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Author's contribution

The sole author designed, analyzed, interpreted, and prepared the manuscript.

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ABSTRACT

This study examines the crisis mitigation measures (CMMs) implemented by micro and small enterprises (MSEs) during the COVID-19 pandemic in Indonesia. The research has three main goals: (i) to assess the impact of COVID-19 on MSMEs; (ii) to identify the business risks encountered by MSMEs during the crisis; and (iii) to investigate the most frequently adopted CMMs by MSMEs during the pandemic. The analysis utilizes secondary data from the 2020 national survey on MSEs in the manufacturing sector and primary data from a field survey of 137 MSEs across various cities and industries in Indonesia, conducted between May and September 2020. The findings indicate that the primary business risks during the crisis were (i) market risk (decreased domestic demand); and (ii) production risk (production stoppages due to lockdown measures). Consequently, many MSEs had to temporarily cease, shut down entirely, or pivot to different industries to remain operational, which was a common CMM among the affected MSEs.

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The study's limitation is its small sample size, which prevents comprehensive survival analyses that could reveal significant differences in the development trajectories of MSEs during the crisis. Despite this, the study adds valuable insights to the literature on MSEs during economic crises.

Keywords: MSMEs; COVID-19; CMMs; the 1997/98 Asian financial crisis; the 2008/09 global financial crisis.

1. INTRODUCTION

1.1 Statement of the Problem

The COVID-19 pandemic crisis has had a devastating impact on the global economy due to the declined consumption and production as a direct consequence of social/physical distancing policies, work, and school from home, and the compulsion for companies in the non-strategic sectors to stop the activities. In 2020 the whole world faced an economic downturn and caused a very deep contraction as almost all countries imposed strict mobility restrictions. Many countries have implemented lockdowns which have consequences for the economy which immediately slumped very sharply. Because of that, the world experienced a contraction of 3.2% in terms of economic growth. The Indonesian economy in 2020 experienced a growth contraction of 2.07 percent (c-to-c) compared to 2019. From the production side, the deepest growth contraction occurred in the transportation and warehousing business field of 15.04 percent. Meanwhile, in terms of expenditure, almost all components contracted, the export component of goods and services became the component with the deepest contraction of 7.70 percent. Meanwhile, imports of goods and services, which are a reducing factor, contracted by 14.71 percent [1].

Indonesia has faced economic crises before. The country experienced significant turmoil during the Asian financial crisis of 1997–1998, which affected several Southeast and East Asian nations. During this period, many businesses in Indonesia, including micro, small, and medium enterprises (MSMEs), were severely impacted. The crisis began with a dramatic depreciation of the rupiah (IDR) against the US dollar (USD), falling by over 200% between 1997 and 1998. This led to a deep recession, with the economy contracting by approximately 13%. In 2008/09, Indonesia was again affected by the global financial crisis, although this time the impact did not result in negative economic growth [2]. The 1997/98 crisis was particularly harsh on MSMEs, which faced numerous challenges, especially in securing financing (e.g. [3,4,5,6]).

1.2 Research Questions

This Research has Two Questions:

- How did the COVID-19 pandemic impact MSMEs, and through which channels? How does this crisis compare to the 1997/98 and 2008/09 crises in terms of its effects on MSMEs?
- What crisis mitigating measures (CMMs) were widely adopted by MSMEs affected by the COVID-19 pandemic?

1.3 Objectives of the Study

This Research has Three Objectives:

- To analyze the impact of COVID-19 on MSMEs and compare it with the 1997/98 crisis.
- To identify the business risks faced by MSMEs during these crises.
- To explore the most commonly adopted CMMs by MSMEs during the COVID-19 pandemic.

