Malaysian Household Debt: The Impact of Covid-19 on Non-Performing Financing

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ABSTRACT

In Malaysia, the composition of total financing includes household and sectoral financing, in which household financing holds the most considerable portion of the pie. Despite the significant portion of household financing, the non-performing ratio is recognized among the lowest among other sectoral ratios. The recent Covid-19 pandemic however, has directly given a negative impact on both sectoral and household repayment in the country. This study explored the effect of Covid-19 on the relationship between household financing and non-performing financing, examining the different impacts on non-performing financing during and before the pandemic. Apart from household financing, the study included the impact of other sectoral financing, mainly those that largely contributed to the economy on non-performing financing. The study used 15-year monthly aggregate data spanning from April 2006 to April 2021. The results indicated that household financing significantly affected the non-performing financing. As anticipated, the finding revealed the non-performing financing was significantly higher during the pandemic relative to before the crisis. In response to this phenomenon, banks have become more stringent in granting financing particularly to households. Evidently, the interaction between Covid-19 and household financing exhibited an opposite effect on non-performing financing before and during the pandemic.

Keywords: Household Finance (G5), Debt Problem (F34), Banks (G21)

ARTICLE INFO

Article History:
Received: 29 April 2022
Accepted: 25 August 2022
Available online: 01 December 2022

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INTRODUCTION

A bank is at the heart of a country that provides financing to various economic sectors in supporting the flow of funds from the surplus unit to the deficit unit. However, providing financing is a tradeoff between profitability and the possibility of a credit risk. Banks make profits through credit offering yet, unpaid financing escalates non-performing financing. An increase in non-performing financing (NPFs) threatens the stability of the banking sector (Stewart & Chowdhury, 2021). A higher NPFs indicates that borrowers have failed to honor their debts as promised. This causes a significant increase in credit risk and a greater portion of provision set aside to cover the losses. As a result, it drags down the profitability of the bank to the worst extent and causes the reduction of capital adequacy. Ironically, capital adequacy works as a cushion in the bank to buffer possible losses. The reduction of capital adequacy indicates lack of buffer to cushion which in turn, increases bank fragility. This is because, a bank is not resilient towards uncertainties or risks. A bank is highly likely to collapse if it is unable to bear the risks, especially with higher non-performing financing (Umar et al., 2018).

Growing of NPFs raises concerns among the banks regardless of Islamic or conventional counterparts not to mention, other stakeholders. The interest is more appealing since the global financial crisis (GFC) 2007 to 2008 that starts in the United State followed by the Greek crisis. GFC occurred due to banks' uncontrolled offering of mortgage financing in fulfilling demands from the market. Significant drops in housing prices has set off borrower defaults. The Greek crisis occurred due to the debt crisis. Unsurprisingly, the recent health crisis - Covid-19 would also trigger worldwide financial crisis. Covid-19 caused huge losses among businesses, financial difficulties for individuals and corporations, and increased the number of retrenchments that has led to a higher level of unemployment. The situation contributes to difficulties in servicing financing. Thus, banks have to act swiftly to the serious issue of non-performing financing to avoid of further losses. Absence of proper investigation on NPFs induces further deterioration of asset quality and greater losses. This possibly delays the development of banking growth hence, hindering the emergence and sustainability of the banking industry. The Islamic Financial Services Board (2022) in the Islamic Financial Services Industry Stability Report 2022 emphasized that the NPF should be treated seriously although it is at

the precautionary level. Because, it reflects the cost of risk that could turn into a non-reversal issue, threatening the resiliency of the global Islamic financial system.

The non-performing financing showed a tremendous increasing trend during the Covid-19 era as shown in Figure 1. It indicates that Covid-19 severely hit the Malaysian economy. The figure shows an increment in the total non-performing financing in early 2020. However, the amount decreased to the lowest value of MYR24900.63 million starting from March to September 2020. This was possibly due to the government initiatives to minimize the impact of the pandemic. Among others, were the moratorium as well as the announcement of the base rate to a lower basis point. However, the moratorium initiative was then lifted where only those who personally applied for a moratorium would receive the benefits. While others were not categorized as the moratorium receiver, Figure 1 displays an increasing trend of non-performing financing from September 2020 onwards.

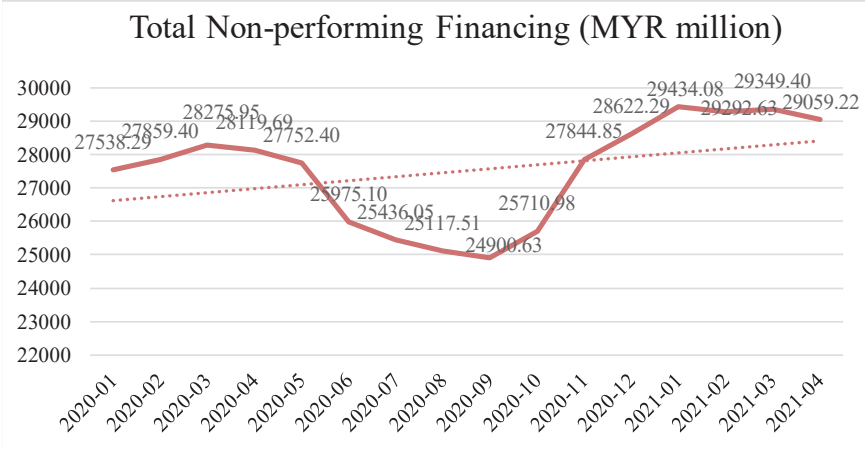

Figure 1: Trendline of Total Non-performing Financing during Covid-19 (MYR Million)

The Malaysian banking sector has experienced a shift in lending, from a heavy focus on business/corporate loans in the '90s to household loans (Endut & Hua, 2009). Out of MYR1.09 trillion total loans in April 2021, 59.06 percent went to household financing. In comparison, the total lending to the household was only 12.5 percent of MYR319.2 billion in 1996

(BNM, 1998, 2021). The substantial increase in household financing may have implications for the lender when this sector's financial vulnerability increases during crises.

At present, the central bank reports, total financing by banks is dominated by household financing, which on average account for more than 50 percent of total financing. On average, the proportion of sectoral financing is ranked in descending order as follows; i) household financing, ii) manufacturing, iii) wholesale, retails, restaurants and hotels, iv) real estate, v) finance, insurance and business services, vi) construction, vii) transport, storage and communication, viii) education and health, ix) primary agriculture, x) electricity, gas and water supply and xi) mining and quarrying. Refer to Figure 2 for the 15-year average proportion of total financing in Malaysia.

