NOTE

SCB Economic Intelligence Center

The Impact of COVID-19 on Zombie Firms and Implications for the Thai Corporate Sector

16 December 2020

Key summary

The share of firms with prolonged debt-serving limitations due to low profitability, or so-called "zombie firms", has continued to increase over the past 10 years, posing concerns for productivity and investment within Thai corporate sector. In 2019, just before the COVID-19 pandemic, the share of zombie firms among Thai businesses has already reached the same level prior to the Great Financial Crisis (GFC) in 2007. To provide better understanding of zombie firm issues, EIC analysis of zombie firms in Thailand has found the followings :

1) Zombie firms have significantly lower levels of productivity, profitability, and investment than their non-zombie counterparts. The existence of these firms tends to cause resource misallocation and is concerning for the overall productivity of Thai business sector.
2) Once a firm becomes a zombie firm, it is hard to reverse. Cured zombie firms are more likely to become zombie firms again. These firms generally remain in zombie status rather than close down and hence become chronic problems for the overall economy. Generally, zombie firms tend to concentrate among smallest and largest businesses as well as among long-established businesses.
3) Based on debt-servicing ability forecast under declined sales, EIC expects shares of zombie firms to rise significantly during 2020F-2022F after the COVID-19 crisis. The impacts tend to most severe among tourism-related businesses as well as among already-fragile small businesses.
4) The projected rise in zombie firms after the current crisis would differ from the global financial crisis (2007-2009), in which the share of zombie firms fell rapidly due primarily to a decrease in the policy interest rate, the condition of the Thai baht, the severity of the economic crisis, the unemployment rate, and the fragility of small firms.
5) Short-term policy supports such as debt-restructuring are necessary to curb out scarring effects. Looking forward, policy measures should focus on grouping recipients whereas non-competitive firms should be assisted with orderly exits while viable firms should receive competitiveness enhancement for post COVID-19 crisis business environment.

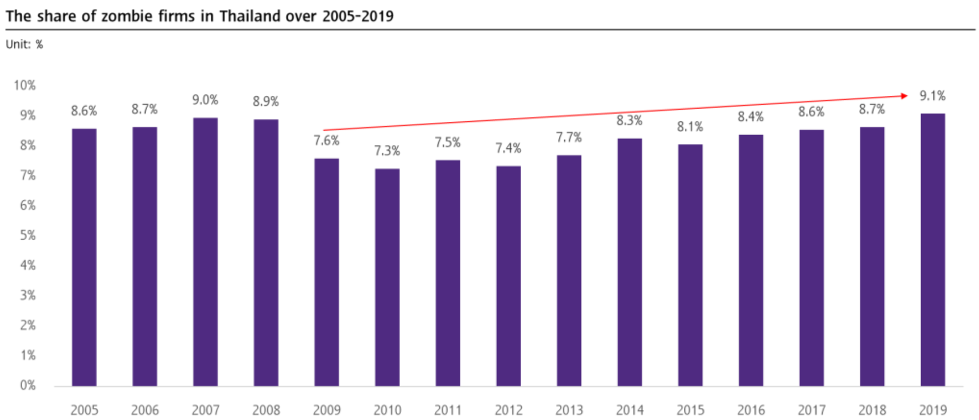
Having many firms facing debt-servicing problems over a prolonged period ("zombie firms) and causing productivity, profitability, and under investment problems is not a new issue in Thailand. In this article, EIC defines zombie firms as firms that have interest coverage ratios lower than 1 for 3 during consecutive accounting years, and that have been in business for at least 10 years based on data from the Department of Business Development (Ministry of Finance) over the period 2005-2019.

EIC found that before the COVID-19 economic crisis, the share of zombie firms rose continuously over the past decade (from 7.6% to 9.1% during 2009 to 2019, which is close to the level prior to the 2007 Hamburger crisis at 9.0%). Nevertheless, the COVID-19 crisis will pose severe consequences on Thai corporates and the economy— as reflected by the Thai economic contraction rate in 2020, which stands among the highest observed in Thai economic history, with a notable rise in the number of business closures compared with last year, and an economic recovery path which will take time and be highly uneven with elevated risks, despite the Thai economy already bottoming out. These factors could lead to a rise in the number of Thai zombie firms in the near future.

To gain more understanding about zombie firm problems, EIC analyzed zombie firms to answer five key questions:

1. How does a high share of zombie firms affect the Thai corporate sector and overall economy?
2. Which types of firms have a high chance of becoming zombie firms?
3. What do the life cycles of zombie firms look like?
4. What lessons were learned about zombie firms from the 2008 Global Financial Crisis (GFC)?
5. How could the COVID-19 crisis affect Thai zombie firms in the period ahead?

Figure 1: The number of zombie firms continued to rise over 2010-2019, to stand close to the level prior to the GFC (2007-2009)



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance[1]

[1] The database of the Department of Business Development (Ministry of Commerce) contains more than 700,000 firms, but for the purposes of this research we sampled firms which have complete financial reports, including: total assets and debt and interest expenses. On average, the number of firms with complete financial reports account for approximately 200,000-300,000 firms during each accounting year.

1. How does having a high share of zombie firms impact Thai corporates and the overall economy?

The increase in the number of zombie firms poses concerns to the overall Thai corporate sector in the aspects of productivity, profitability, and investment since zombie firms have significantly lower return on asset (ROA), return on equity (ROE), growth rate on net sales, and growth rate on investment compared with non-zombie firms

- **At least half of the zombie firms faced a contraction in sales to the extent that they incur losses,** leading to negative ROA.
- **Moreover, investment expansion of zombie firms has continued to decline,** while that of non-zombie firms is higher and moves with general economic conditions.
- **The presence of zombie firms which mostly generate losses and are unable to repay debts needs financial support through all types of debt restructuring.** For the government, saving zombie firms from closing their businesses, particularly during times of economic recession, can buoy employment conditions. Nevertheless, this support in the labor market comes with government expenditures and lower productivity.
- **Zombie firms lead to resource misallocation** because the survival of zombie firms in the corporate sector blocks the entrance of new firms with higher productivity.