1.4 Significance of the Research

Since the beginning of the COVID-19 pandemic in early 2020, there has been an increasing amount of research on its effects. However, empirical studies specifically examining MSMEs and their coping strategies are still relatively limited, especially in Indonesia. This exploratory study aims to offer valuable insights for small business owners on two main fronts: (1) the impact of the COVID-19 economic crisis on MSMEs, and (2) the CMMs adopted by MSMEs to endure the crisis. By reviewing existing literature on past crises, including the COVID-19 pandemic, and incorporating the findings of this study, it highlights the policies that should be implemented to address the impact of crises on businesses. It assesses the extent to which pandemic control measures have affected small-scale businesses and suggests ways to mitigate the consequences of such measures in future

crises. Additionally, the study provides a comprehensive overview of crisis mitigation strategies to help businesses survive during challenging times.

2. LITERATURE REVIEW

2.1 Development of Indonesian MSMEs

From the New Order era (1966-1998) to the present, Indonesia's economy has progressively liberalized. More sectors have opened up to private investment, including foreign investments, strengthening the role of the private sector as the primary driver of economic growth. This has led to an increase in private businesses, including MSMEs, and foreign direct investments, intensifying competition in the domestic market due to the influx of imported goods.

Similar to other developing countries, MSMEs are crucial to Indonesia's economic development. They are the backbone of national economic activity, contributing over 50% to Indonesia's Gross Domestic Product. MSMEs make up 99% of all businesses and account for 92% of job creation in Indonesia. They are particularly vital for providing employment opportunities to low-skilled workers and business opportunities for married women from poor rural households (e.g. [7,8]).

According to the MSME Law Number 20 of 2008, MSMEs are defined as business entities with annual sales/turnover of up to IDR 50 billion and fixed investments (excluding land and buildings) of less than IDR 10 billion. Businesses exceeding these thresholds are classified as large enterprises (LEs). The National Agency of Statistics (BPS) categorizes MSMEs based on the number of employees: micro enterprises (MIEs) with up to five workers, small enterprises (SEs) with six to 20 workers, and medium enterprises (MEs) with 21-50 workers. Enterprises with more than 50 employees are considered LEs.

MSMEs vary not only in terms of number of employees, annual revenue, and capital/assets but also in their characteristics. These include business formality (whether they have a business license), market orientation or coverage (local buyers only or also selling to distant locations), socio-economic profile of the owners (e.g. formal educational attainment, business networks and having access to government programs), nature of work (unpaid family members versus paid workers), organizational and management systems (whether a division of labor is adopted and professional managers are employed, level of mechanization (labor-intensive versus capital-intensive), local sources of raw materials and capital (from local or external sources), motivation or having an entrepreneurial spirit (doing business only as a means to survive or to seek profit), and involvement of women as entrepreneurs or MSME owners [8].

No official data from The Indonesian State Ministry of Cooperative and SME are available beyond 2019. The last one was in 2018, as shown in Table 1. The number of MSMEs in Indonesia amounted to more than 64 million units. Of this, as in other developing countries, MIEs were dominant, reaching almost 98 percent of total firms, while the SEs portion was only about 1 percent and MEs are even less than that.

Regarding the gender distribution of MSME entrepreneurs, there are more female entrepreneurs or business owners in MSMEs compared to LEs. Within the MSME sector, MIEs have a higher proportion of women as business owners than SEs or MEs. This is primarily due to two reasons: (1) MIEs typically involve straightforward, income-generating activities such as food production, food stalls, shops selling basic goods, retail, and handicrafts, which do not require advanced technologies or high formal skills; (2) these activities are small-scale and simple, requiring no special space, allowing married women to balance their time between serving customers and managing domestic responsibilities more easily [8].

Table 1. Number of MSMEs and their workers by sub-category in Indonesia, 2016-2018

	unit of measure	2016*		2018*	
		Total	Share (%)	Total	Share (%)
MSMEs	Unit	61,651,177	99.99	64,194,057	99.99
	People	112,828,610	97.04	116,978,631	97.00

*Note: * share of total firms and total workers, respectively.*
Source: Menegkop & UKM (http://www.depkop.go.id/)

Despite the absence of governmental barriers or discrimination against women starting their businesses, the number of female entrepreneurs remains significantly lower than that of male entrepreneurs. Most female entrepreneurs are found in low-income generating MSEs within the informal sector. The underrepresentation of women in entrepreneurship in Indonesia can be attributed to four main factors: (1) limited formal education and training opportunities, (2) substantial household responsibilities, (3) legal, traditional, cultural, or religious constraints, and (4) restricted access to banking and financial institutions for business funding. The prevalence of women entrepreneurs in MSEs suggests that many are driven to start businesses out of necessity due to poverty or a lack of better employment opportunities (e.g. [9,10]).