According to the statistics provided by the central bank, Bank Negara Malaysia, household financing is the greatest contributor for sectoral non-performing financing. The financing for household sector includes personal financing, retail mortgage financing and individual hire purchase financing. On top of that, households demand financing from banks for investment purposes. Household financing asset quality is very much dependent on individual creditworthiness, which has a direct influence on a country's economic condition. During a financial crisis or a pandemic it is expected that household financing is gravely affected (Ikram et al., 2021). Due to that reason, the study was interested to examine if there was any different impact on non-performing financing during and before the Covid-19 pandemic. Notably, the study was keen to investigate the moderating effect of Covid-19 on household financing on the total non-performing financing in the country.

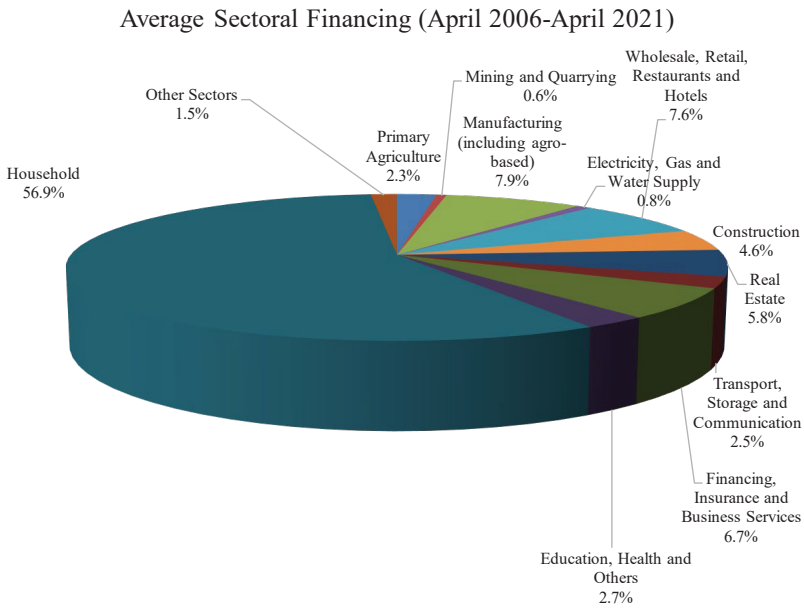

Figure 2: Monthly Average Sectoral Financing for April 2006-April 2021

Apart from household financing, non-performing financing is also contributed by other sectoral financing. Table 1 signifies the average ratio of sectoral non-performing financing to total sectoral financing. On average, the ratio portrays that sectoral non-performing financing ranges between 2.19 percent to 7.01 percent. In conjunction with this information, the study included an investigation of selected sectoral financing on the country's non-performance financing.

Table 1: 10-year Average Ratio Sectoral NPFs to Total Sectoral Financing

Sectors	10-year average (%)
Primary agriculture	2.19
Manufacturing (including agro-based)	5.89
Wholesale & retail trade, and restaurants & hotels	3.44
Construction	7.01
Transport, storage and communication	5.08
Finance, insurance and business activities	4.45
Household sector	2.45

This paper is structured as follows. Section 2 discusses the literature on non-performing financing focusing on sectoral analysis. Section 3 briefly explains the methodology applied in this study. Section 4 interprets and discusses the results obtained. Section 5 explains related policy implications and the study wraps up with suggestions for better management of non-performing financing. The paper uses loans and financing interchangeably in the following section onwards.

REVIEW OF THE LITERATURE

The unfolding of the Covid-19 pandemic has greatly challenged social-norms and brought adverse long-term consequences to the global economy. Covid-19 and the measures taken to tame the impending spread of the said virus, such as lockdown or movement control order (MCO), have left many at risk of losing work and the means to earn an income. This unsettling event increased the chances of problem loans or non-performing household loans mushrooming. This situation is alarming because as suggested by Kouretas et al. (2020), household loans hold a leading role in intensifying economic volatility, sectoral support and macroprudential policy. The authors in the sectoral approach analysis of European market examined mortgage and consumer loans as well as corporate loans, and discovered that asymmetric information issue for household financing was more prevalent relative to other sectoral loans.

The financial position of a household, financial prudence, asset ownership and other finance-related behavior (such as reducing expenses and undertaking an extra job) affect the financial vulnerability of household sectors in Indonesia (Noerhidajati et al., 2021). While Alter et al. (2018) expressed that growth in household borrowing negatively affected economic growth and there is a disparity between lower-income and higher-income households, as the lower-income households have a higher credit risk. This emphasized that banks should be vigilant on households' vulnerability when the borrower from this sector is higher on the lower-income side, as the probability of household loan becoming a problem loan is higher when unexpected income shocks hit. The adverse shock on income and wealth to financial vulnerability consequently will impair the ability of the borrower to meet financial obligations. A study by Li et al. (2022) empirically

indicated that low-income households are more pessimistic as compared to high-income households. This is because low-income households are more economically vulnerable relative to the high-income households which are more resilient towards risks despite their losses.

Other than that, factors such as the loss of lives and breadwinners succumbing to Covid-19 (Kidman et al., 2021; Mohammadi et al., 2021), increased poverty (Thompson et al., 2021), and income inequality (Qian & Fan, 2020; Thompson et al., 2021) could also lead to household financial shocks. These insecurities and complex financial conditions contribute to the inability to meet the scheduled credit repayment, resulting in the absence of or tardiness in paying back financial obligations and thus, increasing the trend in non-performing household loans. When the repayment of principal and interest payment is in arrears, it signals that the household is financially constrained, and the loan may be classified as non-performing/impaired. In Malaysia, since January 1st, 1998, loans have been classified as non-performing when principal or interest is six months in arrears, calculated from the first day of default (BNM, 1998).

Though the percentage of total loans to all customers (other than households) is not as high, the impact of this sector's loans on non-performing loans is equally essential to this study. Businesses can refinance or restructure their debt, however, in these trying times, not all businesses will survive. Small-and medium enterprises have had great difficulty surviving since the pandemic hits. The policy in combating the spread of the virus and the enforcement of Standard Operating Procedures such as (but not limited to) closing borders for interstate and international travel, reduced operating hours, restriction to selected non-essential (services and productions) to operate during lockdowns has left many economically devastated, particularly small businesses.

