment shrinks in proportion to the working age population (ages 15-64),<sup>2</sup> the labor input will decline by 3 percent between 2015 and 2025 and by more than 1/3 by 2065 (Figures 2 and 3).



<sup>1</sup> Prepared by Yasuaki Yoneyama.

<sup>2</sup> See Box 3 of the Staff Report.

**2. The changing demographics have been accompanied with a gradual expansion of the public social security system, particularly with universal health coverage since 2002.** Going forward, Thailand faces the double challenge of further expanding the public pension system, particularly for informal workers<sup>3</sup> such as farmers that account for more than 30 percent of employment, while ensuring long-term fiscal sustainability (Figures 4 and 5).



## B. Health Sector

**3. Thailand achieved universal health care coverage in 2002.** However, the public health insurance system remains fragmented, with wide differences in benefits and contributions (Table 1).

**4. Thailand's public health expenditure is already the highest among ASEAN countries (Figures 6 and 7).** IMF (2010) showed that public health expenditure could increase by 2.4 percent of GDP between 2010 and 2050, due to the combined effects of aging and excess cost growth (excess of growth in real per capita health expenditures over real GDP growth after controlling for the effect of demographic changes) (Figure 8).

<sup>3</sup> Informal workers are defined as those whose employment is neither protected nor regulated by the social security system. The share of informal employment in total employment has been around 60 percent. Of the informal employment, the agricultural sector accounts for about 50-60 percent, followed by the services and shop sales sector that accounts for about 20 percent.

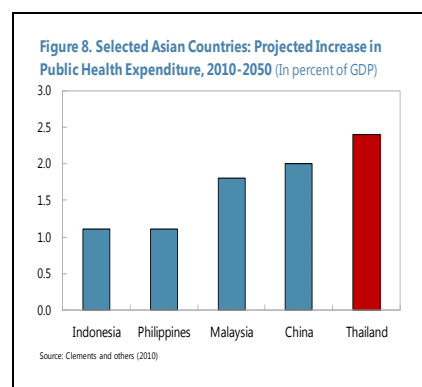
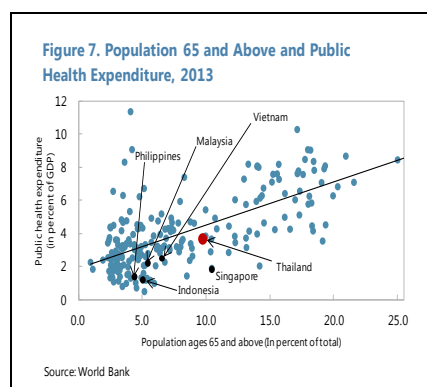
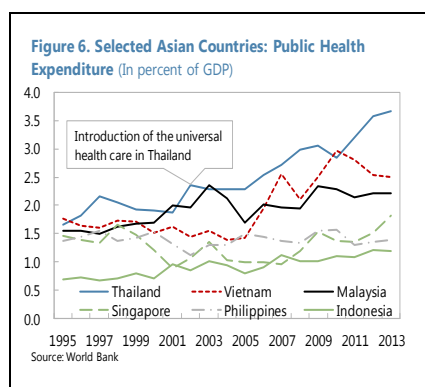
**Table 1. Thailand: Public Health Insurance System**  
(Major schemes)

Sectors	Share in the Total Population	Fiscal Cost (in percent of GDP in 2013)	Legal Basis	Funding Arrangement	Payment Mechanism
<b>Public Sector</b>					
Central government officials, pensioners and their dependents <sup>1</sup>	7.7%	0.5%	Civil Servant Medical Benefit Scheme (CSMBS) under the Royal Decree on medical benefit (2010) & FY 1975 budget	Noncontributory (tax funded)	Outpatients: Fee-for-service payment based on real tariffs. Inpatients: Reimbursement based on diagnosis-related group (DRG - fixed amount is paid to hospitals based on the patient's diagnosis, regardless of the actual cost of the treatment).
Local administration officials	0.2%	n.a.	n.a.	n.a.	n.a.
<b>Private Sector</b>					
Employees in the private sector (dependents are not covered)	16.6%	0.3%	Social Security Act (1990)	Government: 0.88% Employer: 0.88% Employee: 0.88%	Outpatients: Capitation (hospitals are paid a fixed amount per insured person, not per service.) Inpatients: DRG under a global budget ceiling cap.
<b>Others including informal workers</b>					
Others (including dependents of private sector employees)	75.5%	1.2%	Universal coverage scheme (UCS) under the National Health Security Act (2002)	Noncontributory (tax funded)	Same as the private sector scheme.
<b>Total<sup>2</sup></b>	<b>99.9%</b>	<b>1.9%</b>			

Sources: National Health Security Office, *Annual Report, FY 2013*; and IMF staff.

<sup>1</sup> Employees of State enterprises are covered by a separate scheme.

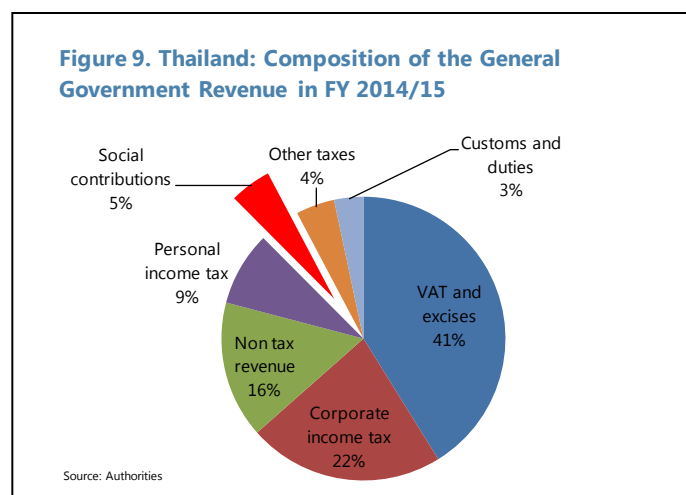
<sup>2</sup> Total public health expenditure, including other schemes and health promotion, amounted to 3.5 percent of GDP in 2013.



## 5. Thailand could consider several policy actions.

- First, a comprehensive review of the system could be undertaken, accompanied by long-term projections of each scheme. The three major schemes have differences in terms of benefits, coverage of dependents, financing and payment models. A recent report produced by a committee established under the Ministry of Public Health constitutes an important step in this direction (Box 1).
- Second, to monitor the overall fiscal cost, the authorities could consider establishing a central unit within the Ministry of Finance.

