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The impact of Covid-19 pandemic on MSMEs

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A R T I C L E I N F O

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A B S T R A K

Pandemi Covid-19 yang terjadi sejak awal tahun 2020 telah berdampak luar biasa terhadap aspek ekonomi, termasuk kondisi keuangan perusahaan-perusahaan yang ada. Dalam hal ini, usaha mikro, kecil, dan menengah (UMKM) berpotensi mengalami dampak yang jauh lebih besar daripada perusahaan besar karena keterbatasan sumber daya yang mereka miliki. Terkait dengan hal itu, penelitian ini bertujuan untuk menganalisis dampak pandemi Covid-19 terhadap kinerja UMKM di Eks Karesidenan Pekalongan yang diukur dari variabel omset penjualan, tenaga kerja dan ketahanan arus kas usaha. Data yang digunakan berdasarkan hasil survei kepada 100 UMKM di wilayah Eks-Karesidenan Pekalongan pada 7-14 Mei 2020. Berdasarkan hasil uji t berpasangan menunjukkan rata-rata nilai omset penjualan mengalami penurunan 1,2573 persen. Hasil pemetaan menggunakan diagram kartesius, sektor Perdagangan Eceran dan Penyediaan Makan Minum mengalami penurunan jumlah tenaga kerja terbesar dengan tingkat ketahanan arus kas usaha pada sektor tersebut rata-rata selama 1,5-2 bulan. Berdasarkan kelompoknya, usaha mikro mempunyai rata-rata ketahanan arus kas selama 1,5-2 bulan.

A B S T R A C T

The Covid-19 pandemic that began to spread at the beginning of 2020 has greatly affected the economy, including firms' financial conditions. In this respect, micro, small, and medium enterprises (MSMEs) likely experience greater negative effects of the Covid-19 pandemic than large firms due to their limited resources. Hence, this study aims to analyze the impact of Covid-19 on MSMEs' performance in former Pekalongan Residency, as measured by the sales turnover, labor, and business cash flow resilience. The analysis is based on the survey results of 100 MSMEs in the Pekalongan former regency. The findings suggest that MSMEs have suffered a sales turnover decrease of 1.2573 percent. Further, the mapping analysis using the Cartesian diagram

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demonstrates that the retail and food and beverage provision sectors exhibit the greatest labor decrease and average business cash flow resilience of 1.5 – 2 months. Meanwhile, based on firm size, micro firms have average cash resilience of 1.5 – 2 months.

INTRODUCTION

Micro, small, and medium enterprises (MSMEs) play a strategic role in national development as the drivers of economic growth, export, and innovation (Putra, 2016). Indonesia needs to focus on developing MSMEs because they contribute significantly to the national economy (Pakpahan, 2020). An empirical study indicates that MSMEs managed to cope with the 1997/ 1998 economic crisis that helped Indonesia survive the crisis that ruined the financial and banking sector (Hadad et al., 2004).

Ministry of Cooperatives and SME's data shows that Indonesia had 64.19 million MSMEs in 2018. MSMEs also contributed to 61.07 percent of total GDP, 14.37 percent of total export, and absorb 97.30 percent of total employment. Besides, the Provincial Office of Cooperatives and SME of Central Java Province data indicates that the province had advocated 151,968 MSMEs that hired 1,171,978 employees in 2019. Simultaneously, there were 93,850 MSMEs in former Pekalongan Residency that absorbed 474,250 employees in 2019. MSME growth directly affects each area's economic growth and employment rate.

At the end of 2019, the pneumonia case caused by the new coronavirus strain was initially discovered in Wuhan City, China. The diseases then began to spread worldwide rapidly and are commonly known as Covid-19 (Yang et al., 2020). Since March 11, 2020, World Health Organization (WHO) has declared that Covid-19 is a global pandemic in most countries, including Indonesia (Dong et al., 2020). WHO underscores that Covid-19 infects through the human respiratory system that can cause from mild flu to death. Covid-19 has a short incubation period that the disease can spread massively and quickly (Kirigia & Muthuri, 2020). The number of covid-19 cases increases rapidly worldwide, including in Indonesia (Yamali & Putri, 2020). Consequently, many countries take various policies to respond to Covid-19, including lockdowns and social and physical distancing or labeled as Large-scale Social Restriction (*PSBB – Pembatasan Sosial Berkala Besar)* in Indonesia (Hadiwardoyo, 2020). This policy has made MSMEs experience sharp revenue decreases that many have to cease operations due to cash flow constraints (Tairas, 2020).

A study by the Indonesian Ministry of Finance demonstrates that the business sector, especially MSMEs, experiences a sharp drop in demands due to PSBB. The finding is confirmed by the Bank Indonesia's Prompt Manufacturing Index (PMI-BI) that provides a general illustration of the manufacturing industry's existing and predicted conditions for current and future quarters. PMI-BI is a composite index constructed from five other indexes: volume of input goods, production or output volume, employment,

delivery time from suppliers, and inventories.

The PMI-BI indicates that the manufacturing industry's performance in quarter I-2020 was only 45.64 percent, lower than that of quarter IV-2019 that was 51.50 percent. All PMI-BI components exhibited decline, with the production volume had the largest decline because Covid-19 reduced demands and disrupted supplies. Sectorally, all subsectors (except the Food, Beverage, and Tobacco subsector) showed a contraction in quarter I-2020. However, recent study documents that the retail sector (including minimarkets and online markets) manages to survive the Covid-19 pandemic in China (Bouey, 2020).

PMI-BI informs decision-makers about policies related to the national real sector's performance and manufacturing MSMEs (Figure 1). Ministry of Cooperatives and SMEs' survey indicates that 37,000 MSMEs are affected by Covid-19. More specifically, 56 percent of the respondents experience sales decline, 22 percent suffer financing problems, and 15 percent face obstacles in goods distribution (Thaha, 2020). Increased layoffs suggest the negative externality of Covid-19. The Indonesian Ministry of Manpower records that 1.4 million Indonesian workers have been laid off until April 7, 2020, with 1.05 million of them were formal workers, and the rest were informal ones (Sihaloho, 2020).

Many MSMEs face various problems related to cashflows, raw materials acquisition, and declining market demands (Lu et al., 2020). Cashflows are one of MSME's most crucial nonhuman assets that the government needs to pay special attention to this issue (Jindrichovska, 2014). Further, the pandemic status leads to restricted inter-province transportation access that significantly obstructs the raw material value chain (Lu et al., 2020). Similarly, governmental policies to anticipate the Covid-19 pandemic that requires people to stay home largely reduce economic activities and put heavy pressures on goods demands (Lu et al., 2020).