On top of household financing, banks diversification strategies promote multi sectoral financing to mitigate business risks. Micro Businesses depend heavily on debt financing, and bank loans are considered one of the primary sources of their credit needs (Mills & McCarthy, 2016). Similar to households' credit issue, not all businesses will be able to repay the financing they have made prior to the pandemic. Sectors like manufacturing, retail, restaurants, airlines, leisure facilities, oil and gas drilling, auto parts and

equipment (Dua et al., 2020; Haydon & Kumar, 2020) took the most brutal hit and will require a longer time to recover. Ghosh (2015) empirically investigated the different effects of different loans types with the argument that different types of loans are associated with different levels of risks. Real estate financing for instance, is pro-cyclical to the economic conditions and should be given thorough consideration during a crisis period. The author also claims agriculture, construction and land development with poor credit assessment induces to lower financing disbursement to these sectors.

Revenue of the retail sector plummeted during lockdowns, and the worst affected ones were the malls, departmental stores (Sahu, 2021) and hotels (Hao et al., 2020). Though the percentage of the total lending for retail sector was not substantial, the tumble of retails, and the hospitality sectors had a vicious cycle for the people involved and had a destructive financial implication to the sector. Vukovic et al. (2020) found that profitable and liquid retail firms had lower credit risks due to small needs to borrow. Additionally, companies with higher value tangible assets relied more on other sources of financing (other than bank loans) for their financing needs. From here, it can be said that a retail company with a high asset value and achieved a high sales growth will be able to gain more profit and has a lesser need to borrow or repay the borrowing (if any). However, it is to be noted that there are many small businesses in this sector and these groups of businesses are the ones badly hit during the Covid-19 pandemic.

As for manufacturing, the primary source of financing for this sector is bank borrowing (Majumdar, 2014). Disruption in the supply chain, reduction in the supply of raw material, limited number of workers allowed in the factory at any one time plays a vital role in the productivity of the manufacturing sector during the Covid-19 pandemic (Pak et al., 2020), thus affecting profitability of the sector. The profitability of firms in this sector relies on productivity and maintenance (Alsyouf, 2007) and the firm's working capital, size, and growth (Susilo et al., 2020). These indicate that smaller manufacturing companies with a non-essential business might have difficulty to have an active productivity, resulting in low production and low revenue. As for larger-sized manufacturing companies producing essential needs, the operation was allowed (with strict SOP). Therefore, a sound level of revenue (from the active productivity) resulting in the probability of a loan going bad is lower. Ding et al. (2020) and Gu et al. (2020) further disclosed

that restrictions on economic activities not only affected the operation of manufacturing firms but also, shrunk their revenues and performance.

Contrary to the manufacturing sector, in the construction sector, the emergence of the pandemic further added to the challenges faced. It was already heavily inflicted for safety on the job and unstable material costs. Lockdowns, travel restrictions, and uncertainties had disrupted the supply chain, labour unavailability and instability of demand (Sierra, 2021). The unavailability of foreign labour had resulted in the use of local labour, and training was rigorously provided to them, and to Ayat et al. (2021) this is an advantage (amidst challenges) for local labourers. Contrastingly, the increase in costs of construction material, additional costs due to the safety and health requirement during pandemics (such as entry and exit checkpoints, PPE and self-test kits), training, employing skilled workers and delay in payments were other adverse effects of the pandemic in this sector (Agyekum et al., 2021). Restriction measures caused a stop to all building activities (Allen-Coghlan & McQuinn, 2021) and a delay in receiving materials could also have caused delays in project completion and hence contributing to the delay in receiving payments. These gave rise to the impairment of profit and the inability to pay financial obligations (if any).

A study by Hoesli and Malle (2021) depicted that the impact of Covid-19 on real estate varied depending on the location, types and function, whether the said buildings are retail, residential or industrial assets. The price of the residential and industrial buildings was not as heavily affected as buildings for retails (and offices). Before this, Aliefendioğlu et al. (2021) had proven that house prices were affected during the pandemic, due to the macroeconomics such as (unemployment and CPI) being affected during this period. However, the decline in mortgage interest rates and other counter measures imposed by the country induced people to borrow to buy residential buildings (Duca et al., 2021), which showed that part of this sector was strong and resilient towards the economic shocks due to the Covid-19 pandemic. However, it was noted that this was due to the relief measures and policies taken by policymakers, and this effect might not be long lasting if the pandemic still raged for years to come.

On the other hand, the finance sector is vulnerable and not as resilient. Adverse movement of interest and inflation rates means lower liquidity risks

and higher financial risks (Karim et al., 2021). Lower interest rate imposed, encourages borrowing and hence, lower liquidity for banks. A high number of lending is considered as high risk to the banks as economic shocks will cause tardiness in repayment and render the impairment of the said loans.

Covid-19 hampered the worldwide supply-chain due to the disruption of both export and import businesses (Ikram et al., 2021) and inevitably affected the shipping and logistics sector (Hirata & Matsuda, 2021). Looking at the effect of Covid-19 on the other sectors, and its implication on the import-export business, an adverse effect was anticipated. However, Atayah et al. (2021) discovered that the performance of the logistics sector in most of the G-20 countries flourished during the Covid-19 period. Though import-export businesses were badly affected, the logistics companies (in most countries) were operating as usual as it is part of essential business. Looking at the composition of the logistics sector, it consists of transport, storage, and delivery of goods. A shift in consumer habits during the said period had given birth to the heavy reliance on e-commerce, which depended on logistics services to deliver the goods.

Just like any other sector, the agriculture sector had its own entanglement with Covid-19. The series of measures in curbing the spread of the virus had taken its toll on this sector. Lockdowns and interstate travel restrictions had resulted in the disturbance in the production and supply of vegetable (Tripathi et al., 2021; Zhou et al., 2020) and pre-planting and production of staples such as rice (Niaz et al., 2021). Challenges faced by this sector were primarily driven by factors such as the nature of the sector (labor intensive, traditional marketing/cooperative) and the complications driven from the virus-containing measures imposed. Fresh produce going bad without being able to be transported to the market was one of the casualties of Covid-19. Though this sector was considered as essential and no or minor restrictions were imposed on labourers to perform their duties, it however experienced shortage of labourers due to the fear and insecurity that caused the farmers to be reluctant to work (Niaz et al., 2021). In addition, agricultural sector credit quality is influential in determining bank financing decisions (Ghosh, 2015).