- Third, there is scope for efficiency gains. Possible measures include, but are not limited to, reducing the fee-for-service payment method under the public sector scheme and expanding co-payments by beneficiaries.<sup>4</sup> Further coordination across the schemes could enhance efficiency, such as more collective purchase of medicines and medical devices at both the national and provincial levels. The 2012 Cabinet approval of measures to contain the cost of drugs is a welcome step.<sup>5</sup>
- Fourth, the authorities could look into the long-term financial sustainability of the public health insurance systems while paying due consideration to social equity. Contributions under the private sector scheme could be reviewed, as the income ceiling for assessing contributions has been kept intact (B 15,000/month) since 1991, while the minimum wage has increased three-fold from B 100/day to B 300/day.
- Furthermore, alternative revenue sources could be considered to finance the increasing spending pressure, including an increase in VAT which is less distortionary and more growth friendly than income taxes or social contributions, while compensating the most vulnerable households (Figure 9).



<sup>4</sup> The fee-for-service payment method used under the public sector scheme tends to give rise to higher cost(s), as it is prone to overutilization (treatments with inappropriately excessive volume).

<sup>5</sup> World Health Organization (2015). These measures include the creation of a national mechanism to negotiate prices of high-cost medicines, stricter control of nonessential and brand name drugs, and the development of a central financial audit system, among others.

**Box 1. Thailand: Findings of the Authorities' Recent Health Study 1/**

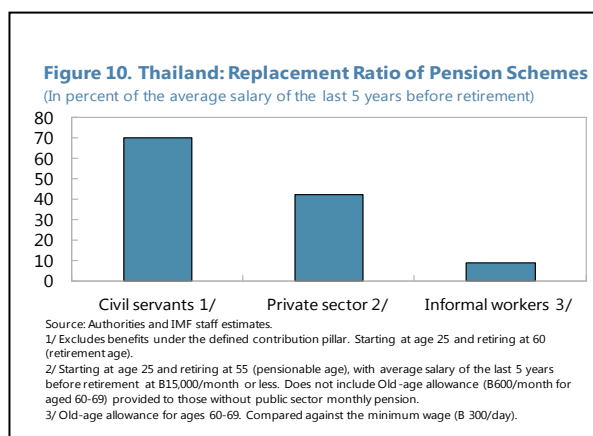
To ensure long-term sustainability of the health system, the Government of Thailand assigned the Ministry of Public Health to conduct a study to ensure the long-term sustainability of the universal health coverage. The study by a group of experts, including policy makers and practitioners from various government offices (Budget, Finance, NESDB, Labor and Public Health), think-tanks and NGOs calls for pursuing four goals of SAFE (Sustainability, Adequacy, Fairness and Efficiency).

Thailand: Summary of the Report by the Committee on Resource Mobilization for Sustainable Universal Health Coverage		
Goals	Key principles	Indicators
Sustainability	Health expenditures by stakeholders (including government, employers, households) are affordable and sustainable in the long run.	1. Total health expenditure does not exceed 5 percent of GDP by 2022. 2. Government health expenditure does not exceed 20 percent of total expenditures by 2022.
Adequacy	Adequate resources are available to ensure universal access to essential health services, including essential medicines and health technology, without catastrophic health expenditure and medical health impoverishment to the household.	3. Total health expenditure is not less than the current level (4.6 percent of GDP) by 2022. 4. Share of health expenditure in the total government expenditure is not less than the current level (17 percent) by 2022. 5. Non-government health expenditure and out-of-pocket payments do not exceed the current level (20 and 11.3 percent respectively of the total health expenditures) by 2022. 6. Incidence of catastrophic health expenditure does not exceed the current level (2.3 percent of the households) by 2022. 7. Health impoverishment does not exceed the current level (0.47 percent of the total households) by 2022.
Fairness	Social solidarity between "healthy" and "unhealthy" and between "rich" and "poor" is ensured in two ways: - Fairness of financial contribution among beneficiaries within and across the schemes. - Fairness of payment across the schemes.	8. Wage cap for assessing contribution should be adjusted annually, in line with the minimum wage. Since the minimum wage increased from B100 to B300/day between 1991 and 2013, wage cap should be increased from B 15,000 to B 50,400/month, with two options: (a) Maintain the contribution rate (1.5 percent) and increase benefits for the beneficiaries. (b) Reduce the contribution rate. 9. Financing (1) Harmonization of financing across all schemes, with two options: a) contributory system for all schemes or b) tax funded system for all schemes (VAT, personal income tax, and/or other sources). (2) More use of copayment for extra non-medical services (e.g., use of private room) while safeguarding the most vulnerable. 10. Payments to health care providers (1) Age-adjusted per capita expenditure by each scheme should be below ± 10 percent of the national average. (2) All schemes apply the same payment method with single rate for the same service and the same level of care.
Efficiency	Ensure value for money by achieving technical and locative efficiency while paying due attention to timeliness and quality of health services.	11. Efficiency improvement (1) Every scheme applies close ended budget. (2) Every scheme applies an effective and efficient reimbursement and price monitoring and control system. (3) Exercise appropriate collective purchasing power across all schemes. (4) Government interventions to control price, as appropriate.

<sup>1</sup> The Committee on Resource Mobilization for Sustainable Universal Health Coverage (2016).

**C. Pension System**

**6. The public pension system in Thailand is highly fragmented (Table 2).** Replacement ratios (the proportion of a worker's pension against the pre-retirement income) vary significantly (Figure 10). Informal workers are covered by the Old-age allowance, which also provides pension to private sector employees who do not receive a public sector pension (i.e., central government/local authorities' pension, and pension from state enterprises). Benefits of the



Old-age allowance remain modest (below the nationally defined poverty line).<sup>6</sup> To provide complementary income for the informal worker retirees, a new voluntary scheme (National Savings Fund) was introduced in 2015. Thai pension schemes are not equipped with an automatic indexation system, a common feature for public pension schemes in advanced economies. Inflationary pressures, if any, will result in the loss of real value of the pension benefits unless discretionary measures are taken by the authorities.