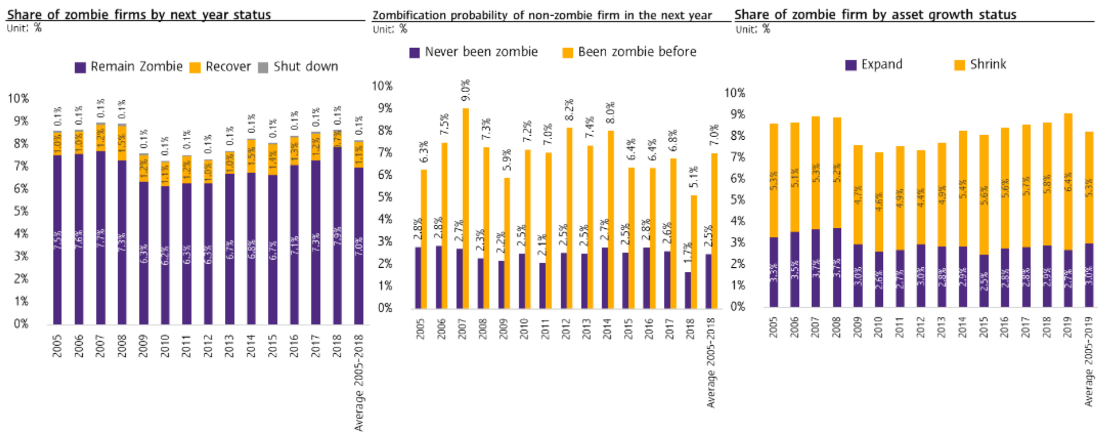
Figure 2: Zombie firms' productivity, sales, and investment are significantly lower than those of non-zombie firms.

Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

Once a firm becomes a zombie firm, it is hard to reverse. Cured zombie firms are more likely to become zombie firms again. These firms generally remain in zombie status rather than close down and hence become chronic problems for the overall economy (figure 3).

- Among all zombie firms, which count for 8.2% of all sample firms during 2005-2018, only 1/8 of them (1.1% of all sample firms) managed to recoup debt-servicing ability in the next year.
- Moreover, for former zombie firms the chance that they would become zombie firms again is higher than firms that have never been zombie firms by a factor of 2.8.
- Two thirds of zombie firms chose to scale down their businesses as reflected by a reduction in asset size. Only 1% of zombie firms closed down (0.1% of all firms).

Figure 3: Most zombie firms do not shut down and do not expand. They also have low recovery rate and high probability of relapsing.



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

2. What types of firms have a high chance of becoming zombie firms?

Based on the EIC survey, we found that the main difference between zombie firms and non-zombie firms in Thailand over 2005-2019 lied in: asset size, debt level, years in business, business type, and location.

1) **Zombie firms tend to concentrate in the smallest and largest size groups.** By classifying firms into five groups (quintiles) based on asset size, we found that the share of zombie firms was most concentrated in the smallest size group (1st quintile) at 16.4% followed by the largest size group (5th quintile) at 10.5%, whereas the share in the medium-size group stood at only 5-7% on average (Figure 4, left). Zombie firms being most concentrated in the smallest size group reflects the fragility of the debt servicing ability of small businesses.

In contrast, firms in the largest size group tend to enjoy better access to funding and loans than those in the medium-size group, and are seen by banks as more credible. Therefore, those large firms are more resilient to prolonged losses and temporary worsening of debt-servicing ability. In addition, large firms normally have high fixed assets, which are more difficult to liquidate in case of firm closure. These factors have contributed to more large business firms becoming zombie firms rather than choosing to shutter their operations. This finding is consistent with a study of zombie firms in OECD countries conducted by the European Commission Joint Research Center and another study of firms in European countries conducted by the Bank for International Settlements.

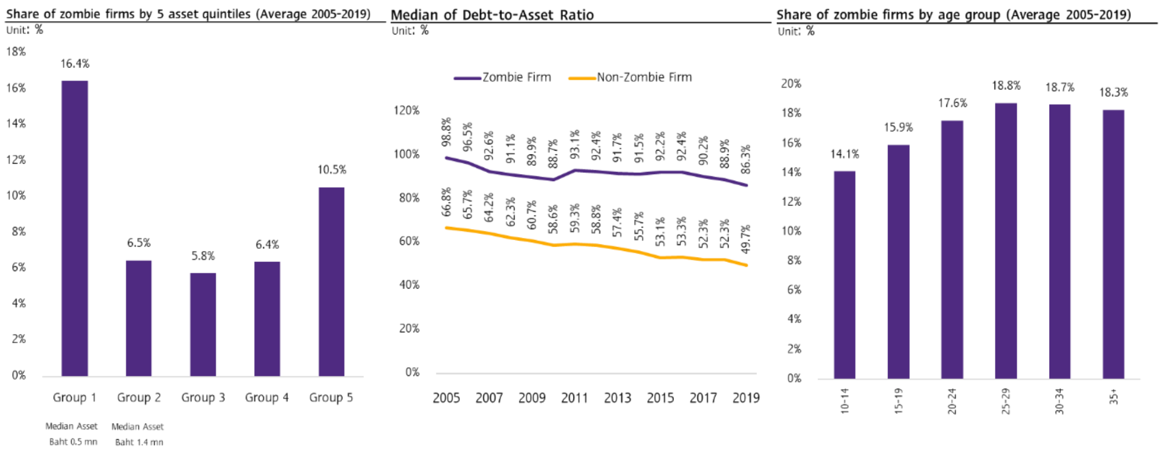
2) **Zombie firms had significantly higher debt-to-asset ratios than non-zombie firms** (Figure 4, middle). Nearly half of zombie firms had more debts than assets. Significantly higher debt burdens were followed by elevated interest burdens, consistent with the interest coverage ratio, which has continuously deteriorated over the prolonged period.

3) **The share of zombie firms tends to rise with the number of years in business** (Figure 4, right). Long-established companies often have advantages in terms of loan access and financing from long-standing relationships with financial institutions. Therefore, these firms are able to endure loss and debt-servicing problems over a long-time span, as can firms with large asset sizes.