Empirical studies in various countries demonstrate the negative impacts of Covid-19 on the domestic economy, such as declined purchasing power and consumption, worse firms' performance, and threats to MSMEs and the financial and banking sectors (Pakpahan, 2020). Consequently, it is crucial to investigate the regional effect of Covid-19 on MSMEs' performance. In this respect, this study seeks to analyze the issue in former Pekalongan Residency as an MSME center in Central Java that has both urban and rural areas. The transmission mechanism of Covid-19's impact on the real sector and MSMEs is through the social and physical distancing policies that lead to sharp declines in sales and cashflows that eventually cause layoffs and unemployment (Pakpahan, 2020). The Covid-19 pandemic effect becomes more pervasive when policies to restrict human

mobilities affect domestic trade (Lu et al., 2020).

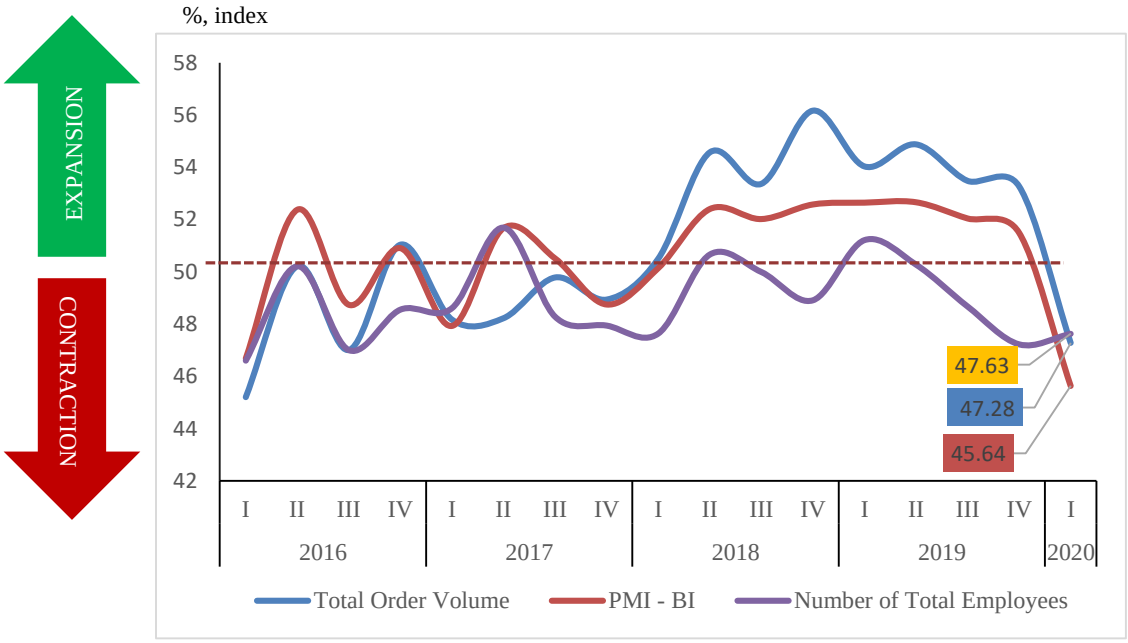

Figure 1
Bank Indonesia's PMI in the first quarter of 2020

In this respect, this study seeks to analyze the impact of Covid-19 on MSMEs at the Pekalongan Ex-Residency because previous studies have indicated that not all MSMEs are affected equally by Covid-19 (Alfrian & Pitaloka, 2020). For example, a recent study suggests that MSMEs' sales declines due to Covid-19 vary in several areas. MSMEs in North Kalimantan suffer a 36 percent decline, while in Sumatera and West Kalimantan, their sales decline by 44 percent and 34 percent, respectively (Soetjipto, 2020). The economic losses due to the coronavirus vary greatly between MSME business units because of several factors, including business types, business size, business formality level, and firms' policies (Milzam et al., 2020).

This study is important because it combines quantitative and qualitative approaches to examine the impact of Covid-19 on MSMEs' performance at the Pekalongan Ex-Residency. Furthermore, this research manages to generate data and facts on MSMEs' current conditions sectorally or based on business categories. Specifically, our study answers how Covid-19 affects MSMEs' average sales in former Pekalongan Residency area after the implementation of the pandemic status of Covid-19 by WHO. Besides, we map the impact based on cashflow resilience and the number of employees for each sector and business category. This study informs local and central governments (related ministries) in launching more effective policies to assist MSMEs in the Pekalongan Ex-Residency.

LITERATURE REVIEW

International financial institutions such as IMF and the World Bank had predicted that the global economy would decline sharply in quarter I-2020 and the world would enter the recession phase (Liu et al., 2020). However, they still predicted that the global economic growth was still positive (about three percent) in this quarter (Carrillo-Larco & Castillo-Cara, 2020). Nevertheless, the Covid-19 pandemic that started in quarter I-2020 has caused a global economic contraction of 6 percent relative to the same quarter last year, leading to a negative economic growth of 2.8 percent (Nasution et al., 2020).

Based on recent studies on the impact of Covid-19, this pandemic generally has a negative effect on the business sector through three main channels, namely reducing production capacity, disrupting supply chains and marketing channels, and reducing firms' performance. Covid-19 forces most countries to take lockdown policies that reduce global production activities. Producing countries' lower productive capacities arguably reduce global value chains for raw materials and finished goods. Further, reduced global product marketing detrimentally affects firms' financial performance (Parth, 2020). In addition, several large companies significantly reduced their business activities due to supply constraints on raw materials. Meanwhile, MSMEs having short-term business contracts are under pressure amid the Covid-19 pandemic (Tairas, 2020).

Furthermore, a study in India reveals that Covid-19 affects the economy through three main channels: household consumption, investments, and external trade. Specifically, India's lockdown policy restricts public activities that reduce domestic household consumption. Next, declining demands also reduce private investments to enhance productive capacities that will reduce firms' ability to meet global demands. Covid-19 in India increases unemployment from 7.2 percent to 7.8 percent in February 2020 (Parth, 2020). Accordingly, the Indian government offers five-month interest-free loans for MSMEs by fully subsidizing revenues (Ghosh, 2020).