Sectors	Share in Total Employment	Defined Benefit		Defined Contribution		Pensionable Age
		Legal Basis	Funding Arrangement	Legal Basis	Funding Arrangement	
<b>Public Sector Employees<sup>2</sup></b>	6%					60 (retirement age)
Central government officials		Pension for Civil Servants Act (1951)	Noncontributory (tax funded)	Government Pension Fund Act (1997)	Government: 3/5 percent Employees: 3-15 percent	
Central government permanent employees		Regulations on employees gratuity (1976)		n.a. <sup>3</sup>		
Local authorities		Pension for local authorities officials		n.a.		
<b>Private Sector Employees<sup>4</sup></b>	29%					
Private companies		Social Security Act (1990)	Employer: 3 percent <sup>5</sup> Employees: 3 percent <sup>5</sup>	n.a. <sup>6</sup>		55
Private school teachers			n.a.	Private School Act (1975) New Private School Act (2008)	Government: 6 percent Teachers: 6 percent	---
<b>Informal workers</b>	64%	Order of national elderly committee on old-age allowance payment (2009) <sup>4</sup>	Noncontributory (tax funded)	n.a.		60
<b>Total</b>	100%					

Sources: Thai authorities; and IMF staff.

<sup>1</sup> Includes lump-sum payment provided at the end of the employment.

<sup>2</sup> State enterprises are covered by voluntary provident funds (contributions by employers and employees, with each contributing between 3-15 percent).

<sup>3</sup> A voluntary provident fund is available (contributions by government and employees, with each contributing 3 percent).

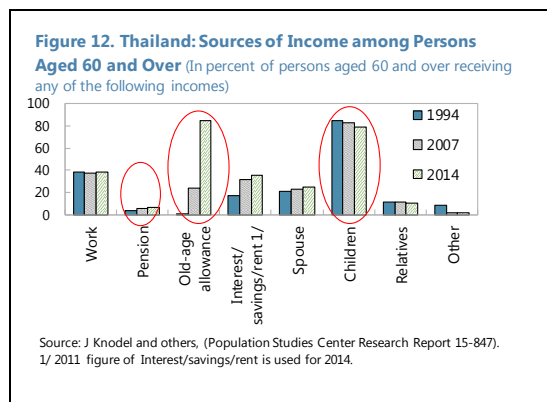
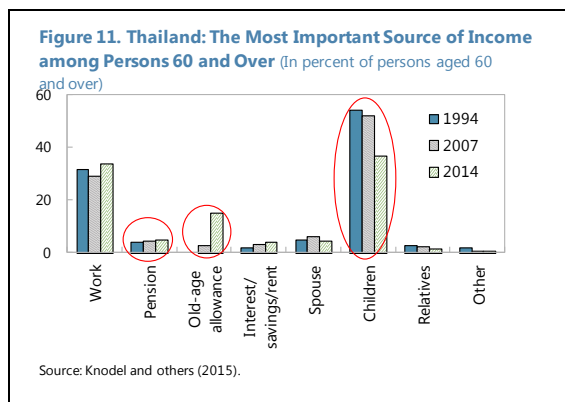
<sup>4</sup> Private sector employees also receive the Old-age allowance (beneficiaries of the Old-age allowance are those without public sector monthly pension, i.e., central government pension, local authorities pension and pension from state enterprise).

<sup>5</sup> These contributions cover both old-age pension benefits and child allowance. Government contribution (1 percent) goes only to child allowance.

<sup>6</sup> More than 15,000 companies offer voluntary provident funds (contributions by employers and employees, with each contributing between 2-15 percent).

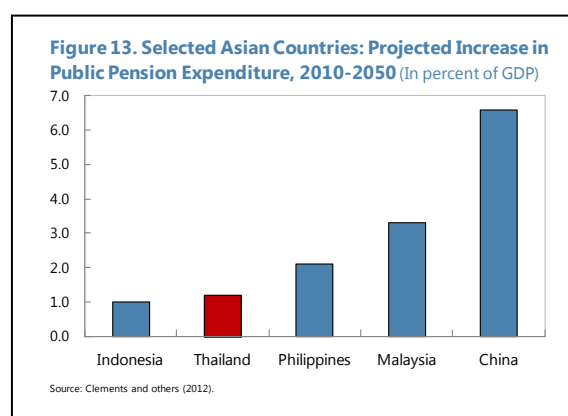
**7. Support from family remains the mainstay of the elderly, though its role seems to be declining over time (Figures 11 and 12).** Less than 10 percent of the elderly people are receiving a pension (excluding the Old-age allowance without public sector monthly pension); this is because the private sector pension scheme, introduced in 1990, has started to pay out pensions only from 2014 due to the minimum contribution period requirement.

<sup>6</sup> The Old-age allowance was expanded in 2009 to all elderly without public sector monthly pensions from a means-tested scheme. Under the old scheme, only 25 percent of the elderly were beneficiaries (people at least 60 years of age with inadequate income to meet expenses, lacking a supporter or who is abandoned or unable to work).



**8. Thailand's public pension expenditures are projected to increase by 1.2 percent of GDP between 2010 and 2050 (Figure 13).** However, data constraints hinder making appropriate pension projections, including actuarial immaturity of the private sector scheme and lack of information regarding the newly established National Savings Fund for informal workers.<sup>7</sup>

**9. Several steps can be considered to reform the pension system.**



- First, a comprehensive review of the fragmented pension schemes should be undertaken, accompanied by long-term projections of each scheme.
- Second, to monitor the overall fiscal burden arising from the highly fragmented pension schemes, the authorities could consider establishing a central unit within the Ministry of Finance. Coordination across the various schemes should enhance operational efficiency.
- Third, once a comprehensive view has been done, the authorities could look into the long-term financial sustainability of the public pensions while paying due consideration to social equity.
- Fourth, parametric reforms should be carefully calibrated. The pensionable/retirement age (currently 55 for the private sector scheme and 60 for the public sector) could be extended while reviewing the pension benefit levels. Pension benefits could be indexed automatically to

<sup>7</sup> According to Social Security Office (2008), the private sector scheme, which had a reserve equivalent to about 5 percent of GDP in 2007 is likely to face negative cash flows by the 2040s; the reserve would deplete in about 50 years without an extension of the pensionable age and/or an increase in the contribution rate. The Report was prepared soon after the revision of the pension formula that resulted in an increase of the replacement ratio by 5 percent without adjusting other parameters such as contribution rates and pensionable age.

inflation. At the same time, the authorities could consider introducing an automatic adjustment mechanism that links pension benefits and/or contributions to demographic variables (Box 2).

- Furthermore, alternative revenue sources could be considered to finance the increasing spending pressure, including an increase in VAT which is less distortionary and more growth friendly than income taxes or social contributions, while compensating vulnerable groups.