2.2 Economic Crises and Their Transmission Channels

Economic crises are characterized by sudden and uncontrollable large fluctuations beyond the acceptable limits of price changes, currency exchange rates, or supplies of commodities within a specific period. Countries experiencing an economic crisis often exhibit sluggish or even negative growth in their gross domestic product (GDP) (e.g. [11,12]). Historical experiences since the 1970s have shown that economic crises can be triggered by various primary causes. For instance, the mid-1970s saw a significant increase in international oil prices due to the Middle East conflict, known as the first oil crisis. Another example is the massive depreciation of a currency against the USD due to large capital flight, as seen in Thailand, which subsequently affected Indonesia, the Philippines, and South Korea, leading to the Asian financial crisis of 1997-98 (e.g. [13,14,15]).

Economic crises originating from different sources follow distinct processes and have varied transmission channels of impact. The sectors directly affected differ based on the nature and extent of production, consumption, and investment linkages with the rest of the domestic economy. Consequently, economic crises from different sources result in diverse total effects on a country's economy.

Before the COVID-19 pandemic, two major economic crises frequently discussed in the literature were the 1997/98 Asian financial crisis and the 2008/09 global financial crisis. The 1997/98 Asian financial crisis was initiated by sudden capital outflows from several Southeast and East Asian countries, causing a significant depreciation of their national currencies against the USD. The primary transmission channels of this crisis were foreign trade (exports and imports) and foreign debt. Conversely, the 2008/09 global financial crisis, which resulted in a decline in global income, primarily impacted economies through a reduction in global demand for exports [15].

In Indonesia, the 1997/98 Asian financial crisis began with a severe depreciation of the rupiah (IDR) against the USD, exceeding 200%. This drastic decline compelled many domestic businesses to curtail their operations. Large enterprises, which were heavily dependent on foreign loans and imports of raw materials and industrial goods, faced substantial difficulties, leading to a profound economic downturn and a deep recession [16].

In contrast, the 2008/09 global financial crisis affected Indonesia mainly through a decrease in global demand for its exports, a common issue for many exporting countries. Additionally, Indonesia experienced a significant drop in foreign tourist arrivals during this period (e.g. [13,17,15,18,19]. However, compared to the 1997/98 crisis, the 2008/09 crisis was less severe, and Indonesia managed to maintain positive growth rates in both 2008 and 2009.

The COVID-19 crisis is largely seen as a domestic supply and demand crisis, driven by reduced consumption and production due to government regulations on social distancing, remote work, and school closures, as well as the shutdown of non-essential businesses. As a result, Indonesia's Central Bureau of Statistics (BPS) reported that GDP growth in the first quarter of 2020 was only 2.97 percent compared to the same period in 2019, marking a 2.41 percent decline from the fourth quarter of 2019.

2.3 MSMEs during the 1997/98 Asian Financial Crisis

In the literature on MSME development, it is often highlighted that these businesses are more adaptable than large enterprises (LEs). MSMEs can pivot their business models when market demand for their products declines due to macroeconomic downturns or government policies favoring LEs or imports. In contrast, LEs, which produce more standardized products with high overhead costs, find it costly and time-

consuming to switch product lines (e.g., [7,8]). Findings from their research support the view that MSMEs perform better in volatile macroeconomic conditions than LEs. MSMEs, particularly micro and small enterprises (MSEs), can easily scale up production or expand their markets during economic growth (assuming no significant constraints like limited capital and skilled labor) and quickly reduce production during economic crises. This emphasizes that MSMEs are crucial in industries, sectors, or economies facing rapid market demand changes or economic recessions, acting as shock absorbers in the business cycle.