Physical and social distancing policies also reduce demands on goods and services that will reduce firms' sales and cashflows (Soetjipto, 2020). These policies sharply reduce demands and make MSMEs experience difficulties in maintaining profits (Tairas, 2020). Worse financial performance motivates firms to reduce their employees, which increases unemployment (Pakpahan, 2020). Meanwhile, in Malaysia, Covid-19 has directly led to a potential loss of RM 100 million sales because of the Visit Malaysia program's failure that is expected to attract 30,000 tourists worldwide (Shakeel et al., 2020). Further, a qualitative study also indicates that consumers reduce their consumption to anticipate a possibly lengthy crisis (Resmi et al., 2020).

The impact of Covid-19 on the economy significantly escalates when China extends its trade restriction policy. China's lockdown policy to contain Covid-19 infection has significantly reduced MSMEs' cashflow (Lu et al., 2020). Furthermore, China's social restriction policy reduces economic and social activities that put more pressure on MSMEs' sales (Lu et al., 2020). The decline in MSME sales was caused by

restrictions on shop opening hours specified in security protocols and health protocols. Rules in buying must-take-home and restrictions on distance in public places have an impact on reducing consumer convenience (Resmi et al., 2020)

The Covid-19 pandemic also affects firms' cashflow resilience (Bouey, 2020). China's social restriction policy indicates that investors' and consumers' trust will be more negatively affected when it takes a longer time for the public to work again. Consequently, MSMEs are more likely to close down their businesses, and unemployment increases (Bouey, 2020). MSMEs must manage their cash flow to survive a prolonged pandemic scenario because such a crisis will erode working capital and labor that will eventually harm firms' turnover (Tairas, 2020).

In Indonesia, Covid-19 negatively affects MSMEs in the tourism sector. According to Statistics Indonesia (*BPS – Badan Pusat Statistik)*, the number of foreign tourists visiting Indonesia in the quarter I-2020 declined by 34.9 percent (only 2.61 million tourists) relative to the same quarter in the previous year (Thaha, 2020). Declining foreign tourists directly reduces MSMEs' incomes (Saidi et al., 2017) because tourists usually buy handicrafts locally (Iswahyudi, 2016). The sluggish tourism sector will lead to a domino effect on MSMEs' performance nationally (Amri, 2020).

The declining trade sector also reduces countries' tax revenues (Sugarda & Wicaksono, 2017). BPS records that Covid-19 reduces both petroleum and non-petroleum exports to China as one of the largest raw oil importers worldwide. Meanwhile, Indonesia is one of China's largest trading partners (Yang & Ren, 2020). A negative correction on China's production will disrupt the global trade supply chain (Nasution et al., 2020).

RESEARCH METHODS

This study uses primary data generated by distributing the questionnaires to MSMEs in former Pekalongan Residency via Google Form. The survey takes place in seven days (May 7-14, 2020). This study purposively selects 100 respondents by using the Slovin method with an acceptable error of 10 percent.

We use the parametric paired t-test to analyze the impact of Covid-19 on MSMEs' sales. Meanwhile, the Cartesius diagram quadrant analysis is employed to map the impact of Covid-19 on MSMEs' resilience based on cashflows and the number of employees. The following formula 1 illustrates the paired t-test:

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}} \quad \text{.....} 1$$

where:
S_1^2 = variance of sample 1
S_2^2 = variance of sample 2
r = correlation between two samples
X_1 = the mean of sample 1
X_2 = the mean of sample 2

S_1 = standard deviation of sample 1
S_2 = standard deviation of sample 2

Cartesius diagram is a matrix that consists of four quadrants with two lines that are perpendicular to each other at the X and Y axes (Suhermi et al., 2019). In this study, the X-axis represents the number of employees, while the Y-axis refers to MSMEs' cashflow resilience. The quadrant analysis is a flexible and powerful tool to formulate innovative solutions and guidance in making strategic decisions (http://meetingsift.com/quadrant-analysis). This analysis initially classifies the number of employees (Xi) and cashflow resilience (Yi) into Likert scale based on sectors and business activities. Each axis consists of a pair of attributes that are opposite to each other. Formula 2 below calculates the average score of the number of employees ($\bar{X}$) and cashflow resilience ($\bar{Y}$) attributes:

$$\overline{\boldsymbol{X_l}} = \frac{\sum_{i=l}^{k} \boldsymbol{X_i}}{\boldsymbol{n_i}}$$
$$\overline{\boldsymbol{Y_l}} = \frac{\sum_{i=l}^{k} \boldsymbol{Y_i}}{\boldsymbol{n_i}} \quad \text{..... 2}$$

where:
$\bar{X}_l$ = the mean score of the number of employee attribute (Xi)
$\bar{Y}_l$ = the mean score of cash flow resilience attribute (Yi)
n_i = the number of sectoral and business respondents

The value of the X-axis is generated by averaging the mean score of the number of employees ($\bar{\bar{X}}$) while the Y-axis is generated from averaging the mean score of cash flow resilience ($\bar{\bar{Y}}$) as illustrated by Formula 3.

$$\overline{\overline{\boldsymbol{X_l}}} = \frac{\sum_{i=1}^{k} \bar{\boldsymbol{X}}_{\boldsymbol{l}}}{\boldsymbol{n_i}}$$
$$\overline{\overline{\boldsymbol{Y_l}}} = \frac{\sum_{i=l}^{k} \boldsymbol{Y_l}}{\boldsymbol{n_i}} \quad \text{..... 3}$$

where:
$\bar{\bar{X}}_l$ = the average of the mean score of the number of employees attribute ($\bar{X}_l$)
$\bar{\bar{Y}}_l$ = the average of the mean score of cash flow resilience ($\bar{Y}_l$)
n_i= number of sectoral and business respondents

MSMEs' sales and the number of employees refer to their sales values and number of employees before and after the Covid-19 pandemic status. Meanwhile, the cashflow resilience variable represents the length MSMEs manage to maintain their cash flows before and after the Covid-19 pandemic status. In this respect, the period is monthly. We define MSMEs by referring to Act No. 20 of 2008 concerning MSMEs.

ANALYSIS AND DISCUSSION

The descriptive statistics indicate that most respondents (41 percent and 33 percent) live in Pekalongan Regency and Brebes Regency, respectively. Pekalongan

Regency is the center of *batik* garment and handicraft industries. At the same time, Brebes Regency hosts the salted egg industry and one of the largest culinary centers in former Pekalongan Residency with *blengong* satay, *lengko* rice, *and kupat glabet* unique food (Figure 2). On the contrary, Tegal Regency and Pekalongan City have the least respondents (3 percent each). Most MSME owners from Tegal Regency open their businesses in Tegal City with higher purchasing power. Meanwhile, Pekalongan City is well-known as a marketing area for *batik* textile produced in Pekalongan Regency. The survey results also suggest that most respondents (86 percent) domicile in rural areas.