### Box 2. Automatic Adjustment Mechanisms in Pension Systems

Declining fertility rates and increasing life expectancy are posing challenges to public pension systems around the world, as they imply fewer contributors with more beneficiaries. At the same time, reforms to pension systems face increasing difficulties as they envisage unpopular measures such as cuts in pension benefits, increases in contributions and the extension of the pensionable age. Against this backdrop, a number of countries are adopting an automatic link between demographic and economic developments and the public pension systems.

Four types of instruments are available for designing an automatic adjustment mechanism in pension systems: (1) adjustment in the benefit level, such as (a) changes to benefit levels, (b) adjustments through indexation of benefits to existing retirees, and (c) valorization of past earnings for current workers; (2) adjustments in pension eligibility age; (3) adjustments in contribution rates; and (4) drawing on a reserve fund, provided one exists.<sup>1</sup>

Pension reforms in recent years have resulted in declining pension benefits, giving rise to concerns about a possible resurgence of old-age poverty. This is particularly so in countries where contribution rates are fixed while pension benefits are adjusted automatically in line with demographic variables and some measure of the pension system's financial health. To address such a concern, some countries have adopted a tax-funded minimum pension while others have introduced an escape clause in the automatic adjustment system. For example, Sweden is providing a tax-funded minimum pension (Guaranteed Pension about US\$ 11,200/year maximum for a single pensioner) for those that have low pension entitlements or no income. Japan's automatic (downward) adjustment to the pension benefits will be suspended once the projected replacement ratio over the next 5 years falls below 50 percent—an event that triggers a comprehensive review of the pension system, including of benefits and contributions (Article 2, Supplementary provisions to the 2004 public pension reform law).

Automatic adjustment mechanisms are not a panacea in itself for ensuring the long-term sustainability of pension systems. They are often complex and difficult to understand. A clear information strategy will be indispensable prior to their introduction. Adequacy of the pension benefit level would also play an important role in securing a lasting acceptance of the system by the general public.

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<sup>1</sup> OECD (2012).



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# MACRO-FINANCIAL STABILITY ASSESSMENT<sup>1</sup>

Thailand's financial sector has expanded rapidly over the last decade and important changes in its structure have taken place. While corporate debt has remained broadly stable, household debt has increased to one of the highest levels among emerging markets, raising concerns of household debt overhang. Against this backdrop, this chapter presents policy options to safeguard financial stability.

## A. The Changing Financial Landscape

### 1. Thailand's financial sector has expanded rapidly over the last decade and is now one of the largest among middle-income countries.

Total financial assets, excluding those of the Bank of Thailand (BOT), increased from 202 percent of GDP in 2007 to 283 percent of GDP in the third quarter of 2015 (Table 1). Notwithstanding the development of capital markets and nonbank financial institutions, depository corporations continue to account for the bulk of financial intermediation, with nearly 70 percent of total financial assets (excluding the BOT).

**Table 1. Total Assets of the Financial Sector**  
(Percent of GDP)

	Total assets		Change:
	2007	2015:Q3	
<b>Financial sector</b>	<b>242</b>	<b>331</b>	<b>89</b>
Bank of Thailand	40	48	8
Other Depository Corporations (ODCs)	139	193	54
of which:			
Commercial Banks	103	132	29
Depository Specialized Financial Institutions	25	42	17
Other 1/	11	19	8
Other Financial Corporations (OFCs) 2/	63	90	27

Sources: Thai authorities; CEIC Data; and IMF staff calculations.

1/ Includes saving cooperatives, credit unions, finance companies and money market mutual funds.

2/ Includes mutual funds, insurance companies, provident funds, asset management companies, securities companies, government pension fund, credit card and personal loan companies, leasing companies and pawnshops.

### 2. There have been important changes in the structure of the depository corporations sector (ODCs).

Depository Specialized Financial Institutions (DSFIs)—policy banks that implement government objectives—have grown very rapidly and now represent about 20 percent of total assets of the ODCs.<sup>2</sup> Similarly, other depository institutions, such as credit cooperatives and credit unions, have also expanded rapidly but from a low base.

### 3. Another salient feature has been the growing presence of nonbank financial corporations (OFCs).<sup>3</sup>

A very low interest rate environment stimulated innovation of financial

<sup>1</sup> Prepared by Kenichiro Kashiwase.

<sup>2</sup> There are eight SFIs in Thailand. Six are deposit taking corporations, including Bank for Agriculture and Agri-Cooperatives (BAAC), Government Savings Bank (GSB), Government Housing Bank (GHB), Islamic Bank of Thailand, EXIM Bank of Thailand, and SME Development Bank. GSB accounts for approximate 9 percent of the total assets of ODCs, while BAAC, the second largest DSFI, holds around 8 percent of the total assets of ODCs. The remaining 2 non-deposit taking SFIs are Thai Credit Guarantee Corporation (TCG) and Secondary Mortgage Corporation (SMC).

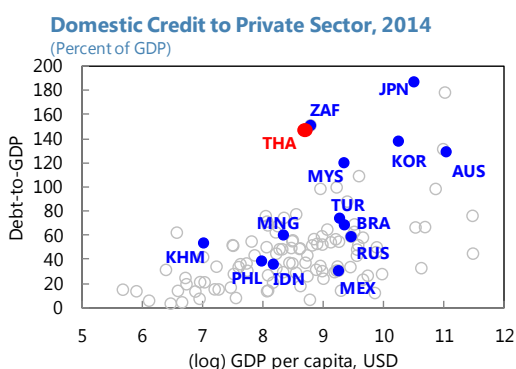
<sup>3</sup> OFCs include mutual funds, insurance companies, provident funds, asset management companies, securities companies, the government pension fund, credit card and personal loan companies, among others.

products and services. Demand for mutual funds, insurance products, and consumer loan products provided a backbone for growth in the financial industry. Interbank money markets have also supported financial deepening. OFC assets increased from 63 percent of GDP in 2007 to 90 percent in the third quarter of 2015, accounting now for roughly 30 percent of the total financial sector.<sup>4</sup>

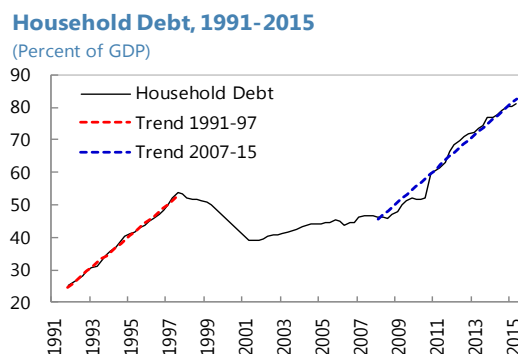
**4. Credit to the private sector has increased along with the fast expansion of the financial sector balance sheet.** Since 2007, domestic credit to the private sector increased by nearly 45 percent of GDP to 151 percent of GDP in 2015. Over 80 percent of this increase was driven by credit to the household sector, which climbed to 82 percent of GDP at end-2015. Both ODCs and OFCs contributed to the growth of household debt. Corporate debt has been broadly stable, reaching 80 percent of GDP by the third quarter of 2015 (Figure 1).