4) **Based on business sectors, the EIC survey found that the five sectors with the highest shares of zombie firms were: real estate, textile, hotels, automobiles, along with agricultural products, and air cargo with equal shares** (Figure 5, left). It is worth noting that these sectors highly rely on external demand. Debt-servicing problems manifested in these businesses are worrying for the Thai economy, particularly during a time of global economic recession.

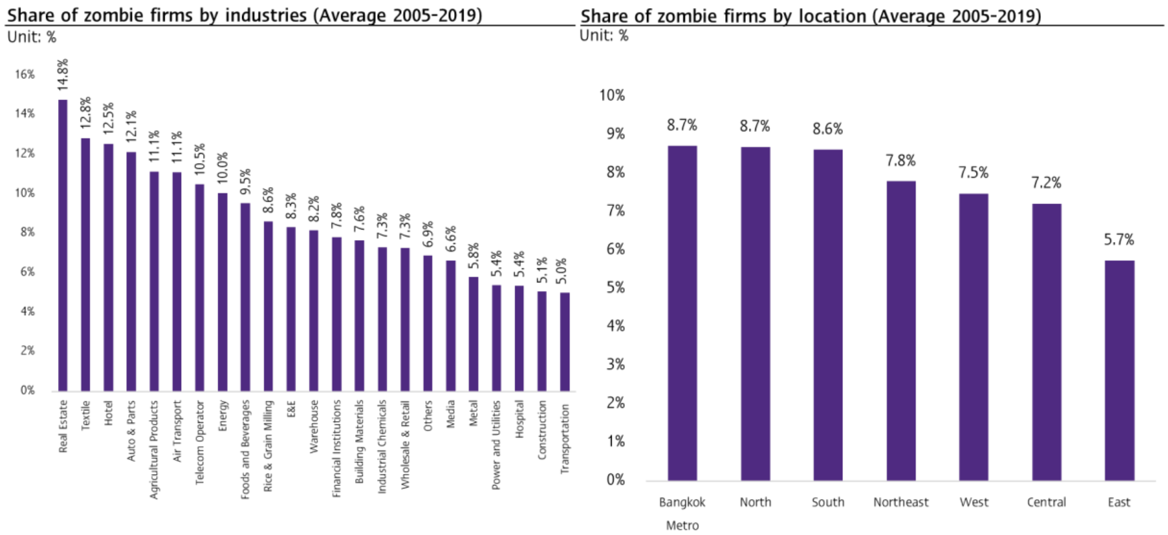
5) **As with location, EIC found that the share of zombie firms in Bangkok and its metropolitan areas and the Northern and the Southern regions were higher than other regions in Thailand, whereas the share in the East was the lowest** (Figure 5, right).

Figure 4: Zombie firms concentrate among smallest and largest firms as well as firms with high debt-to-asset ratio and older firms



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

Figure 5: Zombie Firm concentrates among real-estate, textile, hotel, auto, and agricultulral businesses as well as within Bangkok, Northern side and Southern side of Thailand.



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

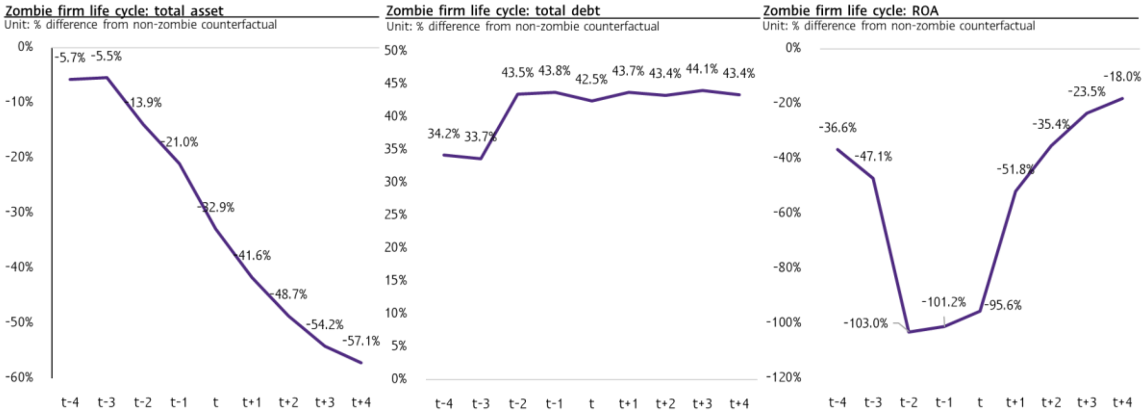
3. What does the life cycle of Thai zombie firms look like?

EIC has used econometric models to study the life cycle of zombie firms four years before these firms entered zombie-firm status and four years after being classified as zombie firms. This was then compared with non-zombie counterfactual simulations, using non-zombie firms with similar characteristics. In this article, key characteristics of the life cycle of zombie firms that EIC chose to study include changes in assets, net liabilities, earnings before interest and taxes (EBIT), interest expenses, interest coverage ratio, and return on assets (ROA).

Results from the study of the zombie-firm life cycle suggested the following observations.