Each area has various MSME sector characteristics that fit with their local wisdom. For example, Batang Regency has MSMEs that operate in the agricultural sector because its soil is natural and feasible for durian, coffee, and natural honey production. Besides, trading MSMEs (salted egg, fried onion, and scotch tape) dominate in Brebes Regency because this regency is located in the strategic northern Java highway. Further, most MSMEs in Pekalongan Regency operate in the textile retail trade sector because this area hosts many batik textile and garment producers that develop retail trade businesses for these products.

Tegal Regency has MSMEs that mostly operate in meal and beverage production (such as tea, tofu, cracker, peanut, and soybean) and metal processing. This regency also hosts some MSMEs that produce metal pipes, hydrant equipment, and heavy equipment spare parts.

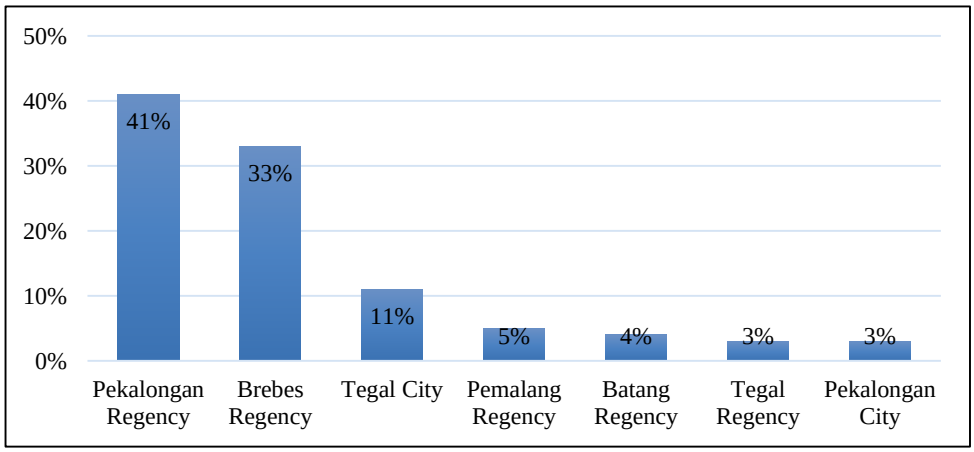

Figure 2
The Distribution of MSME Respondents

In Pekalongan City, MSMEs mostly operate in retail trade because this city has Sentono market as the center for batik and its derived products in Central Java province. Lastly, in Tegal City, MSMEs largely operate in the retail trade sector as indicated by numerous retail traders in traditional markets and supermarkets and the rapid development of food and beverage stalls and retail shops.

Micro firms dominate the respondents (76 percent of total respondents), while

medium firms only contribute one percent of the total respondents (Figure 3). The figures are in line with the MSME structure at the national level that is dominated by micro firms. Most micro firms operate in retail trade and food and beverage provision sectors.

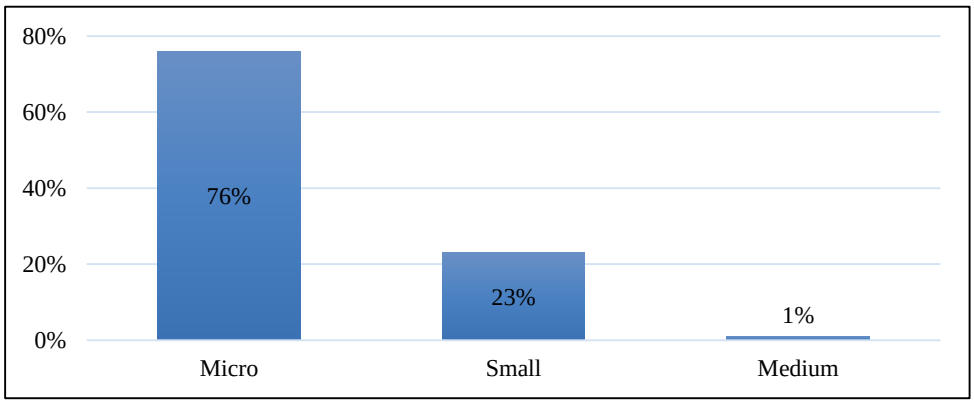

Figure 3
The Distribution of MSMEs' Business Size

Further analysis reveals that micro firms dominate in almost all areas (82 percent in Brebes Regency, 73 percent in Pekalongan Regency, 67 percent in Pekalongan City, 82 percent in Tegal City, and 100 percent in Pemalang Regency). Small firms dominate the respondents (67 percent) because this regency has many small tire retread and metal processing firms. Meanwhile, respondents in Batang Regency are equally dominated by micro and small firms.

The retail trade sector dominates respondents' business sector by occupying 45 percent of the total market share (Figure 4). The retail sector grows due to increased shopping centers, including traditional ones and wholesale markets. Several large traditional markets in Pekalongan City and Tegal City include Banjarsari, Anyar, Banyurip, Klego, Pagi, and Kejambon markets. Meanwhile, the largest wholesale market in former Pekalongan Regency is the Sentono Batik market in Pekalongan City. Next, the food and beverage provision sector contributes to 26 percent of the total market share because of the development of the culinary and catering business in newly developed residential areas.

The textile and textile products (TPT) and wood processing sectors have a market share of 11 percent each. The TPT industry grows rapidly in Pekalongan Regency as one of the largest batik and sarong producer centers in Central Java. Sarong-making companies cooperate with MSMEs operating in the TPT sector with a subcontracting scheme to supply work-in-progress inventories. Brebes and Pekalongan Regencies also host many wood-processing handicraft firms that produce car miniature and children decoration.