**Figure 1. Thailand: Total Household and Corporate Debt, 2007–15**

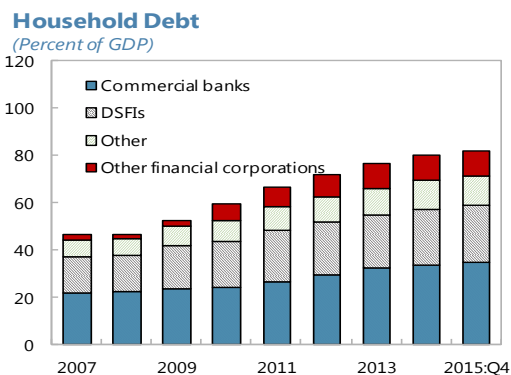
*The credit-to-GDP ratio in Thailand is among the highest in emerging markets. In particular, household debt rose markedly in recent years, faster than prior to the Asian Financial Crisis. Corporate debt remained broadly stable.*



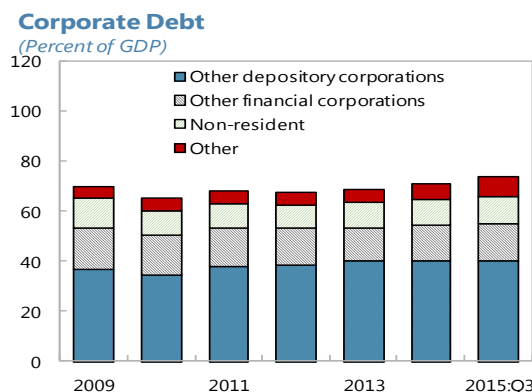
Sources: World Bank; and IMF staff calculations.



Sources: Authorities' data; BIS; and IMF staff calculations.



Sources: Bank of Thailand, Datastream; and IMF staff calculations.



Sources: Bank of Thailand, Datastream; and IMF staff calculations.

<sup>4</sup> The coverage of the data was expanded in 2010 to include additional nonbanks, contributing about 7 percentage points to the overall increase in total assets from 2010 to the most recent period.

## B. Risk Assessment of Financial Institutions

5. The Financial Soundness Indicator Map of depository corporations suggests a medium rating on financial vulnerability (Table 2). The medium rating is driven by the credit cycle. From this perspective, the recent moderation in credit growth is welcome. While the credit-to-GDP ratio has continued to increase, credit growth itself started slowing down in 2013 and continued to moderate to 4.9 percent y/y in December 2015 (Figure 2). Although credit demand from SMEs and households picked up at end-2015, depository corporations tightened credit standards given concerns over credit quality, except for large firms.

**Table 2. Financial Soundness Indicator Map of Depository Corporations**

	2010:Q4	2011:Q4	2012:Q4	2013:Q4	2014:Q4	Latest
<b>Overall Rating of Other Depository Corporations 1/</b>	L	M	M	M	M	M
<b>Credit cycle</b>	L	H	M	H	M	M
Change in credit / GDP ratio (pp, annual)	-0.2	10.9	3.1	7.7	3.6	4.4
Growth of credit / GDP (% , annual)	-0.2	11.4	2.9	7.0	3.1	3.7
Credit-to-GDP gap (st. dev)	0.4	2.3	-1.3	-0.3	-0.8	-1.1
<b>Balance Sheet Soundness</b>	L	L	L	L	L	L
<b>Balance Sheet Structural Risk</b>	L	L	L	L	L	L
<i>Deposit-to-loan ratio 2/</i>	100.0	92.8	103.7	102.1	104.0	102.5
<i>FX liabilities % (of total liabilities)</i>	1.1	1.7	1.3	1.6	1.5	1.8
<i>FX loans % (of total loans)</i>	3.4	4.6	4.6	5.6	5.5	5.8
<b>Balance Sheet Buffers</b>	L	L	L	L	L	L
<b>Leverage</b>	L	L	L	L	L	L
Leverage ratio (%)	11.5	10.6	11.4	11.1	11.7	12.3
<b>Profitability</b>	L	L	L	L	L	L
ROA	1.6	1.6	1.6	1.8	1.7	1.4
ROE	14.1	14.4	14.9	15.9	14.7	11.3
<b>Asset quality</b>	L	L	L	L	L	M
NPL ratio	3.9	2.9	2.4	2.3	2.3	2.7
NPL ratio change (% , annual)	-25.5	-24.6	-17.1	-5.2	0.1	16.4

1/ The latest data is based on 2015:Q4 data, except the credit cycle ratios that are based on 2015:Q3 data.  
Due to data availability, credit cycle analysis is based on Other Depository Corporations (ODCs), while balance sheet soundness analysis is based on commercial banks that hold about 70 percent of assets in ODCs.

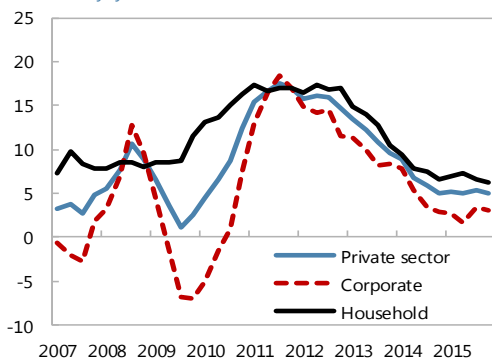
2/ Deposits and loans exclude interbank data and are based on information from commercial banks.

**Figure 2. Thailand: Credit Growth to the Private Sector by Depository Corporations, 2007–15**

Credit growth by depository corporations moderated in 2015. Credit to nonfinancial corporations generally declined faster than credit to households, the latter supported by loans from SFIs.