Šeho et al. (2023) reported that sectoral diversification in bank financing creates different effects for different crises. Previous Global

Financial Crisis (2007-2008) evidently revealed a positive effect of sectoral financing diversification as it stabilized the crises effect. Meanwhile the authors disclose oppositely for the Covid-19 crisis as diversification led to an adverse effect on bank stability. Bank stability in this context include credit risk management to reduce default financing. Similar to a recent study in China, Kryzanowski et al. (2022) exposed that non-performing financing increased during Covid-19 period despite the sluggish growth of lending. Credit risk deteriorated with the increase of Covid-19 cases in China. In the context of the economy and non-performing loan/financing, Žunić et al. (2021) stated that a country's economy affects the level of NPLs. During the period where the moratorium was introduced in Malaysia, the NPL level declined instead of rising (refer to Figure 1). The study argues that there is a delayed effect as the growth of NPLs were delayed by the blanket moratorium. Malaysia had also imposed several relief measures to buffer the effect of Covid-19 to the employee, business owners and selected sectors; such as loan moratorium, subsidized funds and credit guarantee schemes for businesses; and these measures will have a substantial impact on the findings in this study.

DATA DESCRIPTION AND METHODOLOGY

All data of non-performing financing and sectoral financing were obtained from the monthly statistical bulletin issued by the central bank, Bank Negara Malaysia. Non-performing financing comprises of both non-performing loans issued by the conventional banks as well as the non-performing financing issued by the Islamic banks. Thus, the study referred to the total defaulted financing issued by both institutions known as the non-performing financing. The study used monthly aggregate data over a 15-year span from April 2006 to April 2021. Beginning April 2006, the Financial Institutions Statistical System (FISS) reclassified loans/financing by economic sector encompassing non-household customers. Starting from this period, loans by purpose encompassed loans to all customers. Therefore, a loan to a non-household customer was reflected in both the economic sector/industry and purpose. There were 180 time series observations after first-differencing transformation which identified 16 months of the Covid-19 period that was from January 2020 to April 2021. The Covid-19 period was denoted as dummy variable 1 consisting of approximately 9 percent of the total observations.

The main interest of this study was to investigate the effect of Covid-19 on the relationship between household financing and the non-performing financing. Apart from household debt, the study also included other sectoral financing mainly the one that largely contributed to the economy. In addition, to household financing, the study covered other seven sectors; i) manufacturing, ii) wholesale, retails, restaurants and hotels, iii) real estate, iv) finance, insurance and business services, v) construction, vi) transportation, storage and communication and vii) primary agriculture sectors. The study excluded education and the health sector, electricity, gas and water supply sector and mining and quarrying sector. Table 2 displays the list of dependent and independent variables included in the model.

Table 2: List of variables and definitions

Variables	Notation	Variables definition
Dependent Variable		
Non-performing Financing	NPF	Natural log of monthly non-performing financing
Independent Variables		
Household	HD	Natural log of monthly household financing
Manufacturing	MAN	Natural log of monthly manufacturing sector financing
Wholesale and Retails	WRH	Natural log of monthly wholesale, retail, restaurants and hotels financing
Real Estate	RE	Natural log of monthly real estate financing
Finance	FIN	Natural log of monthly finance, insurance and business services financing
Construction	CON	Natural log of monthly construction sector financing
Transportation	TSC	Natural log of monthly transportation, storage and communication sector financing
Agriculture	AG	Natural log of monthly primary agriculture financing
Interacting Variable		
Covid-19	COV	1 for Covid-19 period, and 0 for normal period

The study performed diagnostic testing on the data and model that included autocorrelation and heteroscedasticity test. The diagnostic tests utilized the Breusch-Godfrey LM test to identify the serial correlation issue and the Breusch-Pagan/Cook-Weisberg test to diagnose the heteroscedasticity issue. Multicollinearity was tested using Variance Inflation Factor (VIF) while the study applied the Phillips-Perron test for unit root issue detection. Equation 1 exhibits the interaction model of the employed regression:

$$NPF_t = \beta_0 + \beta_1 HD_t + \beta_2 MAN_t + \beta_3 WRH_t + \beta_4 RE_t + \beta_5 FIN_t + \beta_6 CON_t + \beta_7 TSC_t + \beta_8 AG_t + \beta_9 COV_t + \beta_{10} HD_t * COV_t + e_t \quad (1)$$

The Covid-19 (COV) variable in Equation 1 indicated dummy 1 of Covid-19 period from January 2020 to April 2021. Meanwhile Covid-19 dummy 0 represented another normal period prior the pandemic that was from April 2006 to December 2019. The equation presented the effect Covid-19 on the interaction between household debt and non-performing financing in the country.

The study used the statistical package for all testing and estimation. The following hypotheses are then referred to achieve the research objectives:

H1: Covid-19 period significantly influences the impact of household financing on non-performing financing in Malaysia.
H2: Manufacturing sector financing significantly influences non-performing financing in Malaysia.
H3: Wholesale, retail, restaurants and hotels sectors financing significantly influences non-performing financing in Malaysia.
H4: Real estate financing significantly influences non-performing financing in Malaysia.
H5: Finance, insurance, and business services financing significantly influences non-performing financing in Malaysia.
H6: Construction sector financing significantly influences non-performing financing in Malaysia.
H7: Transportation, storage and communication sector financing significantly influences non-performing financing in Malaysia.
H8: Primary agriculture sector financing significantly influences non-performing financing in Malaysia.
H9: Non-performing financing in Malaysia was significantly higher during the Covid-19 pandemic relative to the non-crisis period.

EMPIRICAL FINDINGS AND DISCUSSION

Generally, the financing activities between sectors were not orthogonal. Under diagnostic testing potential multicollinearity was tested using the VIF test. Although the mean VIF was more than 10, the common rule of

thumb, the values do not necessarily indicate what is collinear. Household financing and other sectoral financing is very much dependent on the pool of fund supply as well as the current economic condition. Thus, the majority financing activities during the period was moving in similar patterns. On the contrary, this scenario might have the opposite movements of the counter-cyclical sectors. The study also found that there were no large changes in the coefficients when a data point was altered or dropped. The Phillips-Perron test for stationary identifies unit root issues for several variables. In solving the issue, first differencing transformation was executed in the estimation for the non-stationary variables. The significant probability value rejected the null of the Breusch-Godfrey LM test stating there was no serial correlation in the model, hence implying that the model was exposed to the autocorrelation issue. Furthermore, the Breusch-Pagan/Cook-Weisberg test also rejected the null statement of constant variance indicating that there was heteroscedasticity involves in the estimation. Hence, the study employed the Newey-West standard errors regression in order to mitigate the autocorrelation issue detected in the model. The Newey-West estimator was employed with robust standard error to correct the OLS estimator often applied for time series data. Among others Kantur and Özcan (2021), Ozili (2022) and Ozili and Ndah (2021) employed Newey-West regression for the empirical investigation of time-series analysis. The chosen regression is also relevant to the potential heteroscedasticity issue.