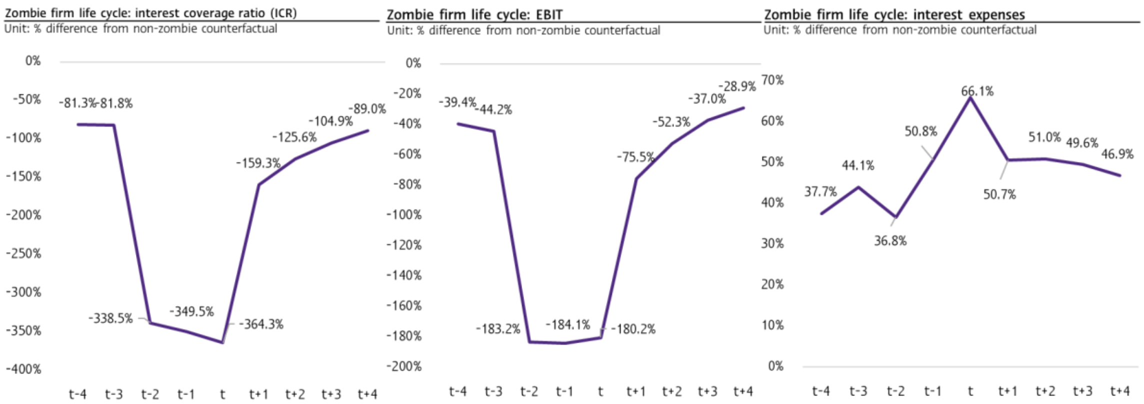
1) **Zombie firms' net assets continued to decline (Figure 6, left), down from the level close to that of non-zombie counterfactuals** four years before the change of status to 50% smaller than non-zombie counterfactuals four years after being classified as zombie firms. This trend reflects the fact that zombie firms have reduced the size of their assets substantially, partly to cut their expenses.
2) **Zombie firms accumulated more debt** before their change in status and maintained those levels thereafter (Figure 6, middle). On average, zombie firm liabilities were around 35% higher than non-zombie counterfactuals before their change in status and rose to around 45% as they entered zombie-firm status. These firms tended to keep such levels steady throughout the following four years, reflecting the high debt burdens of these zombie firms.
3) **Zombie firms' productivity fell to their lowest level as they entered zombie-firm status.** Despite some improvement after their change in status, the improved level was still significantly lower than that of non-zombie counterfactuals, as reflected by over 1-time lower ROA (compared to ROA of non-zombie counterfactuals) during the two years before their change in status. The level rebounded to 18% lower than non-zombie counterfactuals after four years (Figure 6, right). This trend suggests that structural changes in zombie firms contribute to the recovery of productivity to some extent. However, productivity levels remain considerably lower than that of non-zombie counterfactuals.
4) **Zombie firms' debt servicing ability fell to its lowest level as they entered zombie-firm status and began to reverse** thereafter. However, the level was still considerably lower than non-zombie counterfactuals, where the interest coverage ratio of zombie firms fell below that of non-zombie counterfactuals by three times as they changed status and returned to a 1-time lower level than non-zombie counterfactual after four years (Figure 7, left). This trend was due to an improvement of EBIT in line with productivity (Figure 7, middle) and interest expenses that declined slightly compared to non-zombie counterfactuals after their change in status. (Figure 7, right)

Figure 6: Firms have lower asset and growing debt after zombification while return-on-asset (ROA) recovers but remain significantly lower than non-zombie counterfactual



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

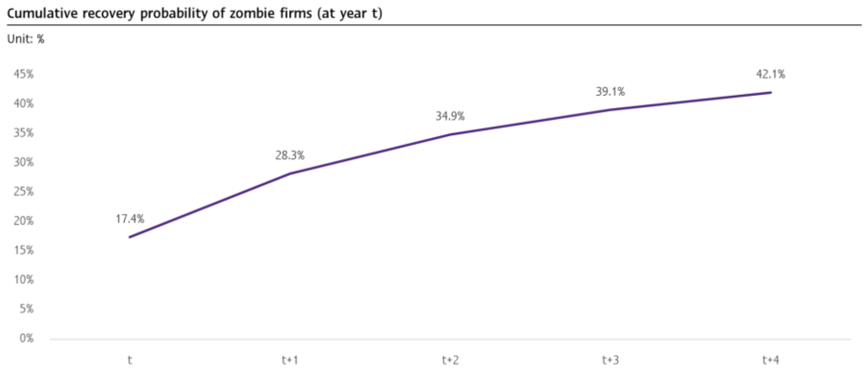
Figure 7: Zombie firms recover profitability and debt-servicing ability after zombification but still perform significantly worse than non-zombie counterfactual.



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

5) **The cumulative recovery rate of zombie firms** remains relatively low. As for the recovery period of zombie firms, EIC found that zombie firms have a 17.4% chance of recovery in the first year and 42.1% within four years after their change in status (Figure 8). The recovery rate of Thai zombie firms within four years was lower than European zombie firms, whose cumulative recovery rate recorded 60% (according to a study by the Bank of International Settlements)

Figure 8: Even after four years, the cumulative recovery rate of Thai zombie firms was still below 50% (only at 42% which is much lower than the European rate at 60%)



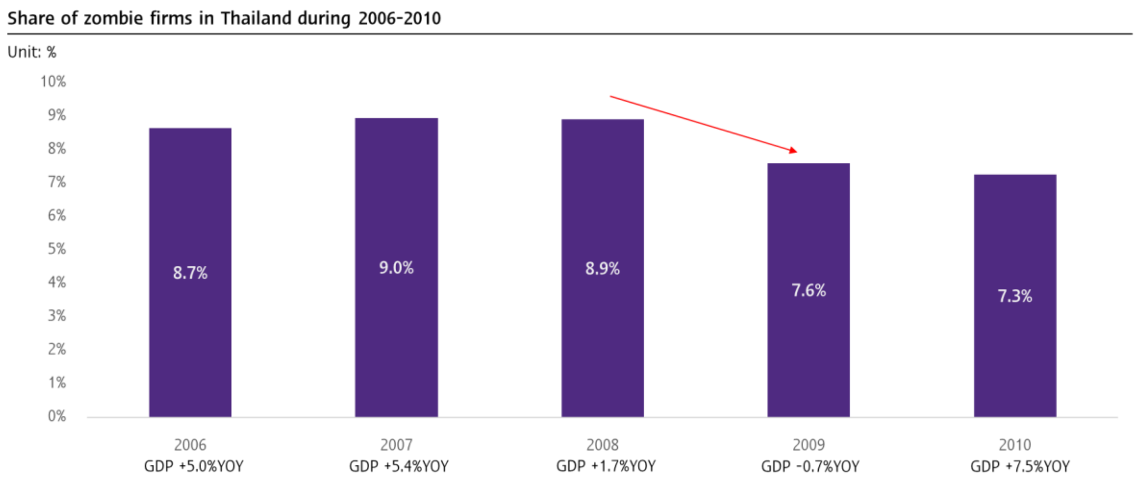
Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

4. What are the lessons learnt about zombie firms from the 2008 Global Financial Crisis (GFC)?

Although the root cause of the problem, the size, and affected business sectors, as well as conditions of businesses and the Thai economy before the crisis were different from the COVID-19 economic crisis, the 2008 Global Financial Crisis (GFC) could provide an interesting case study as an example illustrating the situation of zombie firms over the next 2-3 years. Under this section, EIC made the following key observations.