However, evidence shows that MSMEs, like all businesses, suffer significantly during economic crises. The extent of the impact depends on various factors, including the type of crisis, the main transmission channels, and the types of goods produced or the sectors in which these businesses operate. During the 1997/98 crisis in Thailand, for example, studies by [20,21,4] found that many MSMEs, especially those focused on the domestic market, were forced to halt production. The reasons ranged from the unavailability of bank credit and high loan interest rates to a significant drop in domestic demand. In Malaysia, [22,23] found that many MSMEs were severely affected by the crisis due to weakened domestic demand, inability to secure bank loans, or reliance on imported raw materials and goods, which became very expensive despite the Malaysian ringgit not experiencing significant depreciation due to a fixed exchange rate set by the government. Similar evidence was found in the Philippines, particularly in the manufacturing sector, where research by [24,7] revealed that many MSMEs partnering with LEs in subcontracting systems had to stop production due to decreased domestic demand, making production inefficient.

In Indonesia, various studies based on field surveys, direct observations, or secondary data analyses of MSMEs across industries such as footwear, furniture, batik (traditional Indonesian cloth), bricks, tofu, kretek (clove cigarettes), and the metal industry during the crisis period have been conducted. Researchers including [25,26,27,28,29,30,7,31,32,33,34] found that many MSMEs were forced to close, primarily due to the high cost of imports in IDR and the lack of access to bank credit, especially as the Indonesian banking sector faced bankruptcy. However, [29] noted an interesting phenomenon: the crisis created greater domestic market opportunities for many MSMEs in certain industries. This was because many individuals and households affected by the crisis changed their consumption habits, opting for more affordable domestic products over imported goods. This shift in consumer behavior led to increased demand for local MSMEs.

2.4 MSMEs during the 2008/09 Global Financial Crisis

The 2008/09 crisis is widely recognized as an international trade or export crisis, primarily because the export market served as the main conduit through which the crisis spread, leading to a significant decline in exports from many developing countries in Southeast Asia" (e.g. [13,17,18,19]. The reduced global demand during this period adversely affected many MSMEs, particularly those in three key categories: export-oriented MSMEs, MSMEs subcontracting to large exporting businesses in labor-intensive industries (e.g., clothing, footwear, leather products, food processing, wood products including furniture, handicrafts, and electronics), and MSMEs in the tourism sector" (e.g. [13,17,15,8]).

Chakraborty [35] studied the impact of the crisis on export-oriented businesses in India, most of which were MSMEs. By analyzing profit and loss data and other key balance sheet components from 5,000 manufacturing businesses across various industries, he found that the decline in global demand, especially from importers in the US and Europe, was the primary transmission channel of the crisis. However, a loose monetary policy implemented by the Indian central bank during the crisis provided some relief, mitigating the impact on these businesses.

Claessens [14] examined the performance of businesses affected by the crisis and the relative importance of different transmission channels in 42 developing countries. Using accounting data from 7,722 non-financial businesses, they investigated three specific channels: the financial channel, the demand channel, and the export channel. They found that export and domestic market demand were the most significant channels of crisis impact. Additionally, they discovered that trade relations were the main spreaders of shocks, while financial ties played a much less significant role.

Another significant transmission channel was the banking sector, which suffered greatly during the

crisis, although it was less affected in Indonesia. The crisis led to a loss of international confidence in the domestic banking system, resulting in the inability to issue letters of credit, which are crucial for financing international trade, and the unavailability of trade credits [36]. According to the Asian Development Bank [37], many MSMEs were adversely affected, with the lack of trade financing being a major transmission channel of the crisis's impact. However, [38] found that in Central Asia, LEs were more severely impacted than MSMEs, as MSMEs generally did not rely on foreign bank loans or the global capital market. She concluded that the negative effects on MSMEs were primarily due to weak demand, both domestic and international, which reduced their sales and profits and, consequently, their ability to self-finance their operations.