Table 3 parades the descriptive statistics of the variables used in the model. Despite the estimation data being transformed to natural logarithms, the descriptive statistics are reported in values to portray a more informative discussion. All values are reported in MYR million for 181 observations. The tabulated data in the sample was normally distributed as the skewness was close to 0 and the kurtosis was approximately 3. The means and medians for all variable were also close to each other supporting the former claims. The average value of non-performing financing was almost MYR30 billion, while the minimum and maximum non-performing financing was approximately MYR21 billion and MYR53 billion respectively. The lowest impaired financing experience was in April 2015 and the greatest experience of having impaired financing was in April 2006.

Table 3: Non-performing Financing and Sectoral Financing Descriptive Statistics

Variables	N	Mean	Minimum	Median	Maximum	Standard Deviation	Skewness	Kurtosis
Non-performing Financing	181	29,572	21,316	26,835	52,939	8,184	1.56	4.47
Household	181	675,733	313,581	675,334	1,090,207	246,050	0.07	1.63
Manufacturing	181	94,045	61,668	96,035	125,671	16,362	-0.03	2.24
Wholesale and Retails	181	89,935	50,455	89,501	142,234	28,118	0.19	1.66
Real Estate	181	69,463	15,805	67,017	117,875	37,710	-0.05	1.42
Finance	181	79,329	32,414	81,056	118,456	28,021	-0.23	1.65
Construction	181	55,025	28,316	48,087	94,343	22,011	0.56	1.89
Transportation	181	29,707	10,241	29,121	41,433	8,555	-0.68	2.79
Agriculture	181	26,995	11,406	31,243	37,939	9,015	-0.37	1.50

Note: All variables are in MYR million. Non-performing financing is the monthly value of non-performing financing, household is the monthly value of household financing, manufacturing is the value of monthly manufacturing sector financing, wholesale and retails is the value of monthly wholesale, retail, restaurants and hotels financing, real estate is the monthly value of real estate financing, finance is the monthly value of finance, insurance and business services financing, construction is the value of monthly construction sector financing, transportation is the monthly value of transportation, storage and communication sector financing, agriculture is the value of monthly primary agriculture financing.

As shown in Table 3 household financing was the main contributor in bank financing activities. The mean of household financing was significantly greater than other sectoral financing with the maximum household financing reaching MYR1.09 trillion. On top of household financing, the top five contributors of bank financing included manufacturing, wholesale, retail, restaurants and hotels, finance, insurance and business services and followed by real estate sectors.

The findings and discussions of the research interest can be referred to in Table 4. The Newey-West standard errors regression was deemed to be a fit model with the F-statistic statistically significant at the 1 percent level. The results revealed that financing given to a particular sector can either prompt the non-performing financing or avert the default to occur. In short, the four sectors that triggered the non-performing assets were i) household financing, ii) manufacturing, iii) construction and iv) transport, storage and communication sectors. Household financing was found to be the important determinant to the non-performing financing. There were four sectors that were found to negatively related to non-performing financing that are i) wholesale, retail, restaurant and hotel, ii) real estate, iii) finance,

insurance and business services and iv) primary agriculture sector. The relationship was found to be significant for all sectors except for the finance, insurance and business services sector. The findings also revealed that not only did the Covid-19 crisis significantly influence the non-performing financing, but also showed that the interaction effect between Covid-19 and household financing was statistically significant at the 1 percent level. The study exposed the impact of Covid-19 on bank non-performing financing. During the pandemic, non-performing financing was significantly greater than during the non-crisis period. The result substantiated hypothesis 9 stated in the study.

Table 4: Non-performing Financing Estimation Model

	Coefficient	Newey-West Standard Error	t-value/z-value
Household	**1.915*** **	0.160	12.00
Covid-19	28.519***	8.290	3.44
Household * Covid-19	**-2.066*** **	0.598	-3.45
Normal period	**[1.915]*** **	(0.160)	12.00
Covid-19	**[-0.151]**	(0.578)	-0.26
Manufacturing	0.723	0.557	1.30
Wholesale and Retails	-1.798***	0.683	-2.63
Real Estate	**-0.988*** **	0.117	-8.45
Finance	-0.167	0.256	-0.65
Construction	0.092	0.339	0.27
Transportation	0.018	0.022	0.80
Agriculture	**-0.662*** **	0.113	-5.88
Constant	**2.251***	1.294	1.74

Note: *** is significant at 1% level, ** is significant at 5% level, and * is significant at 10% level. Marginal effects are in brackets and Delta-method standard error for the marginal effect are in parentheses. Household refers to natural log of monthly household financing, Covid-19 refers dummy variable (1 for Covid-19 period and 1 for normal period), Manufacturing refers to natural log of monthly manufacturing sector financing, Wholesale and Retails refers to natural log of monthly wholesale, retail, restaurants and hotels financing, Real estate refers to natural log of monthly real estate financing, Finance refers to natural log of monthly finance, insurance and business services financing, Construction refers to natural log of monthly construction sector financing, Transportation refers to natural log of monthly transportation, storage and communication sector financing, Agriculture refers to natural log of monthly primary agriculture financing.

The findings showed a positive significant relationship between household financing and non-performing financing. This inferred that the more financing granted to the household sector, the greater the chances of households defaulting. Interestingly the interaction effect between Covid-19

and household financing exposes a new insight on non-performing financing. The marginal effect as displayed in Table 4 discovered an opposite effect of Covid-19 during the period relative to the normal period. Similar to the earlier discussion, during the non-crisis period, greater household financing contributed to more non-performing financing. The positive marginal effect was significant at the 1 percent level. On the contrary, during the Covid-19 period, the marginal effect was negative implying less non-performing financing during the pandemic. The result substantiated hypothesis 1 which suggested that the Covid-19 period significantly influenced the impact of household financing on non-performing financing in Malaysia. During the pandemic, the more household financing issued, the lesser the non-performing financing. The marginal effect proposed, before the pandemic, household financing issuance was relatively less stringent compared to during the pandemic. Due to that reason, the asset quality during Covid-19 was superior than the asset quality before the pandemic, especially with regard to household financing disbursement. In consequence, greater household financing during the pandemic led to lower credit risks, thus low potential of non-performing financing.