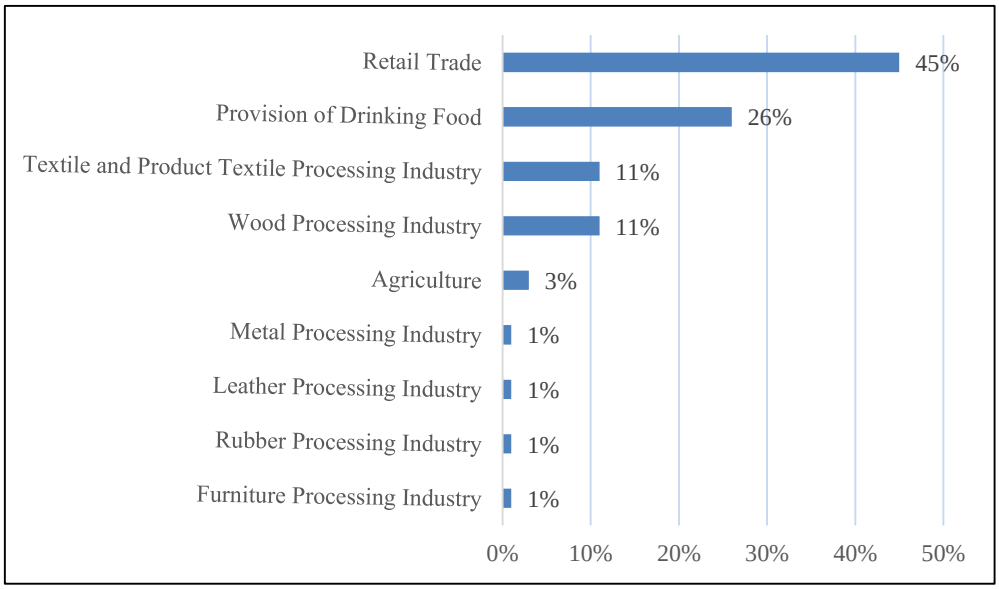

Figure 4
The Distribution of MSMEs' Business Sector

The normality test using the Kolmogorov Smirnov (KS) test reveals that sales levels before and during the Covid-19 pandemic are normally distributed. Specifically, the KS output table shows that the significance values of sales levels in these periods are 0.200 and 0.051, respectively (>α=0,05). Hence, we can continue analyzing the data using the paired t-test (Table 1).

Table 1
The Results of Normality Test – MSMEs' Sales Data

Indicator	Kolmogorov-Smirnov		
	Statistic	df	Sig.
Ln_Sales _Pre Covid-19	0.067	100	0.200
Ln_Sales _Post Covid-19	0.089	100	0.051

The descriptive statistics reveal that MSMEs in former Pekalongan Regency on average experienced sales increases of 18.38 percent and only 17.12 percent before and during the Covid-19 pandemic, respectively (Table 2). The results show that Covid-19 reduces sales. The findings are also in line with a similar study in China. Specifically, policies to restrict human activities and interaction to reduce Covid-19 spread reduces sales that erode firms' cash flow ability to pay routine expenses such as rents, salaries, and interests (Lu et al., 2020). MSMEs then use social media marketing and e-commerce platform to mitigate the negative impacts of Covid-19 (Tanaya & Ekyawan, 2020).

Table 2
The Average Sales Before and During Covid-19 Pandemic

Indicator	Mean	N	Std. Deviation	Std. Error Mean
Ln_Sales _Pre Covid-19	18.38	100	1.487	0.149
Ln_Omset_Post Covid-19	17.122	100	1.601	0.16

The paired t-test is a parametric statistical analysis method to analyze the difference in two average scores of two related samples (Table 3). In this study, we predict that MSMEs' sales before and during the Covid-19 differ.

Table 3
Paired t-test for Sales Before and During Covid-19 Pandemic

Indicator	Paired Differences					Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Conf Interval of the Difference		
				Lower	Upper	
Ln_Sales _Pre Covid-19 Ln_Sales _Post Covid-19	1.257	0.793	0.079	1.1	1.415	0.00

Our paired t-test results in a significance or p-value of 0.000 (< α=5 percent). Thus, the hypothesis that predicts MSMEs' sales in former Pekalongan Regency before and during the pandemic differ is empirically supported. The difference between these mean values is about 1.26. Our results are similar to a study in India that finds a sales decline of 2.1 percent during the Covid-19 pandemic (Sahoo & Ashwani, 2020). Meanwhile, the latest research in Pekalongan City finds that the Covid-19 pandemic has reduced monthly sales revenues by 53.3 percent (Milzam et al., 2020).

We then map the impact of Covid-19 on MSMEs' cash flow resilience and the number of employees sectorally and based on business category by using a Cartesian diagram (Figure 5). The diagram suggests that the retail trade sector has the greatest proportion of MSMEs that suffer sales decline due to Covid-19 (45 percent), followed by the food and beverage provision sector (26 percent) and the TPT processing industry (11 percent). The retail trade and food and beverage provision sector have an average cash flow resilience of 1.5- 2 months and employee decline of 0-4 persons. Meanwhile, the leather processing industry has an average cash flow resilience of less than one month and experiences an employee decline of 0-4 persons.

Three percent of MSMEs in the agricultural sector are negatively affected by Covid-19, and only one percent of MSMEs in the metal processing industry suffer the effect of Covid-19. The agricultural and metal processing sectors have a cash flow resilience of 1-1.5 months and experience employee decline of 5-10 persons. Their cash flow resilience is similar to that of Chinese firms. A survey by Tsinghua University on 995 MSMEs reveals that more than a third of MSMEs only have cash flow resilience of less than one month, a third of them have cash flow resilience of two months, and only less than 10 percent of them have cash flow resilience more than six months (Bouey, 2020). Meanwhile, the All India Manufacturers Organization (AIMO) estimates that 25 percent of about 75 MSMEs in India will experience business closure if the lockdown policy holds for more than four weeks. The figure will jump to 43 percent if the restriction policy lasts eight weeks (Parth, 2020).

The quadrant analysis displayed in Figure 5 suggests that the largest portions of MSMEs in the retail trade and food and beverage sectors are affected by Covid-19.

However, these MSMEs also exhibit the highest cash flow resilience with low employee reduction. Meanwhile, the metal processing industry and agricultural sectors suffer the most employee reduction than other business sectors.