In Indonesia, the most affected exports included wood-rattan-based furniture, textiles, clothing, and leather products such as footwear. These industries have traditionally been key sectors for MSMEs. The SMERU Research Institute reported that many MSMEs in the textile and garment industry in Bandung and Cimahi, West Java, were significantly impacted. Approximately 150 MSMEs faced the threat of bankruptcy due to rising prices of imported raw materials, which increased production costs by about 20%. Additionally, they experienced a decline in orders, particularly from foreign buyers [39].

The tourism-related handicraft industry was also affected by the crisis. According to SMERU's 2009 report, in the latter half of 2008, several handicraft industries in Bali began to ask their workers to stay home. In Celuk village, a significant number of silversmiths were temporarily suspended. In Tegallalang village, Ubud Bali, many craftsmen producing wooden masks had to halt production. Similarly, many songket weavers in Palembang and Ogan Ilir in Sumatra ceased production as overseas buyers, especially from Singapore and the United States, stopped purchasing their products in October. In East Java, the brass handicraft industry saw a 50% reduction in production due to decreased demand from various countries, including the US, leading to a 50% increase in job losses.

2.5 MSMEs during the COVID-19 Crisis

According to the [40,41] in their latest report on SME policy responses to the COVID-19 pandemic, the crisis significantly impacted businesses, including MSMEs, from both supply and demand perspectives. On the supply side, MSMEs faced labor shortages as many workers were either infected with the virus or had to care for their children due to school closures and movement restrictions. The implementation of health protocols recommended by the World Health Organization (WHO), such as closing schools and universities, halting non-essential business activities, and banning social events (e.g., weddings, seminars, and entertainment), further reduced the utilization of production capacities. This impact was exacerbated by severe disruptions in regional and global supply chains, leading to shortages of spare parts, semi-finished goods, and processed raw materials for many domestic businesses, including MSMEs.

UNCTAD [42] in its report in early 2021 emphasizes that because MSMEs, both formal and informal, constitute over 90% of all businesses globally, and contribute approximately 70% of total employment and 50% of GDP, therefore, supporting MSMEs is crucial for achieving a sustainable and inclusive recovery from the COVID-19 pandemic. This report offers an overview of the current challenges related to competition and market access that MSMEs face worldwide as they navigate the impacts of COVID-19. It highlights the competition-related issues exacerbated by the pandemic, the difficulties in accessing both existing and new markets, and the regulatory responses that particularly affect MSMEs. Additionally, it identifies observable trends relevant to small and medium enterprises. The report concludes with several recommendations for future actions by national governments and international organizations.

Especially on the demand side, MSMEs experienced a significant drop in market demand for their products and hence their income, also caused by a lack of funds. This situation was worsened by layoffs and the inability of businesses to pay salaries. The crisis also had the potential to affect financial markets, making it even harder for MSMEs that relied heavily on bank loans. Overall, many studies highlight that MSMEs are generally more vulnerable to such crises than larger firms due to their higher vulnerability and lower resilience associated with their size.

Numerous field reports emerged between April and August 2020 highlighting the serious impact of COVID-19 on MSMEs across the sector and Indonesia, and the tourism sector was the hardest hit, followed by small shops, restaurants, cafes, and transportation businesses affected by anti-COVID-19 Impact or better known as Lockdown policies. Research by [43,44,45] found that since mid-March 2020, 163,713 MSMEs had been seriously affected: 56% due to decreased sales, 22% due to capital difficulties, 15% due to distribution challenges, and 4% due to raw material shortages. Hermansah [46] reported that 96% of surveyed businesses claimed to be negatively impacted, with 75% experiencing significant sales declines and 51% believing their business could only last one to three more months.

Anwar [47] found that out of 14,238 MSMEs in Serang City, 10,238 were affected, with only 4,000 surviving the epidemic. Kompas [48] reported that demand for MSME products was expected to decrease by 60% to 80%, primarily due to fewer buyers visiting shops. Sundari [49] noted that many MSMEs in Cimahi City experienced sales declines of up to 80%, leading to layoffs, especially for businesses reliant on daily production activities. Export-oriented MSMEs were also affected. By April 2020, 212,394 workers had been laid off, and 1,205,191 workers were sent home with partial pay from 74,430 companies.