Household financing is one of the major markets for credit offered by banks. Historical data depict the importance of household financing in credit creation by banks. The proportion of household contributions increased substantially over many years, which achieved approximately 60 percent of total financing. In response to this, household financing adversely affected non-performing financing as more defaulted financing was detected from the hypothesis testing. One of the plausible explanations in this scenario is in order to obtain a greater return from household financing, banks risk tolerance of credit risk was also increased. However, this risk atmosphere was probably not applicable during the crisis period, in this study the Covid-19. In anticipation of many households being affected by the pandemic, during this period, banks became more stringent and prudent in their risk assessment for household financing (Feyen et al., 2021). Acknowledging a huge proportion of household financing, banks need to be more cautious in evaluating and approving each financing to avoid inadequate liquidity and capital in the banks. In consequence, banks focused on superior asset quality financing and were exposed to lesser credit risks during the Covid-19 period.

Additionally, the study investigated the impact of other sectors towards non-performing financing. Wholesale, retails, restaurants and hotels sector financing refers to loans granted to finance customers in the sectors and those operating restaurants and hotels. The hypothesis testing on this sector accepted the alternate hypothesis 3 claims that this sector as one of the major contributors to non-performing financing in Malaysia. The negative relationship between this sectoral financing and the non-performing financing was significant at the 1 percent level. More disbursement of financing given to this sector instigated to lower non-performing financing. Despite the low margin in this sector relative to other businesses, restaurant profit margin kept increasing from 2011 to date. The promising growth of margin in this sector hindered the potential of financing default coming from this sector.

Hypothesis 4 aimed to test the relationship between the real estate sector and non-performing financing. The p-value was significant at the 1 percent level indicating that the real estate sector as major determinants of bank non-performing financing in Malaysia. The more the real estate financing, the lesser the non-performing financing. This is justifiable because the real estate and property market is one of the economic iron horses with a steady growth and resilient market. Known as well-regulated market, the market shows robust marginal growth in volume and value (National Property Information Centre, 2019). Subsequently, the real estate sector is less exposed to default risks because of the market potentials.

Despite lower proportions of financing disbursed to the agricultural sector, the study found significant evidence of the importance of this sector towards non-performing financing. The study rejected the null, thus coinciding with the alternate Hypothesis 8 that emphasizes that the agricultural sector significantly influences Malaysian bank non-performance financing. The negative relationship as exhibited in Table 4 portrays the high-level quality of the asset in this sector. This is aligned with the government's agenda to support related business such as cultivation of crops, livestock farming, timber extraction, forest management, poultry, farming, fishing and agricultural services. Furthermore, The World Bank Group (2019) declared the need of government support in order to transform the country to a high income nation. With that, the Malaysian government is serious with the national agenda in supporting and boosting up the sector. In regard

to this, the agricultural sector is stable and thus exposes the business into a low credit risk, hence lowering the possibility of non-performing financing.

The positive relationship between the manufacturing sector and non-performing financing indicated that the manufacturing sector leads to more bank default risk. As disclosed in Table 4 bigger financing granted to the manufacturing sector causes a greater potential of non-performing financing. As the manufacturing sector undeniably contributes a huge income in the country, banks financing is crucial to ensure industry growth. The Malaysian Investment Development Authority (2020) documents that the manufacturing sector plays a vital role in Malaysia's economic transformation via the Industry 4.0 initiative. Apparently, the asset quality of the substantial amount disbursed to this sector relies highly on market dynamics and business performance. The uncertainty scenario exposes banks to a higher credit risks as any shock in the market, can easily affect the business. The study however, failed to reject the null Hypothesis 2. Hence, unable to document that financing activities given to manufacturing are one of the crucial determinants of the non-performing financing in Malaysia.

Finance, insurance and business services are the backbone of the economy in the country. Evidently, this sectoral financing gave a positive effect to bank non-performing financing. The negative relationship propounded a higher amount of financing granted to this sector caused a lesser potential of default. Because the financial market is very sensitive to the changes in the market, the need for a well-regulated market is deemed to be mandatory. The financial sectors, particularly banks and insurance companies are under the purview of the central bank governed by the Financial Services Act 2013 and Islamic Financial Services Act 2013. The act empowers Bank Negara Malaysia to supervise the financial system in ensuring transparency as well as to safeguard market confidence. This well-regulated sector is then exposed to less financial risks. The study however, was unable to reject the null hypothesis to prove the significant effect of the sector on non-performing financing.

The other two sectors, construction and transportation, storage and communication sectors were positively related to the non-performing financing. Nevertheless, the associations were found to be insignificant as the study failed to reject the null Hypotheses 6 and 7. These indicated that

the non-performing financing was not affected by the financing given to customers operating in these industries.

CONCLUSION

The primary aim of this study was to examine and discuss non-performing financing in Malaysian banks, especially with the existence of the recent crisis in the economy caused by the Covid-19 pandemic. The main focus of this study was to investigate the stimulus of household financing on the non-performing financing for a 16-year period. Additionally, the study hypothesized another seven sectoral financing to investigate the sectoral effects on impaired financing.

As projected, the Covid-19 pandemic that hits all over the globe left a severe impact to businesses and the economy as a whole. Undoubtedly, the banking sector, which provides financing to economic sectors faced a direct impact from this situation due to the risk spillover effect (Foglia et al., 2022). The study found evidence that during the pandemic, non-performing financing was significantly higher than before the crisis. Once businesses and the economy were affected, the effect was then translated to household financial stability. Household financing, which represents more than half of total financing in Malaysia is one of the important determinants of bank credit risk. The more financing provided in this category, the more exposure of risk that promotes default financing. The findings suggested that there was a trade-off between the amount of financing provided to households with asset quality. Generally, higher household financing induces lower asset quality and triggers a higher potential of default. Nonetheless, during the pandemic, the amount of defaulted financing dropped with the increase in household financing. This resulted from the prompt actions taken by banks and the regulators in managing the potential effect of the pandemic. Apart from the moratorium given to restructure and reschedule existing financing, banks were more cautions and prudent in finance disbursement, particularly household financing.

It is also empirically tested that i) wholesale, retails, restaurants and hotels, ii) real estate and iii) primary agriculture financing can evidently provide a venue in controlling non-performing financing. On the other hand,

banks need to be more thorough in assessing the asset quality of financing issued to households in Malaysia.

In a nutshell, the study proposes the following policy implications to credit providers in the country. Firstly, by acknowledging the strong impact of household financing to non-performing financing, stringent credit evaluation and monitoring must be given to household financing. The strategy should not be limited to crises periods, but complacent decision making during normal periods would also trigger a greater credit risk. It was evident in the study that agile bank decisions in response to the Covid-19 crisis, allowed for a lesser impact on non-performing financing during the period. However, a long run strategy needs to be in place to curb the issue of credit risks during a crisis. Secondly, it is vital for decision makers to focus on the three identified sectors in stabilizing the effect of non-performing financing in Malaysia. It is crucial for banks and the Central Bank to identify the financing categories and sectoral financing that carry a lower risk of default. Evaluation and pricing for different sectoral financing are also a good measure to compensate for the risks involved in financing disbursement. This is to ensure bank stability and sustainability in order to support the country and the economy in the long run.