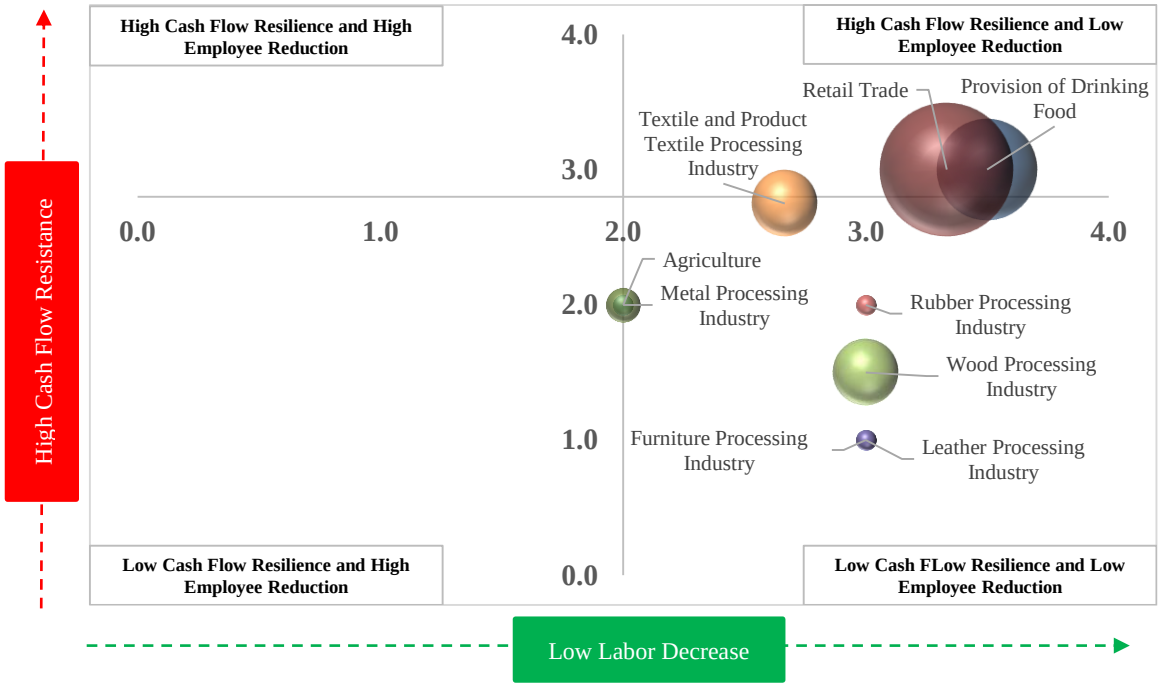

Figure 5
Mapping of The Impact of Covid-19 on MSMEs in Former Pekalongan Residency

Next, the quadrant analysis in Figure 6 shows that 76 percent of micro firms are affected by Covid-19, followed by small firms (23 percent) and medium firms (one percent). Thus, micro firms are most affected by Covid-19. Besides, micro firms have average cash flow resilience of 1.5–2 months with an average employee reduction of 0-4 persons. Meanwhile, small firms have cash flow resilience of 1.5-2 months during the pandemic and suffer employee reduction of 5-10 persons. Lastly, medium firms exhibit cash flow resilience of 1-1.5 months and employee reduction of 0-4 persons.

From the quadrant analysis in Figure 6, we conclude that micro firms have greater cash flow resilience than medium firms and can better maintain their employees during the Covid-19 pandemic. These surprising findings offer new insight into MSMEs' performance analysis because medium firms have much greater assets than micro firms. They expectedly have better business resilience to maintain cash flow in a longer time than micro firms. A study in Pakistan also suggests that, in general, micro firms are more vulnerable to the Covid-19 pandemic's negative impacts because they have highly insufficient cash flow reserves (Shafi et al., 2020).

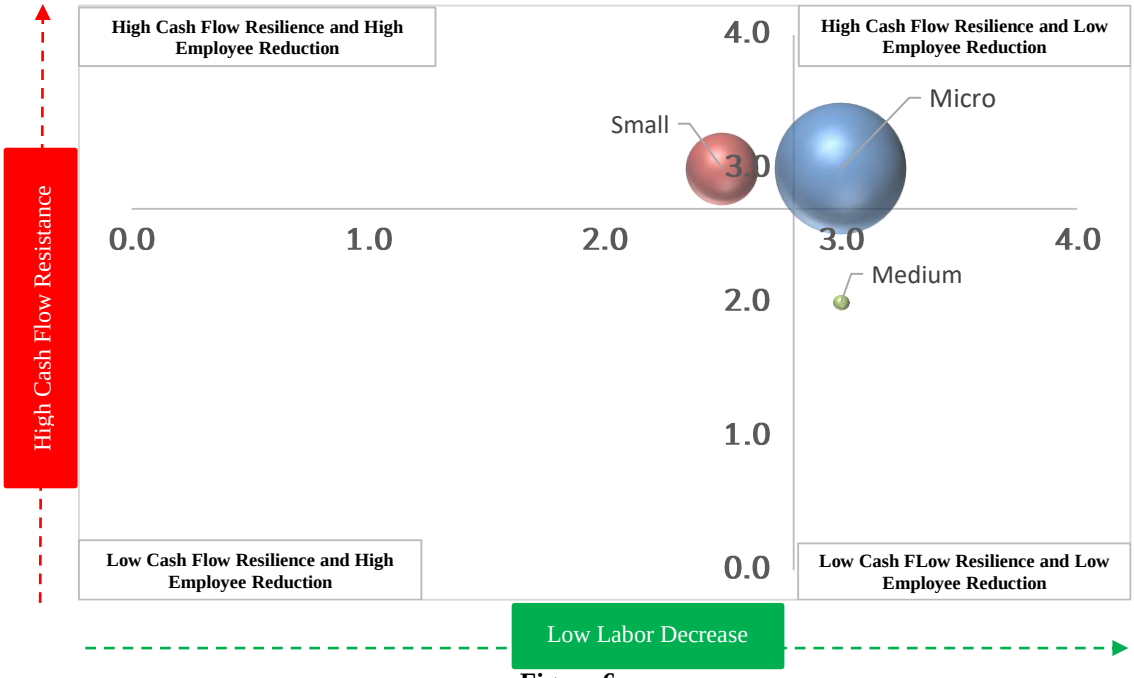

Figure 6
Mapping of The Impact of Covid-19 on MSME Categories in Former Pekalongan Residency

In particular, the largest portion of micro firms is negatively affected by Covid-19. However, they have the greatest cash flow resilience than medium firms because of their low labor rationalization. Meanwhile, Covid-19 greatly affects small firms through larger employee reduction relative to other business categories. Lastly, medium firms have the lowest cash flow resilience than other business categories (Cowling et al., 2015).

In general, MSMEs in former Pekalongan Residency expect the government offers business capital to assist them in coping with the Covid-19 pandemic. Strengthening access to capital will greatly help MSMEs anticipate worsening cash flow problems due to Covid-19 (Sitharam & Hoque, 2016). Besides, MSMEs also expect the government to help their marketing activities by loosening the large-scale social restriction (*PSBB*) policy that will return traditional markets' activities to normal operation (Figure 7). Lastly, MSMEs also expect the government to provide subsidies in raw material procurement, energy, and taxation (Lu et al., 2020)

Based on business categories, micro firms mostly expect capital assistance from the government (30.25 percent), assistance in marketing access (21.15 percent), and social security provision (13.16 percent). Meanwhile, small firms mostly expect capital assistance (34.78 percent), maintaining marketing access by loosening social restriction policies (21.05 percent), and subsidy for taxation, electricity, and fuel (21.74 percent). However, only a single medium firm from the textile and textile product processing industry expects the governments to offer training and marketing assistance for batik-based non-medical masker products. In the short-run, MSMEs need government interventions in the form of direct cash assistance or low-interest loans. Furthermore, the

government can also digitalize marketing and payment systems to help MSMEs prepare for the Industry 4.0 era (Resmi et al., 2020).