- **The proportion of zombie firms during the GFC did not increase but decreased,** whereas the proportion of zombie firms in 2007 before the GFC in Thailand was recorded at around 9% (close to the 2019 figure). However, during 2008-200 the proportion of zombie firms fell to 7.6% in 2009, despite a high economic contraction of -0.7%YOY. (Figure 9)

Figure 9: The proportion of zombie firms fell in 2009 while the Thai economy contracted

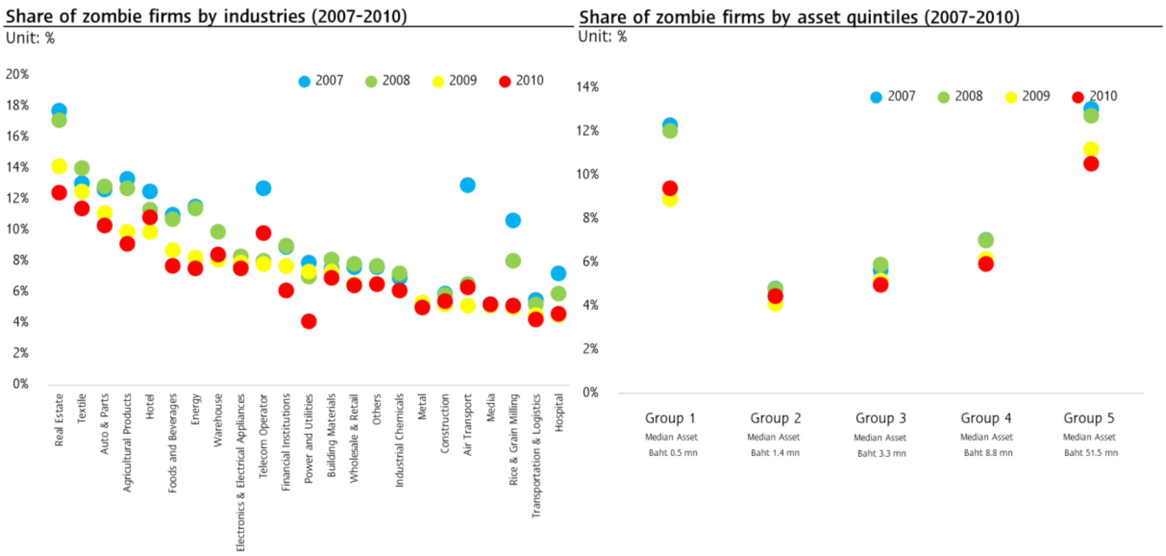


Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

- **Real estate, textile, automobiles, agricultural products, and hotel businesses had a high proportion of zombie firms** during the GFC. These businesses rely on external demand and were thus severely affected during the global economic downturn, especially real estate businesses, whose sales declined worldwide at that time. (Figure 10, left)

- **Zombie firms were concentrated in the 1st and 5th quintile of businesses. This trend was consistent with the highest proportion of zombie firms** observed in the real estate sector, which mostly had the largest asset size. Meanwhile, the proportion of zombie firms among small businesses only recorded 12% (compared to 25% in 2019). (Figure 10, right)

Figure 10: During 2007-2010, zombie firms were concentrated among real estate, textile, automobiles, agricultural products, and hotel businesses as well as among smallest and largest firms.



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

- **The proportion of Thai zombie firms that fell during the GFC reflected a faster decline in debt burden than business performance.** Median interest expenses decreased by -34.9% (in 2009 compared to 2007), while EBIT did not change much (0.5%). (Table 1)

Table 1: Changes in Thai business accounts in 2009 VS 2007 (median)

Industry	Net Sales	EBIT	Interest Expenses	Interest Coverage Ratio
Agricultural Products & Commodities	11.1%	172.0%	-24.4%	110.9%
Auto & Parts	-14.5%	25.9%	-6.4%	55.1%
Building Materials	-12.6%	-3.5%	-31.4%	16.2%
Construction	-16.3%	-6.3%	-28.0%	24.5%
Electronics & Electrical Appliances	-17.7%	-14.0%	-25.9%	3.1%
Energy	-18.0%	-4.9%	-21.9%	29.4%
Financial Institutions	0.4%	82.1%	-17.5%	103.4%
Foods and Beverages	-2.9%	17.8%	-36.0%	23.6%
Hospital	-7.3%	72.6%	-34.1%	99.7%
Hotel	-25.0%	-18.3%	-41.2%	34.5%
Industrial Chemicals & Raw Materials	-16.8%	-129.3%	-28.3%	-130.1%
Metal	-15.2%	1.6%	-27.6%	35.0%
Others	-16.0%	4.2%	-32.7%	48.6%
Power and Utilities	-26.8%	-38.5%	-30.6%	-17.9%
Real Estate	-30.2%	-8.4%	-44.5%	47.2%
Rice & Grain Milling	-18.2%	-81.4%	-25.7%	-43.3%
Textile	-6.6%	108.9%	-26.7%	126.3%
Transportation & Logistics (Other)	14.6%	41.9%	-36.6%	66.9%
Wholesale & Retail	29.1%	-171.9%	-57.7%	-247.8%
Telecom Operator	-18.2%	23.7%	-42.2%	59.2%
Media	-19.5%	15.3%	-20.1%	41.7%
Air Transport	7.4%	30.7%	-35.1%	66.6%
Warehouse	-16.2%	-7.2%	-31.9%	34.1%
Average	-19.0%	0.5%	-34.9%	37.5%

Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

5. How will the COVID-19 pandemic change the share of zombie firms in Thailand going forward?

To evaluate the impact of COVID-19 on the share of Thai zombie firms, EIC began by projecting the debt-servicing ability of Thai firms during 2020-2022 using an interest coverage ratio which is computed from

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT Margin X Sales}}{\text{Interest Expenses}}$$

EIC forecast each component above under the following assumptions:

- Industry-specific sales growth, based on EIC Industry Research staff views (Table 2), is expected to drop to -15.3% in 2020 before rebounding to 10.5% and 18.7% in 2021 and 2022, respectively. This assumption reflects the aggregate variation of firms' sales in line with macroeconomic conditions.
- Each firm's EBIT margin varies under normal distribution in 2020-2022, with expected means at 2019 levels and variance equal to historical variance during 2005-2019. This assumption reflects the idiosyncratic variation of each firm's profitability according to its internal factors and adaptability. Under these two assumptions, EIC hopes to realistically capture both aggregate and idiosyncratic factors of firms' performance.
- Interest expenses are assumed at 2019 levels.

Note: The above assumptions for EBIT margin and Interest expenses may not be completely accurate, since sharp declines in economic activities and sales would impact the EBIT margin (during 2007-2009, the EBIT margin rose 1.2%), while a fall in the policy rate and debt moratorium and restructuring measures would reduce interest expenses. However, it is not possible to project precisely how the two variables would change due to data limitations. Nevertheless, the next section includes a sensitivity analysis that shows how changes in these assumptions affect the projections on zombie firm fractions.

EIC expects the share of firms with debt servicing problems to peak in 2020, due to the drop in sales during the COVID-19 pandemic. The share of firms unable to service debts (those with Interest Coverage Ratios of < 1) will increase to 43.7% in 2020 (Figure 11, left). Once sales growth resumes in line with improving overall economic conditions, the share of such vulnerable firms would fall back gradually to the pre-crisis level.

Given the deterioration in business debt serviceability, the share of zombie firms is expected to increase significantly between 2020-2022 and projected to jump to 11% in 2020 and reach 16% in 2022 (Figure 11, right). In the long run, if these firms are unable to recover profitability, but choose to continue operating without exiting the market, they may run into a chronic problem of production inefficiency and resource mis-allocation. **In our view, a significant increase in zombie firms and their impact on the manufacturing industry would also add to the scarring effects of COVID-19, in addition to business closures, reduced employment and work hours, and high levels of household debt. Hence, these issues may need to be addressed by all stakeholders even after the direct impact of COVID-19 diminishes.**

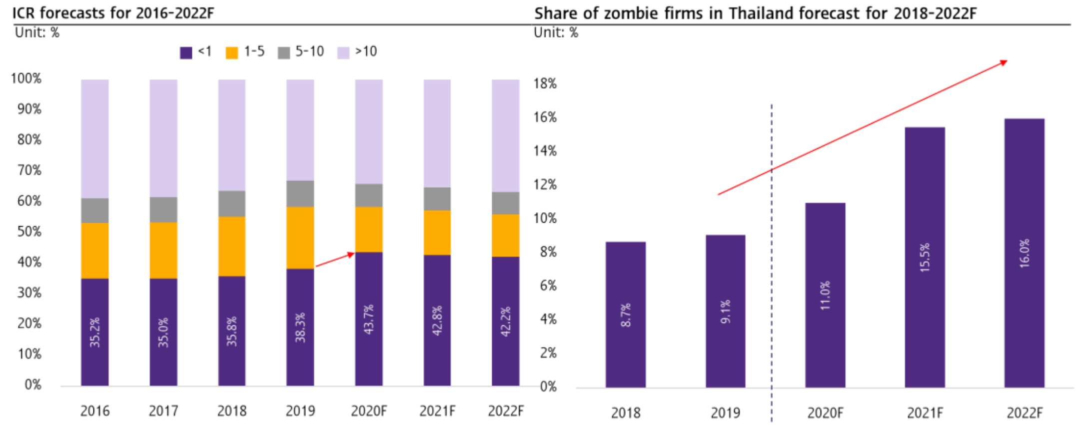
Table 2: EIC forecasts for sales growth by industries

-20% -10% 0% 10% 20%

Industry	2019	2020F	2021F	2022F
Agricultural Products & Commodities				
Auto & Parts				
Building Materials				
Construction				
Electronics & Electrical Appliances				
Energy				
Financial Institutions				
Foods and Beverages				
Hospital				
Hotel				
Industrial Chemicals & Raw Materials				
Metal				
Others				
Power and Utilities				
Real Estate				
Rice & Grain Milling				
Textile				
Transportation & Logistics (Other)				
Wholesale & Retail				
Telecom Operator				
Media				
Air Transport				
Warehouse				
Average	0.8%	-15.3%	10.5%	18.7%

Source : EIC analysis and forecasts

Figure 11: The share of firms unable to service debts (ICR<1) is expected to peak in 2020 causing the share of zombie firms to grow drastically between 2020-2022.

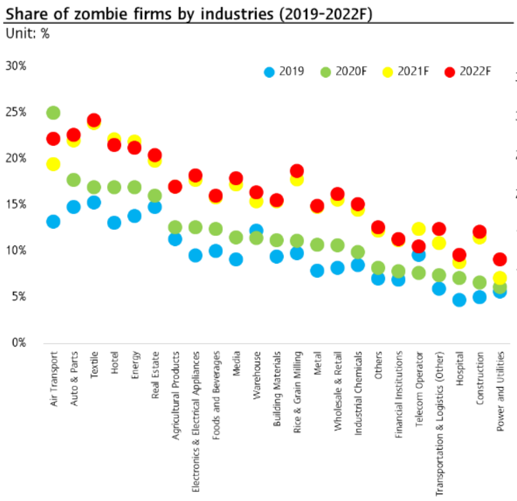


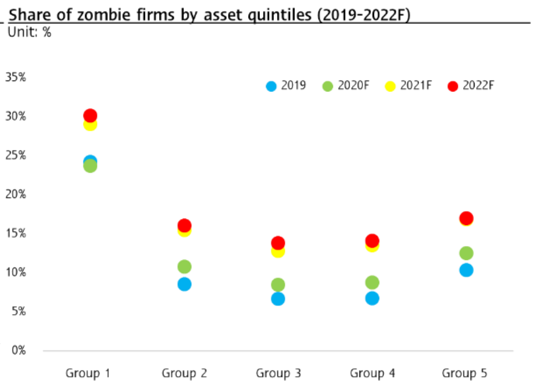
Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

EIC expects to see a higher share of zombie firms in all industries post-COVID-19. For 2020F, the airline, auto, textile, energy, and hotel industries top the list (Figure 12, left), given the massive impact from COVID-19 that these industries experienced. Recovery would only be gradual, depending mainly on widespread vaccination, improvement in external demand, and oil prices. The share of zombie firms would also rise in all sectors because the crisis has had a widespread impact on every sector of the economy.