ACKNOWLEDGEMENT

The authors extend their appreciation to Universiti Teknologi MARA (UiTM) and Research Management Centre of UiTM for a "Geran Penyelidikan Lestari Covid-19" [600-RMC/LESTARI COVID/5/3 (003/2020)] provided which enabled them to conduct the research. The authors alone are responsible for any errors.

REFERENCES

Agyekum, K., Kukah, A. S., & Amudjie, J. (2021). The impact of COVID-19 on the construction industry in Ghana: the case of some selected firms. *Journal of Engineering, Design and Technology, ahead-of-print(ahead-of-print)*. https://doi.org/10.1108/JEDT-11-2020-0476

Aliefendioğlu, Y., Tanrivermis, H., & Salami, M. A. (2021). House price index (HPI) and Covid-19 pandemic shocks: evidence from Turkey and Kazakhstan. *International Journal of Housing Markets and Analysis, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/IJHMA-10-2020-0126

Allen-Coghlan, M., & McQuinn, K. M. (2021). The potential impact of Covid-19 on the Irish housing sector. *International Journal of Housing Markets and Analysis, 14(4), 636-651.* https://doi.org/10.1108/IJHMA-05-2020-0065

Alsyouf, I. (2007). The role of maintenance in improving companies' productivity and profitability. *International Journal of production economics, 105(1), 70-78.* https://doi.org/https://doi.org/10.1016/j.ijpe.2004.06.057

Alter, A., Feng, X. A., & Valckx, N. (2018). *Understanding the Macro-Financial Effects of Household Debt: A Global Perspective (WP/18/76).* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3182498

Atayah, O. F., Dhiaf, M. M., Najaf, K., & Frederico, G. F. (2021). Impact of COVID-19 on financial performance of logistics firms: evidence from G-20 countries. *Journal of Global Operations and Strategic Sourcing, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/JGOSS-03-2021-0028

Ayat, M., Malikah, & Kang, C. W. (2021). Effects of the COVID-19 pandemic on the construction sector: a systemized review. *Engineering, Construction and Architectural Management, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/ECAM-08-2021-0704

BNM. (1998). *Bank Negara Malaysia Annual Report. B. N. Malaysia.* https://www.bnm.gov.my/-/bnm-annual-report-1997

BNM. (2021). *Monthly Highlights and Statistics [XLS].* https://www.bnm.gov.my/-/monthly-highlights-and-statistics-in-october-2021

Ding, W., Levine, R., Lin, C., & Xie, W. (2020). Corporate immunity to the COVID-19 pandemic. Working Paper.

Dua, A., Mahajan, D., Oyer, L., & Ramaswamy, S. (2020). *US small-business recovery after the COVID-19 crisis. McKinsey & Company. Retrieved 24 December 2021 from* https://www.mckinsey.com/industries/public-and-social-sector/our-insights/us-small-business-recovery-after-the-covid-19-crisis

Duca, J. V., Hoesli, M., & Montezuma, J. (2021). The resilience and realignment of house prices in the era of Covid-19. *Journal of European Real Estate Research, 14(3), 421-431.* https://doi.org/10.1108/JERER-11-2020-0055

Endut, N., & Hua, T. G. (2009). Household debt in Malaysia. *BIS papers, 46, 107-116.*

Feyen, E., Alonso Gispert, T., Kliatskova, T., & Mare, D. S. (2021). Financial Sector Policy Response to COVID-19 in Emerging Markets and Developing Economies. Journal of Banking & Finance, 133, 106184. https://doi.org/https://doi.org/10.1016/j.jbankfin.2021.106184

Foglia, M., Addi, A., & Angelini, E. (2022). The Eurozone banking sector in the time of COVID-19: Measuring volatility connectedness. *Global Finance Journal, 51, 100677.* https://doi.org/https://doi.org/10.1016/j.gfj.2021.100677

Ghosh, A. (2015). Banking-Industry Specific and Regional Economic Determinants of Non-performing Loans: Evidence from US States. *Journal of Financial Stability, 20, 93-104.* https://doi.org/http://www.sciencedirect.com/science/journal/15723089

Gu, X., Ying, S., Zhang, W., & Tao, Y. (2020). How do firms respond to COVID-19? First evidence from Suzhou, China. *Emerging Markets Finance and Trade, 56*(10), 2181-2197.

Hao, F., Xiao, Q., & Chon, K. (2020). COVID-19 and China's Hotel Industry: Impacts, a Disaster Management Framework, and Post-Pandemic Agenda. *International Journal of Hospitality Management, 90, 102636.* https://doi.org/https://doi.org/10.1016/j.ijhm.2020.102636

Haydon, D., & Kumar, N. (2020, 24 December 2021). Industries Most and Least Impacted by COVID-19 from a Probability of Default Perspective – September 2020 Update. https://www.spglobal.com/marketintelligence/en/news-insights/blog/industries-most-and-least-impacted-by-covid19-from-a-probability-of-default-perspective-september-2020-update

Hirata, E., & Matsuda, T. (2021). Uncovering the impact of COVID-19 on shipping and logistics. *Maritime Business Review, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/MABR-03-2021-0018

Hoesli, M., & Malle, R. (2021). Commercial real estate prices and COVID-19. *Journal of European Real Estate Research, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/JERER-04-2021-0024

Ikram, M., Shen, Y., Ferasso, M., & D'Adamo, I. (2021). Intensifying effects of COVID-19 on economic growth, logistics performance, environmental sustainability and quality management: evidence from Asian countries. *Journal of Asia Business Studies, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/JABS-07-2021-0316

Islamic Financial Services Board. (2022). *Islamic Financial Services Industry Stability Report 2022 (Islamic Financial Services Industry Stability Report, Issue. I. F. S. Board.* www.ifsb.org.