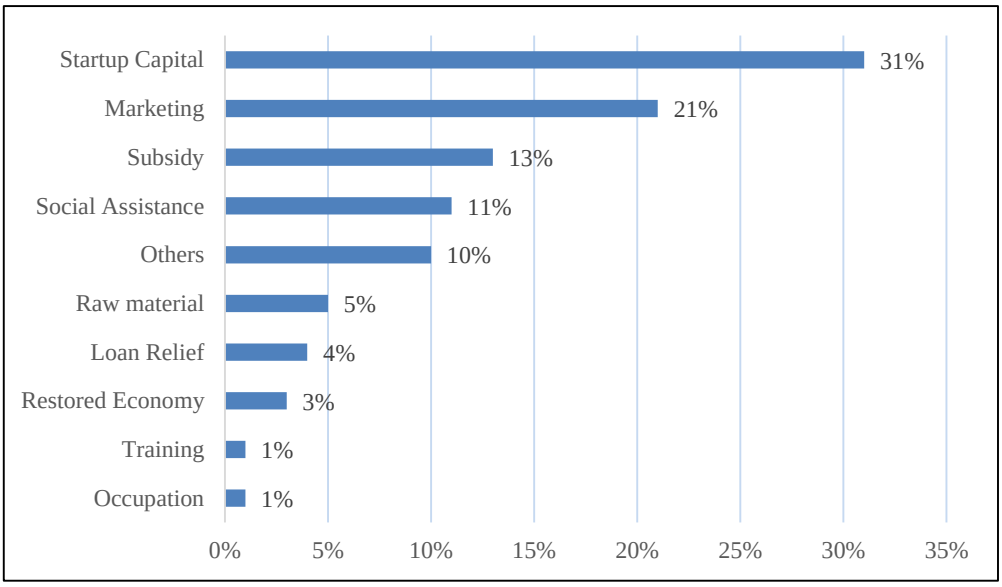

Figure 7
MSMEs' Expectation when Surviving the Impact of Covid-19

CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS

Covid-19 has negatively affected MSMEs' sales performance at the Pekalongan Ex-Residency. Sectorally, Covid-19 largely affects MSMEs in the retail trade and food and beverage provision. However, MSMEs in these sectors exhibit the best cash flow resilience than firms in other sectors. These firms also reduce their employees to a lesser extent. Covid-19 largely affects micro firms. However, micro firms have the best cash flow resilience relative to medium and small firms. They also have relatively low employee reduction. MSMEs expect that the government offers a capital stimulus to help them survive the Covid-19 pandemic.

MSMEs hope that the government will provide a stimulus for business capital to help them survive amid the conditions of the Covid-19 pandemic. The government is expected to loosen up the policy of large-scale social restrictions by reopening traditional markets so that MSMEs can maintain their marketing. MSMEs expect government subsidies to provide raw materials, energy, and tax to maintain cash flow resilience amid the Covid-19 pandemic. Several MSMEs expect the government to offer training and job enrichment schemes to help them anticipate this pandemic.

This study offers several following policy recommendations to the government to facilitate MSMEs in former Pekalongan Residency. First, the government needs to provide direct social assistance to the public to enhance MSME products' demands and help MSMEs avoid a large-scale demand contraction due to the Covid-19 pandemic. Second, the assistance should be focused on providing direct stimulus to MSMEs that do

not have sufficient cash flow during the pandemic and the recovery process, including low-interest rates, tax deferral, or policies that offer lending facilities MSMEs. Third, the government needs to offer a social assistance scheme to help laid-off employees survive the crisis due to the Covid-19 pandemic. Fourth, the government needs to empower local raw material supply chains to enable MSMEs to access post-pandemic raw material sources in maintaining the continuity of domestic production. Fifth, the government should facilitate the development of digitalized marketing and payment systems for MSMEs to maintain sales turnover amidst the implementation of large-scale social restrictions policies.

This study does not analyze further how the implementation of government policies manages to stimulate demands and help MSMEs survive the impact of Covid-19 in the former Pekalongan residency. Thus, we suggest further research to analyze government policies' effectiveness in helping MSMEs recover after the Covid-19 pandemic.

REFERENCES

Alfrian, G. R., & Pitaloka, E. (2020). Strategi Usaha Mikro, Kecil, dan Menengah (UMKM) bertahan pada kondisi pandemik covid 19 di Indonesia. *Seminar Nasional Terapan Riset Inovatif (SENTRINOV) Ke-6*, *6*(2), 139–146.

Amri, A. (2020). Dampak covid-19 terhadap UMKM di Indonesia. *Jurnal Brand*, *2*(1), 147–153.

Bouey, J. (2020). Assessment of covid-19's impact on small and medium-sized enterprises: Implications from China. In *Testimony presented before the House Small Business Committee on March 10, 2020* (pp. 1–13). https://doi.org/10.7249/ct524

Carrillo-Larco, R. M., & Castillo-Cara, M. (2020). Using country-level variables to classify countries according to the number of confirmed covid-19 cases: An unsupervised machine learning approach. *Wellcome Open Research*, *5*(June), 56. https://doi.org/10.12688/wellcomeopenres.15819.3

Cowling, M., Liu, W., Ledger, A., & Zhang, N. (2015). What really happens to small and medium-sized enterprises in a global economic recession? UK evidence on sales and job dynamics. *International Small Business Journal: Researching Entrepreneurship*, *33*(5), 488–513. https://doi.org/10.1177/0266242613512513

Dong, Y., Mo, X., Hu, Y., Qi, X., Jiang, F., Jiang, Z., & Tong, S. (2020). Epidemiology of covid-19 among children in China. *Pediatrics*, *145*(6), 1–12. https://doi.org/10.1542/peds.2020-0702

Ghosh, S. (2020). Examining the covid-19 relief package for MSMEs. *Economic and Political Weekly*, *55*(22), 20–22.

Hadad, M. D., Blasyus, D., Herawanto, Indradjaja, Mukhlas, M., & Kusumastuti, Y. (2004). *Kajian peta permasalahan usaha mikro kecil dan menengah*.