When comparing firms with different asset sizes, we found the share of zombie firms highest among the smallest firms, reaching 30% in 2021F-2022F (Figure 12, right), from an already-high level of 25% in 2019. This shows that small firms already vulnerable prior to the COVID-19 crisis have been heavily impacted and may be the last to recover in terms of debt serviceability.

Figure 12: The expected rise in zombie firm shares in 2020-2022 will be broad-based with largest impact on air transport, auto, textile, energy, and hotel businesses as well as small firms.





Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

Why did the share of zombie firms fall after GFC (Global Financial Crisis), but is set to rise post COVID-19?

The number of zombie firms fell during GFC, but is expected to rise after the COVID-19 crisis. This contrast can be explained by the following five differences between the two crises, namely severity, the ability to cut interest rates, exchange rates, unemployment rates, and the strength of small businesses.

1) Severity of the impact

- **GFC had a smaller impact on the Thai economy compared to the COVID-19 crisis.** Thailand's GDP growth fell from +5.4%YOY in 2007 to -0.7%YOY in 2009 after GFC hit. On the other hand, during the COVID-19 crisis GDP growth went from +2.4%YOY in 2019 to -6.5%YOY in 2020 (EIC projection), a more severe contraction in a shorter period and from a lower base. Also, as the pandemic hit nearly all countries around the world, the global economy is set to contract by -4.1% in 2020 (EIC projection, compared to -0.1% in 2009), with a massive direct impact on Thailand, which relies heavily on international travel (12% of GDP in 2019). Thus, Thai businesses have suffered a more severe and prolonged impact from this crisis, causing permanent damage to their debt serviceability.

2) **The ability to cut interest rates**

- **During the 2007-2009 GFC, median interest expenses dropped by as much as 34.9% thanks to the Monetary Policy Committee (MPC)'s decisions to cut the policy interest rate from 4.75% in January 2007 to 1.25% in January 2009 (350bps).** Such large and rapid cuts in the policy rate meant a significant reduction in firms' interest expenses, which helped many avoid debt-servicing problem during that crisis.
- **During the COVID-19 crisis, the MPC also slashed policy rates quickly, but the size of the cuts was limited by the already-low level of the policy rate prior to the crisis.** The Committee cut the policy rate from 1.25% at the end of 2019 to 0.5% in May 2020 (75bps), an historically low level and where it remains today (November 2020). Going forward, EIC expects the policy rate to remain at 0.5% throughout 2021, as the economy has already bottomed out and the policy rate is already close to its effective lower bound.

3) **Exchange rates**

- **The 6.5% depreciation of the baht against the US dollar during 2007-2009 cushioned the impact of the GFC,** especially for firms that relied on external demand and whose income is in US dollars (The Thai baht averaged 32.2 baht per USD in 2007, and depreciated to 33.3 and 34.3 baht per USD in 2008 and 2009, respectively).
- **However, the baht is expected to strengthen during the remainder of 2020 and in 2021, as US dollar weakness continues on the back of global economic recovery trends and the Biden Administration's policy agenda**. EIC expects the currency to average around 29.5-30.5 baht per US dollar by the end of 2021F. The stronger baht may drag income recovery in baht terms for firms that rely on external demand and income in US dollars, such as those in the export and tourism sectors.

4) **Thailand's unemployment rate rose more slowly during the GFC than during the COVID-19 crisis.** Between 2007-2009 the unemployment rate climbed gradually but fell rapidly (the unemployment rate rose from 1.1% in Q4 2007 to a peak of 2.1% in 2009 Q1, then fell to 1.0% in 2009 Q4). In contrast, in 2020 the unemployment rate rose relatively quickly and is expected to fall only slowly (it rose from 1.0% in 2020 Q1 to 2.0% in 2020 Q2 and currently stands at 2.1% in October 2020). In addition to the slow decline in the unemployment rate, the drastic drop-in work hours (-12%YOY in 2020 Q2) will drag purchasing power recovery, which in turn slows down improvements in business income.

5) **The strength of small businesses differs significantly between 2007 and 2019, as evident in the share of zombie firms among those with the smallest asset sizes, which stood at 12% and 25% in 2007 and 2019, respectively.** The vulnerability that existed prior to the COVID-19 crisis could worsen chronic debt-servicing problems in the years to come, since these small firms may find it more difficult to adjust to the post-COVID-19 work environment and market conditions than their larger counterparts.