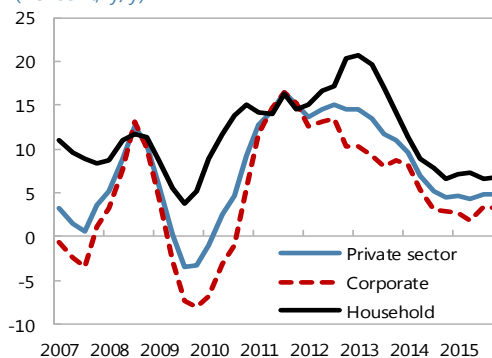
**Depository Corporations**

(Percent; y/y)



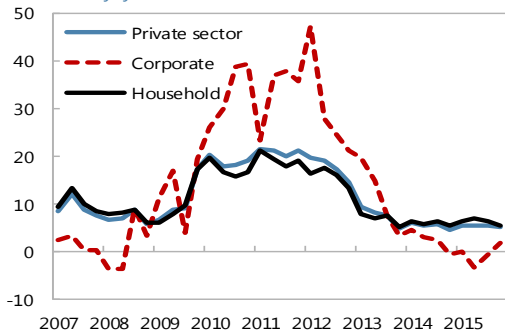
**Commercial Banks**

(Percent; y/y)



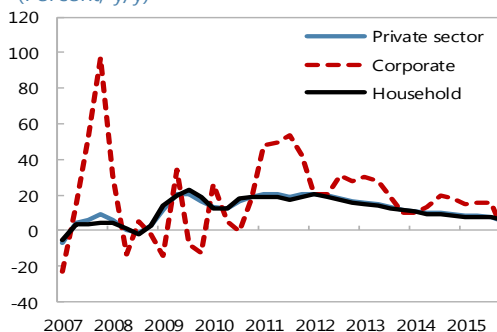
**Depository Specialized Financial Inst. (DSFI)**

(Percent; y/y)



**Other 1/**

(Percent; y/y)



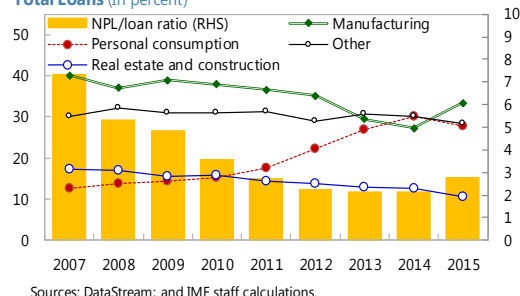
Sources: Bank of Thailand; Datastream; and IMF staff calculations.

<sup>1</sup>Includes Cooperatives and other depository financial corporations.

**6. Risks are mitigated by overall sound balance sheets, though there are pockets of vulnerabilities:**

- **Commercial banks are well-capitalized and profitable, with ample liquidity.** NPLs have recently ticked up from a low base due to weak economic conditions, but appear manageable (Figure 3). Growth in the manufacturing sector has been stagnant, with the slowdown in trade and FDI inflows in recent periods, and NPLs in the manufacturing sector had a sudden uptick

**Figure 3. Thailand: Nonperforming Loans (NPLs) and Ratio to Total Loans (In percent)**



Sources: DataStream; and IMF staff calculations.

during the third quarter of 2015. In turn, personal consumption loans have shown a trend increase in NPLs, especially since 2011.

- **SFIs have been less profitable than commercial banks.** Recent BOT inspections of SFIs have revealed that their balance sheets are relatively sound, except for two small SFIs that need to be restructured. Reflecting the public nature of their mandate, SFI profitability measured by return-on-asset (ROA) is 0.8 percent, lower than that of commercial banks. In addition, NPLs are nearly twice those of commercial banks on average, given their higher exposure to highly indebted low-income households and SMEs affected by sluggish economic activity.
- **The financial soundness of cooperatives' balance sheets needs to be fully assessed.** The cooperative sector appears to be in relatively good standing with low NPLs and high profitability. However, these indicators follow a different classification than those of SFIs and commercial banks, and should be carefully analyzed. While the level of capital appears adequate, there is scope to improve prudential regulations, as well as risk monitoring. The Savings and Credit Cooperative, the largest cooperative holding 87 percent of total cooperatives' assets, has reported NPLs of only 0.2 percent at end-2014. Its ROA is higher than the average ROA in commercial banks. Due to the drought, however, cooperatives have been extending the tenor of loans for farmers facing difficulties to repay on time.

### C. Driving Factors and Dynamics of Household Debt

**7. Several factors explain the rise in household debt.** Commercial banks and SFIs have been expanding mortgage loans to households. With favorable price developments in the condo market, the value of home equity has been rising. A number of commercial banks have also been offering home equity loans to help pay off higher interest debts, finance home renovation, and start a business. In addition, consumer loans have become widely accessible over the past years. Following the 2011 floods, the authorities introduced a tax rebate program for first-time buyers of automobiles to support the country's auto industry.<sup>5</sup> Cooperatives continued to expand consumer loans, following the 2008 global financial crisis and the 2011 floods. Banks and nonbanks have been issuing credit cards, with increased penetration across households of different income levels.

**8. Mortgage loans have contributed the most to the growth of household debt.** Mortgage loans account for more than a quarter of total household debt (or 22.5 percent of GDP in 2015) and have been growing by 9½ percent on average during 2007–2015. Loans for business purposes account for 17.7 percent of total household debt. The remaining household debt is mostly consumer loans, including car, credit card, and personal loans.

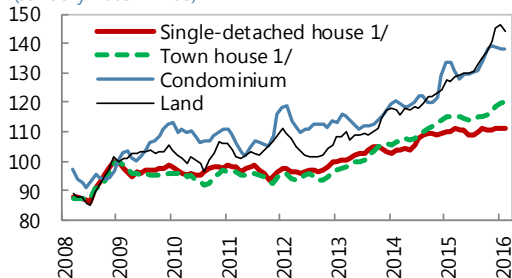
<sup>5</sup> The program ran between October 2011 and December 2012. The scheme was designed to promote auto ownership among low- and middle-income households. The government would start providing rebates equivalent to 10 percent of the maximum price (i.e. B 1 million) for those who held the car for the minimum of five years.