Hadiwardoyo, W. (2020). Kerugian ekonomi nasional akibat pandemi covid-19. *Baskara Journal of Business and Enterpreneurship*, *2*(2), 83–92. https://doi.org/10.24853/baskara.2.2.83-92

Iswahyudi, H. (2016). Back to oil: Indonesia economic growth after Asian financial crisis. *Economic Journal of Emerging Markets*, *8*(1), 25–44. https://doi.org/10.20885/ejem.vol8.iss1.art3

Jindrichovska, I. (2014). Financial management in SMEs. *European Research Studies Journal*, *16*(4), 79–95. https://doi.org/10.35808/ersj/405

Kirigia, J. M., & Muthuri, R. N. D. K. (2020). The fiscal value of human lives lost from coronavirus disease (COVID-19) in China. *BMC Research Notes*, *13*(1), 1–5. https://doi.org/10.1186/s13104-020-05044-y

Liu, W., Yue, X. G., & Tchounwou, P. B. (2020). Response to the covid-19 epidemic: The chinese experience and implications for other countries. *International Journal of Environmental Research and Public Health*, *17*(7), 1–6. https://doi.org/10.3390/IJERPH17072304

Lu, Y., Wu, J., Peng, J., & Lu, L. (2020). The perceived impact of the covid-19 epidemic: Evidence from a sample of 4807 SMEs in Sichuan Province, China. *Environmental Hazards*, *19*(4), 323–340. https://doi.org/10.1080/17477891.2020.1763902

Milzam, M., Mahardika, A., & Amalia, R. (2020). Corona virus pandemic impact on sales revenue of micro small and medium enterprises (MSMEs) in Pekalongan City. *Journal of Vocational Studies on Applied Research*, *2*(1), 7–10.

Nasution, D. A. D., Erlina, E., & Muda, I. (2020). Dampak pandemi covid-19 terhadap perekonomian Indonesia. *Jurnal Benefita*, *5*(2), 212. https://doi.org/10.22216/jbe.v5i2.5313

Pakpahan, A. K. (2020). Covid-19 dan implikasi bagi usaha mikro, kecil dan menengah. *Jurnal Ilmiah Hubungan Internasional*, *20*(April), 1–6.

Parth, K. (2020). The economic cost of COVID-19: A potential pandemic impact on Indian economy. *International Journal of Advanced Science and Technology*, *29*(6 Special Issue), 2182–2192.

Putra, A. (2016). Peran UMKM dalam pembangunan dan kesejahteraan masyarakat Kabupaten Blora. *Jurnal Analisa Sosiologi*, *5*(2), 40–52.

Resmi, S., Pahlevi, R. W., & Sayekti, F. (2020). The growth of creative micro, small and medium enterprises business in Special Region of Yogyakarta before and after covid-19 pandemic. *International Journal of Entrepreneurship*, *24*(4), 1–8.

Sahoo, P., & Ashwani. (2020). Covid-19 and Indian economy: Impact on growth, manufacturing, trade and MSME sector. *Global Business Review*, *21*(5), 1159–1183. https://doi.org/10.1177/0972150920945687

Saidi, L. O., Adam, P., Rostin, R., Saenong, Z., Balaka, M. Y., Gamsir, G., Asmuddin, A., & Salwiah, S. (2017). The effect of stock prices and exchange rates on economic growth in Indonesia. *International Journal of Economics and Financial Issues*, *7*(3), 527–533.

Shafi, M., Liu, J., & Ren, W. (2020). Impact of covid-19 pandemic on micro, small, and medium-sized enterprises operating in Pakistan. *Research in Globalization*, *2*(December), 1–14. https://doi.org/10.1016/j.resglo.2020.100018

Shakeel, S., Ahmed Hassali, M. A., & Abbas Naqvi, A. (2020). Health and economic impact of covid-19: Mapping the consequences of a pandemic in Malaysia. *Malaysian Journal of Medical Sciences*, *27*(2), 159–164. https://doi.org/10.21315/mjms2020.27.2.16

Sihaloho, E. D. (2020). Dampak covid-19 terhadap perekonomian Indonesia. In *GMKI Online Discussion - Telkom University*.

Sitharam, S., & Hoque, M. (2016). Factors affecting the performance of small and medium enterprises in KwaZulu-Natal, South Africa. *Problems and Perspectives in Management*, *14*(2), 277–288. https://doi.org/10.21511/ppm.14(2-2).2016.03

Soetjipto, N. (2020). *Ketahanan UMKM Jawa Timur melintasi pandemi covid-19* (1th ed.). K-Media.

Sugarda, P. P., & Wicaksono, M. R. (2017). Strengthening Indonesia's economic resilience through regulatory reforms in banking, investment and competition law. *International Journal of Economic Perspectives*, *11*(3), 1093–1103.

Suhermi, S., Djaali, N. A., Ama, P. G. B., & Ramun, V. (2019). Metode diagram kartesius untuk melihat tingkat kepuasan pelayanan makanan di rumah sakit. *Jurnal Ilmiah Kesehatan*, *11*(September), 161–168.

Tairas, D. R. (2020). Covid-19 pandemic and MSMEs : Impact and mitigation. *Jurnal Ekonomi Indonesia*, *9*(1), 67–80.

Tanaya, D. R., & Ekyawan, F. (2020). Empowerment strategy on micro, small, and medium enterprises (MSMEs) during covid-19 pandemic in Indonesia: A case study of BRI microfinance center. *E3S Web of Conferences*, *202*. https://doi.org/10.1051/e3sconf/202020203022

Thaha, A. F. (2020). Dampak covid-19 terhadap UMKM di Indonesia. *Jurnal Brand*, *2*(1), 147–153.

Yamali, F. R., & Putri, R. N. (2020). Dampak pandemi covid-19 terhadap ekonomi Indonesia. *Ekonomis: Journal of Economics and Business*, *4*(2), 384–388.

https://doi.org/10.33087/ekonomis.v4i2.179

Yang, J., Zheng, Y., Gou, X., Pu, K., Chen, Z., Guo, Q., Ji, R., Wang, H., Wang, Y., & Zhou, Y. (2020). Prevalence of comorbidities and its effects in coronavirus disease 2019 patients: A systematic review and meta-analysis. *International Journal of Infectious Diseases*, *94*(May), 91–95. https://doi.org/10.1016/j.ijid.2020.03.017

Yang, L., & Ren, Y. (2020). Moral obligation, public leadership, and collective action for epidemic prevention and control: Evidence from the corona virus disease 2019 (covid-19) emergency. *International Journal of Environmental Research and Public Health*, *17*(8), 2731–2747. https://doi.org/10.3390/ijerph17082731