Sensitivity analysis: The impact of interest expenses and sales growth on the share of zombie firms

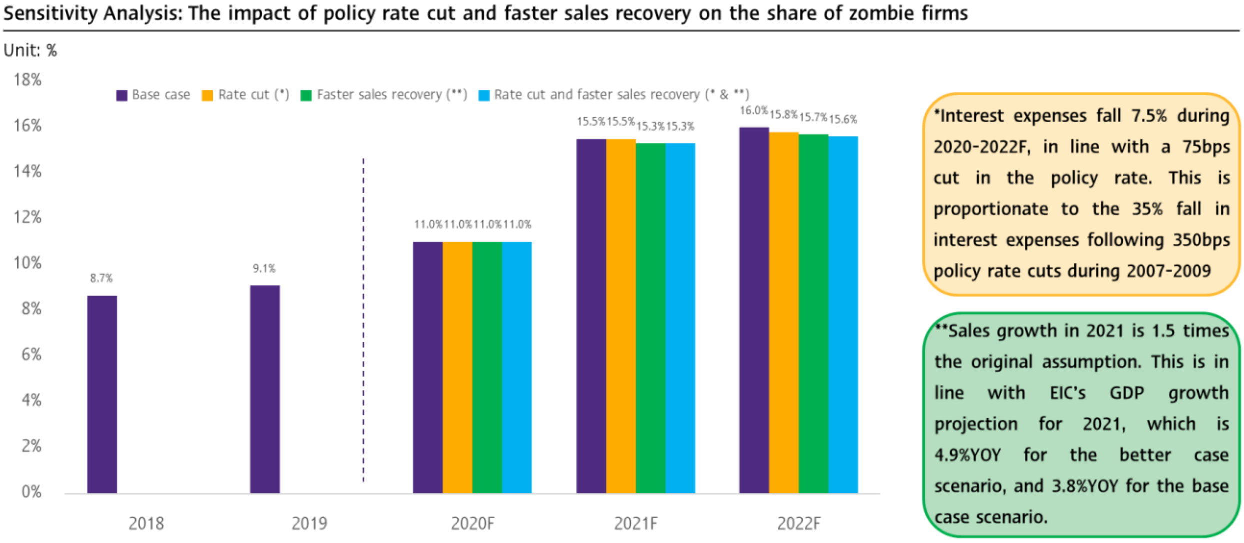
In this section, EIC performed a sensitivity analysis by varying the original assumptions for interest expenses and sales growth. First, instead of assuming the same level of interest expenses from 2019 to 2020-2022, we now assume a lower level of expenses. Second, faster sales growth is assumed for 2021 to reflect a faster-than-expected pace of vaccine development. The details of the assumptions are as follows.

- **Interest expenses fall 7.5% during 2020-2022F**, in line with a 75bps cut in the policy rate (from 1.25% to 0.5%). This is proportionate to the 35% fall in interest expenses following 350bps policy rate cuts during 2007-2009 (from 4.75% to 1.25%).
- **Sales growth in 2021 is 1.5 times the original assumption (sales growth is 15.7% instead of 10.5%).** This is in line with EIC's GDP growth projection for 2021, which is 4.9%YOY for the better case scenario, and 3.8%YOY for the base case scenario. The difference in GDP growth is then translated into the difference in sales growth using the 2005-2019 trend, which shows that 1% faster GDP growth is accompanied by 1.5% faster sales growth.

When applying these two assumptions, EIC found that the share of zombie firms edged down only slightly throughout 2020-2022F (Figure 13). This reflects the vulnerability with respect to debt serviceability that had accumulated even before COVID-19. The problem only intensified during this crisis and will take time to improve, despite support from policy rate cuts or faster-than-expected economic recovery from vaccine development.

The fact that interest rate reductions have only had a narrow impact on the share of zombie firms suggests that the policy rate is a blunt, non-targeted tool that has only limited effectiveness in today's context. Thus, EIC believes that the Bank of Thailand's current focus on debt restructuring measures and targeted liquidity provision, particularly for small businesses, should play a more important role in supporting debt than additional policy rate cuts, which could lead to adverse side effects on financial stability going forward.

Figure 13: Zombie firm forecasts during 2020F-2022F after rate cuts and recovered sales from vaccine developments.



Source: EIC analysis based on data from the Department of Business Development and the Ministry of Finance

Implications for Thai Economy and Policy Recommendations

In the short-term, to mitigate the scarring effects on firms and the economy, public sector' supportive measures, including debt restructuring programs, is necessary. In this article, EIC has shown that zombie firms are generally indebted firms with low productivity and low investment. They are also clustered among already-fragile small businesses, which are largely impacted by the COVID-19 pandemic. Concurrent closures of these firms, followed by a large spike in the unemployment rate, could cause severe scarring effects on the economy. As a result, although supportive policy measures, such as debt restructuring, could potentially create more zombie firms in the short term, they are essential for mitigating the scarring effects.

Looking forward, policy measures should focus boosting productivity and competitiveness within Thai business sector in three major interrelated areas:

1) **Improving Business and Labor Market Dynamism:**

- **Non-competitive firms should be allowed to orderly exit.** Insolvency reforms could ease business restructuring and downsizing.
- **Viable firms should receive competitiveness enhancement.** The government could provide incentives for these firms to reduce excess capacity and adjust business strategies in line with changed consumer demands as well as provide reskill and upskill measures for affected workers within these firms.
- **Labor market dynamism will be key for business and household dynamism.** The government could ease job matching procedures for displaced workers from closed or

downsized businesses. Upskilling and reskilling measures for these workers should also allow them to adjust to post-crisis labor demands.

- **Ease of doing business measures** such as easing new business registrations and reducing competition barriers could foster entries of new competitive firms.

2) **Addressing debt overhang along with continuous debt restructuring**

- **From OECE studies, weak financial institutions, measured by high level of non-performing loans (NPL), have higher tendencies to provide loans to zombie firms.** This pattern suggests that zombie firms are partly supported by credit access from fragile institutions, causing resource misallocations in both financial sector and business sector.
- **In Thailand, after debt restructuring and addressing short-term NPLs, the government could provide incentives for financial institutions for provide credits and restructure debts according to post-crisis business and economic contexts.** The criteria for credit incentives may include industry type, business size, employment level, and future recovery tendency.
- **For firms lacking liquidity and facing limitations from high level of existing debts, the government could provide fundings through mechanisms which transforms debts into equities for business restructuring.** Such approaches will ease the interest expenses burden and borrowing limitations for these firms.

3) **Supporting innovation.**

- **The government could reform intellectual property laws and provide competitions for research and development fundings.** Such policies will boost investment from productive new firms, enhance business competitions, and allow for technology diffusions, all adding to overall business productivity.

In sum, suggested policy measures above should focus on identifying and grouping non-competitive and viable firms. Conditioned supports will likely reduce the share of zombie firms and moral hazard problems in the future.

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