**9. Prices in some segments of the housing market have appreciated rapidly, supporting household net worth and credit demand.** Home ownership has remained high during the most recent credit boom, and prices for single-detached houses have increased by 30 percent since end-2008 (Figure 4). Following the 2011 flood, demand for condominiums soared due to the extension of the mass rapid transportation network, and condominium prices have increased by nearly 70 percent since end-2008. The price appreciation has been partly driven by easily-accessible terms for mortgage loans, with low down payments regardless of the number of condos in the client's possession.<sup>6</sup> While much of the mortgage loans are extended to first-time home buyers, an estimated 10 percent of real estate purchases is for investment purposes. Land prices in Bangkok and vicinities have also increased by 66 percent since end-2008. These favorable developments have strengthened the value of collaterals, facilitating access to consumer loans backed by home equity.

**Figure 4. Thailand: Housing Markets**

**Thailand: Real House Price Indices**

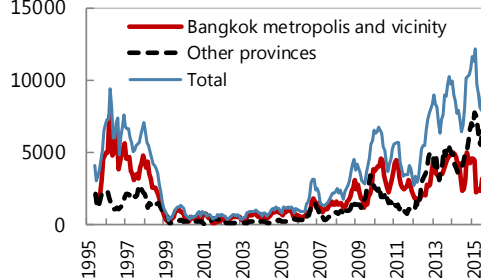
(January 2009 = 100)



Source: Datastream.  
1/ Including land.

**Thailand: Condo Registration**

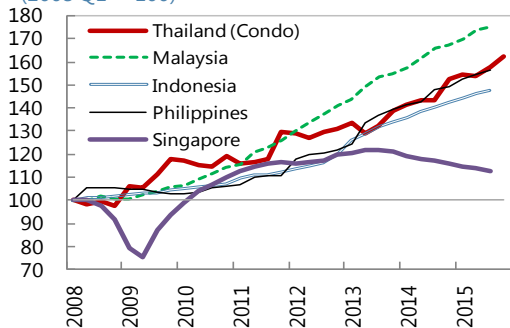
(Number)



Source: Datastream.

**Nominal House Price Indices**

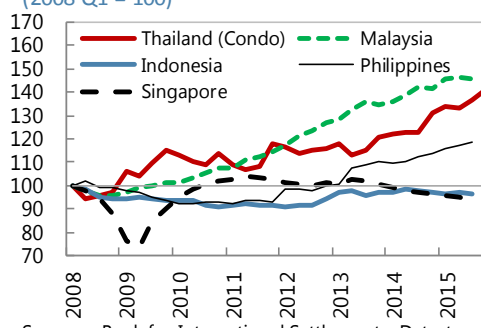
(2008 Q1 = 100)



Sources: Bank for International Settlements; Datastream.

**Inflation-adjusted House Price Indices**

(2008 Q1 = 100)

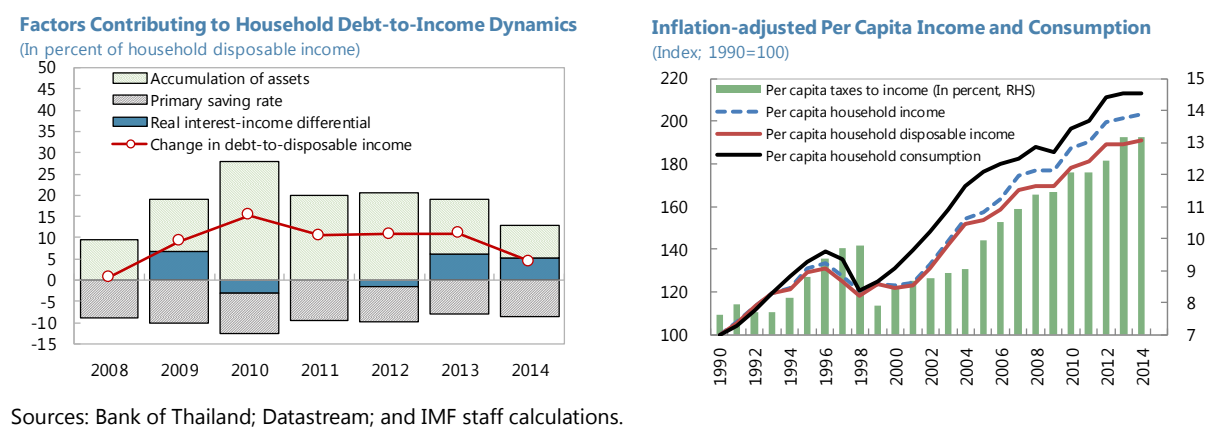


Sources: Bank for International Settlements; Datastream.

<sup>6</sup> Mortgage loans often require a minimum 10 percent for down payments in Thailand, and households are able to get additional loans with the purchase of mortgage and life insurance.

**10. Macroeconomic conditions have also contributed to the growth of household debt relative to disposable income (Figure 5).** When household debt dynamics are decomposed based on the household budget constraint (IMF, 2015),<sup>7</sup> the analysis shows that the accumulation of financial and residential assets ( $aa_t$ ) has played a significant role. In addition, the household saving rate ( $s_t$ ) declined to 8½ percent in the most recent period, from 15 percent in the 1990s. More interestingly, the real interest-to-income differential ( $i_t - \pi_t - g_t$ ) has widened, driven by higher real interest rates and lower growth in disposable income. Further declines in prices during 2015 may have further increased the real interest rate-to-income differential and the real debt burden.

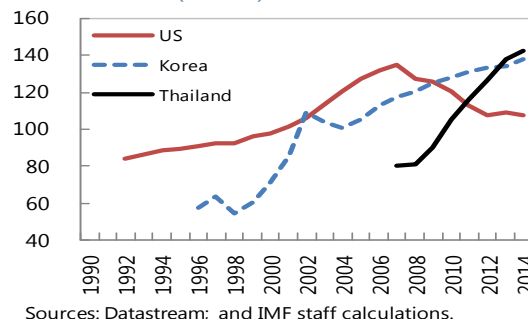
**Figure 5. Thailand: Household Debt, Income and Consumption**



**11. While credit growth has slowed, high household debt and its fast increase relative to disposable income raise concerns (Figure 6).** The pace of increase in household debt relative to income in Thailand has been very pronounced, much faster than that in Korea or the United States. Such rapid increase raises concern of vulnerabilities associated with a protracted slowdown in economic growth (a.k.a. debt overhang) if households need to deleverage their debt (IMF, 2012).<sup>8</sup>

**12. The distribution of household debt matters for assessing risks.** Data stratification based on

**Figure 6. Household Debt to Disposable Income Ratio (Percent)**



<sup>7</sup> Based on the household budget constraint, debt accumulation can be approximated by the following equation:  

$$\Delta d_t \approx \left\{ (i_t - \pi_t - g_t) / [(1 + g_t)(1 + \pi_t)] \right\} d_{t-1} - s_t + aa_t.$$