Kantur, Z., & Özcan, G. (2021). Card spending dynamics in Turkey during the COVID-19 pandemic. *Central Bank Review, 21(3), 71-86.* https://doi.org/https://doi.org/10.1016/j.cbrev.2021.07.002

Karim, M. R., Shetu, S. A., & Razia, S. (2021). COVID-19, liquidity and financial health: empirical evidence from South Asian economy. *Asian Journal of Economics and Banking.*

Kidman, R., Margolis, R., Smith-Greenaway, E., & Verdery, A. M. (2021). Estimates and Projections of COVID-19 and Parental Death in the US. JAMA Pediatrics, 175(7), 745-746. https://doi.org/10.1001/jamapediatrics.2021.0161

Kouretas, G. P., Pawłowska, M., & Szafrański, G. (2020). Market structure and credit procyclicality: Lessons from loan markets in the European Union banking sectors. *Economic Modelling, 93, 27-50.* https://doi.org/10.1016/j.econmod.2020.07.013

Kryzanowski, L., Liu, J., & Zhang, J. (2022). Effect of COVID-19 on non-performing loans in China. *Financ Res Lett, 103372.* https://doi.org/10.1016/j.frl.2022.103372

Li, N., Chen, M., Gao, H., Huang, D., & Yang, X. (2022). Impact of lockdown and government subsidies on rural households at early COVID-19 pandemic in China. *China Agricultural Economic Review, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/CAER-12-2021-0239

Majumdar, R. (2014). The determinants of indebtedness of unlisted manufacturing firms in India. *Management Research Review, 37(9), 833-854.* https://doi.org/10.1108/MRR-09-2012-0193

Malaysian Investment Development Authority. (2020). *Vibrant Manufacturing Ecosystem. Retrieved 23 December 2021 from* https://www.mida.gov.my/industries/manufacturing/

Mills, K., & McCarthy, B. (2016). *The State of Small Business Lending: Innovation and Technology and the Implications for Regulation.*

Mohammadi, F., Oshvandi, K., Shamsaei, F., Cheraghi, F., Khodaveisi, M., & Bijani, M. (2021). The mental health crises of the families of COVID-19 victims: a qualitative study. *BMC Family Practice, 22(1), 94.* https://doi.org/10.1186/s12875-021-01442-8

National Property Information Centre. (2019). *Property Market Report [Report]. M. o. F. Malaysia.*

Niaz, A., Asad, M. M., Abdulmuhsin, A. A., Shavanov, M., & Churi, P. (2021). Risk factors for the rice crop farming community in China: a documentary analysis of the challenges during post COVID-19. Asian Education and Development Studies, ahead-of-print(ahead-of-print). https://doi.org/10.1108/AEDS-11-2020-0257

Noerhidajati, S., Purwoko, A. B., Werdaningtyas, H., Kamil, A. I., & Dartanto, T. (2021). Household financial vulnerability in Indonesia: Measurement and determinants. *Economic Modelling, 96, 433-444.* https://doi.org/https://doi.org/10.1016/j.econmod.2020.03.028

Ozili, P. K. (2022). Determinants of bank income smoothing using loan loss provisions in the United Kingdom. *Journal of Economic and Administrative Sciences, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/JEAS-09-2021-0192

Ozili, P. K., & Ndah, H. (2021). Impact of financial development on bank profitability. *Journal of Economic and Administrative Sciences, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/JEAS-07-2021-0140

Pak, A., Adegboye, O. A., Adekunle, A. I., Rahman, K. M., McBryde, E. S., & Eisen, D. P. (2020). Economic Consequences of the COVID-19 Outbreak: the Need for Epidemic Preparedness [Perspective]. *Frontiers in Public Health, 8.* https://www.frontiersin.org/articles/10.3389/fpubh.2020.00241

Qian, Y., & Fan, W. (2020). Who loses income during the COVID-19 outbreak? Evidence from China. *Research in Social Stratification and Mobility, 68, 100522.* https://doi.org/https://doi.org/10.1016/j.rssm.2020.100522

Sahu, S. R. (2021). Study of Challenges Faced by Employees of Retail Stores During Covid-19. *Psychology and Education, 58(3), 3157-3161.* https://doi.org/https://doi.org/10.17762/pae.v58i3.4447

Šeho, M., Shaiban, M. S. M., & Ghafoor, A. (2023). Loan and financing diversification and bank stability in dual-banking systems. *Finance Research Letters, 51.* https://doi.org/10.1016/j.frl.2022.103395

Sierra, F. (2021). COVID-19: main challenges during construction stage. *Engineering, Construction and Architectural Management, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/ECAM-09-2020-0719

Stewart, R., & Chowdhury, M. (2021). Banking sector distress and economic growth resilience: Asymmetric effects. *The Journal of Economic Asymmetries, 24, e00218.* https://doi.org/https://doi.org/10.1016/j.jeca.2021.e00218

Susilo, D., Wahyudi, S., Rini, I., & Pangestuti, D. (2020). Profitability Determinants of Manufacturing Firms in Indonesia. *International Journal of Economics and Business Administration, VIII*(2), 53-64.

The World Bank Group. (2019). Agricultural Transformation and Inclusive Growth, The Malaysian Experience. World Bank Group. Retrieved 13 June from https://documents1.worldbank.org/curated/en/617611574179512389/pdf/Agricultural-Transformation-and-Inclusive-Growth-The-Malaysian-Experience.pdf

Thompson, J., Ndung'u, N., Albacete, M., Suleri, A. Q., Zahid, J., & Aftab, R. (2021). *The Impact of Covid-19 on Livelihoods and Food Security (Covid-19 Responses for Equity (CORE) Research for Policy and Practice Report, Issue.* https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/16720

Tripathi, A., Bharti, N., Sardar, S., & Malik, S. (2021). Covid-19, disrupted vegetable supply chain and direct marketing: experiences from India. *Journal of Agribusiness in Developing and Emerging Economies, ahead-of-print(ahead-of-print).* https://doi.org/10.1108/JADEE-04-2021-0095

Umar, M., Sun, G., Shahzad, K., & Rao, Z.-u.-R. (2018). Bank regulatory capital and liquidity creation: evidence from BRICS countries. *International Journal of Emerging Markets, 13(1), 218-230.* https://doi.org/10.1108/IJoEM-04-2015-0072

Vukovic, B., Milutinovic, S., Milicevic, N., & Jaksic, D. (2020). The Analysis of Indebtedness of Retail Companies in the Balkan Countries. *Economic Studies Journal(3)*, 83-104.

Zhou, J.-h., Han, F., Li, K., & Wang, Y. (2020). Vegetable production under COVID-19 pandemic in China: An analysis based on the data of 526 households. Journal of Integrative Agriculture, 19(12), 2854-2865. https://doi.org/https://doi.org/10.1016/S2095-3119(20)63366-4

Žunić, A., Kozarić, K., & Dželihodžić, E. Ž. (2021). Non-Performing Loan Determinants and Impact of COVID-19: Case of Bosnia and Herzegovina. *Journal of Central Banking Theory and Practice, 10(3), 5-22.* https://doi.org/10.2478/jcbtp-2021-0021