<sup>8</sup> The study shows that a one percent decline in real house prices lowers consumption growth by 0.3 percent for countries with high household debt. The impact from debt overhang is sizable when household debt is high and has climbed rapidly prior to declines in asset prices.



household characteristics, including income, age, occupation, and wealth, can map vulnerabilities of household debt. Based on other studies,<sup>9</sup> the following salient points emerge:

- **Distribution of debt:** A total of 54 percent of households was indebted in 2013. The top income quintile households accumulated debt at a faster pace, and their debt accounted for 65 percent of the total. Households in the 4th income quintile accounted for another 20 percent.
- **Debt burden over income quintile:** The poorest income quintile is the most heavily indebted and faces a 50 percent debt-service ratio (DSR). When households with high net worth are excluded from the poorest income quintile, the adjusted DSR declines to under 40 percent. The DSR of households in other income quintiles is in the 23-29 percent range. While the DSR varies across households with different occupations, the ratio tends to be particularly high among households in the agriculture sector (Bank of Thailand, 2016).
- **Debt accumulation over education profile:** The growth in debt was higher among households with higher education, but their debt accounts for only 36 percent of the total. The remaining household debt was held by those without higher education.

**13. The short-term risk to financial stability is determined at the intersection of the distribution of household debt and the exposure of financial institutions.** While DTI and DSR are both important to gauge the level of risk, the analysis should be supplemented by the level of household wealth. The level of vulnerability of financial institutions also differs, and depends on the degree of exposure to the household sector. The strength of their balance sheet should be assessed with complete stress tests to household balance sheets.

## D. Policy Options to Strengthen Financial Stability

**14. The BOT has achieved important milestones to strengthen the resilience of the financial sector.** Microprudential regulations have been aligned with international standards. The BOT has also strengthened the supervisory framework and upgraded onsite and offsite supervision (IMF, 2009). Risk management and monitoring have been incorporated in the framework, including by issuing guidelines and enhancing data collection and analysis of prudential indicators. Moreover, SFIs have been brought under the BOT's supervisory umbrella. The BOT has also recently set up a dedicated Financial Stability Unit (FSU) for systemic risk monitoring and analysis.

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<sup>9</sup> See Muthitacharoen and others (2014).

**15. To further strengthen financial stability further, a policy upgrade is needed in several areas:**

*Microprudential Regulation and Supervision*

- **Transfer of supervision of SFIs.** The government has made the legal transfer of prudential supervision to the BOT in early 2015. Bringing DSFIs into full compliance with Basel core principles will require more time. For non-depository SFIs, the Basel framework needs to be adjusted to effectively regulate their operations.
- **Close monitoring of savings and credit cooperatives.** Many of these institutions are deposit taking, with an extensive branch network. They have promoted savings by members and facilitated financial inclusion. While the size of their assets is still small, risk monitoring and management needs to be enhanced, while strengthening the prudential regulation and supervisory framework. The ongoing close collaboration between the BOT and regulators of cooperatives to step up prudential standards is welcome.
- **Effective coordination among supervisory agencies.** Appropriate regulations need to be put in place for other (nonbank) financial corporations. Their funds are made available to other financial institutions, which in turn lend to households and various sectors of the economy. Effective coordination between the BOT and other regulators of nonbank financial institutions can enhance financial stability.

*Macroprudential Policy Framework*

- **Macroprudential tools.** Thailand has several macroprudential instruments in its toolkit. The BOT has successfully used LTV ceilings on different price-tiers and types of residential properties and varying risk weights applied to high value loans (Nijathaworn, 2010). DTI ceilings on personal loans were also applied and subsequently minimum payments and income have been added on credit card loans. The macroprudential toolkit can be expanded to include counter-cyclical prudential requirements, special weights on riskier loans, and capital surcharges for systemic institutions.
- **Data and analysis.** There is also considerable scope to deepen data gathering and systemic risk analysis. Priorities include tracking the strength of the credit cycle, leverage ratios and unhedged exposures in specific sectors, and systemic risks from interconnectivity.
- **Stress testing.** The BOT has made significant progress in monitoring financial market risks, though there is scope to further strengthen the stress testing framework by improving scenario design and developing top-down stress tests. In this regard, the BOT needs to assess also systemic risks from interconnectivity between banks and nonbank financial institutions.
- **Institutional setup.** Over time, the newly established FSU should grow into a full department, focused on systemic risk, financial stability, and macroprudential analysis, with an appropriate legal mandate. The FSU needs to be equipped with technical capacity to carry out cost-benefit

analysis of macroprudential measures by collecting necessary data. Such analysis can inform the need for changes in the stance of macroprudential policies.

#### *Crisis Prevention and Resolution and Deposit Insurance*

- **SFI resolution.** Effective and credible resolution regimes can strengthen market discipline and mitigate excessive risk taking. Staff recommended granting the BOT resolution authority over SFIs. The BOT is in close discussion with the Ministry of Finance to set up a clear resolution mechanism and develop effective collaboration to complement each other's role.
- **Deposit insurance.** A gradual extension of a deposit insurance scheme to cover DSFIs needs to be considered.<sup>10</sup> The current scheme, implemented in August 2015, protects deposits worth up to B 25 million at a bank, reduced from the previous limit of B 50 million. The scheme will be eventually replaced with a new limit on protection for deposits up to only B 1 million, while will likely encourage individuals with deposits over B 1 million to transfer their accounts to SFIs, where deposits are implicitly protected under government guarantees, and to other financial corporations, where account holders can seek higher yields (Tummanon, 2011).

#### *Household Debt Restructuring*

- **Household debt overhang.** The BOT should establish a contingency plan for a tail event comprising self-reinforcing cycles of household defaults, deleveraging, and contractions in output. Government intervention may be warranted if arrears and defaults threaten to disrupt the banking sector, constraining credit supply and reducing productive investment (Shleifer and Vishny, 2010). Well-designed household debt restructuring programs can limit the contraction in growth (IMF, 2012). Voluntary out-of-court or government-sponsored household debt restructuring can help restore the ability of borrowers to service their debt, thus preventing the contractionary effects of unnecessary foreclosures and excessive asset price declines.

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<sup>10</sup>The Thailand Deposit Protection Agency Act was enacted in 2008 and came into full effect in 2012. The Act protects depositors who hold accounts at commercial banks, finance companies, and credit financiers.

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