Nurzaman [50] interviewed Ms. Tarli Sutarli, the manager of the Bueuk Stamp Coffee Plant in Golempang Hamlet, Ciliang Village, Parigi District, Pangandaran Regency. She reported that under normal circumstances, her monthly turnover ranged from 7 to 12 million IDR. However, due to the coronavirus pandemic, her business has nearly closed as her turnover has plummeted dramatically.

Burhan [51] found that MSME revenues in the culinary, fashion retail, and beauty services sectors declined significantly during the pandemic. The culinary sector saw a daily income drop of up to 37%, fashion retail by 35%, and beauty services by 43%. Additionally, food orders at restaurants decreased by up to 60%. The negative impact was most pronounced for MSMEs that continued to operate offline.

Between July and August 2020 [52] surveyed to assess the impact of COVID-19 on MSMEs in Indonesia. The survey explored various aspects such as supply and demand, production, revenue, finance, employment, supply chains, marketing, and distribution. It also examined the needs of MSMEs, the assistance they received from the government, and their medium and long-term plans, including business expansion, digitalization, and entering new markets. The study covered 15 provinces in Indonesia, with 60% of the surveyed MSMEs located in Java and 40% outside Java. A total of 1,180 MSMEs participated, comprising 43% small enterprises (SEs), 31.2% micro enterprises (MIEs), and 25.9% medium and large enterprises. Notably, over half (51%) of the MSMEs were owned by women, and 40% had been in business for less than four years.

The survey revealed significant supply shocks, with more than 45% of MSMEs struggling to obtain raw materials. Additionally, nine out of ten MSMEs experienced a decline in demand for their products during the pandemic. Distribution challenges were also prevalent. However, the pandemic accelerated digital adoption, with around 44% of MSMEs joining online marketplaces like Tokopedia and Shopee, up from 28% before the pandemic.

In their 2023 published paper, [53] explored the impact of the COVID-19 pandemic on innovation within Indonesian MSMEs and how different types of innovation—product, process, marketing, and organizational—mediate MSME performance. Using data from a cross-sectional survey of 300 MSME owners in Indonesia, the researchers developed and tested an integrated conceptual framework. Hypotheses were examined using Structural Equation Modelling (SEM) with Smart PLS, and descriptive analysis provided demographic insights into the MSME owners.

The paper shows that the COVID-19 pandemic significantly and positively influenced all four dimensions of innovation, prompting MSME owners to innovate and adapt. Specifically, product, marketing, and organizational innovations were shown to significantly enhance MSME performance, with organizational innovation being the most impactful. Marketing innovation had the least effect on performance. Interestingly, process innovation, particularly in terms of reducing production costs, did not significantly affect MSME performance, suggesting that cost reduction alone

is not a key driver of performance improvement.

The identified transmission channels of the economic impact of the Coronavirus Pandemic on MSMEs based on field evidence from many parts and sectors across Indonesia are given in Fig. 1. The main cause of the economic crisis in Indonesia in 2020 was not the pandemic, but rather the lockdown regulations to minimize the negative impact of the pandemic on public health. During the lockdown, all activities outside the home, such as school, entertainment, sports, and offices were stopped, and replaced by studying from home and working from home as much as possible. As a result, domestic market demand for imports and MSME products decreased drastically. As a result, unemployment increased and income decreased drastically, ultimately creating a multiplier effect.

2.6 Crisis Mitigating Measures (CMMs)

The International Labour Organization (ILO) conducted a survey revealing that MSMEs have responded to the economic crisis caused by the COVID-19 pandemic in various ways ([54,55,56]). Approximately half of the MSMEs surveyed reduced their production due to decreased demand and production constraints. Many others negotiated wages with their workers, revised debt repayment terms with banks, and adjusted payments for raw materials with suppliers. A few MSMEs diversified their sales channels to mitigate the crisis's impact on their businesses [57].

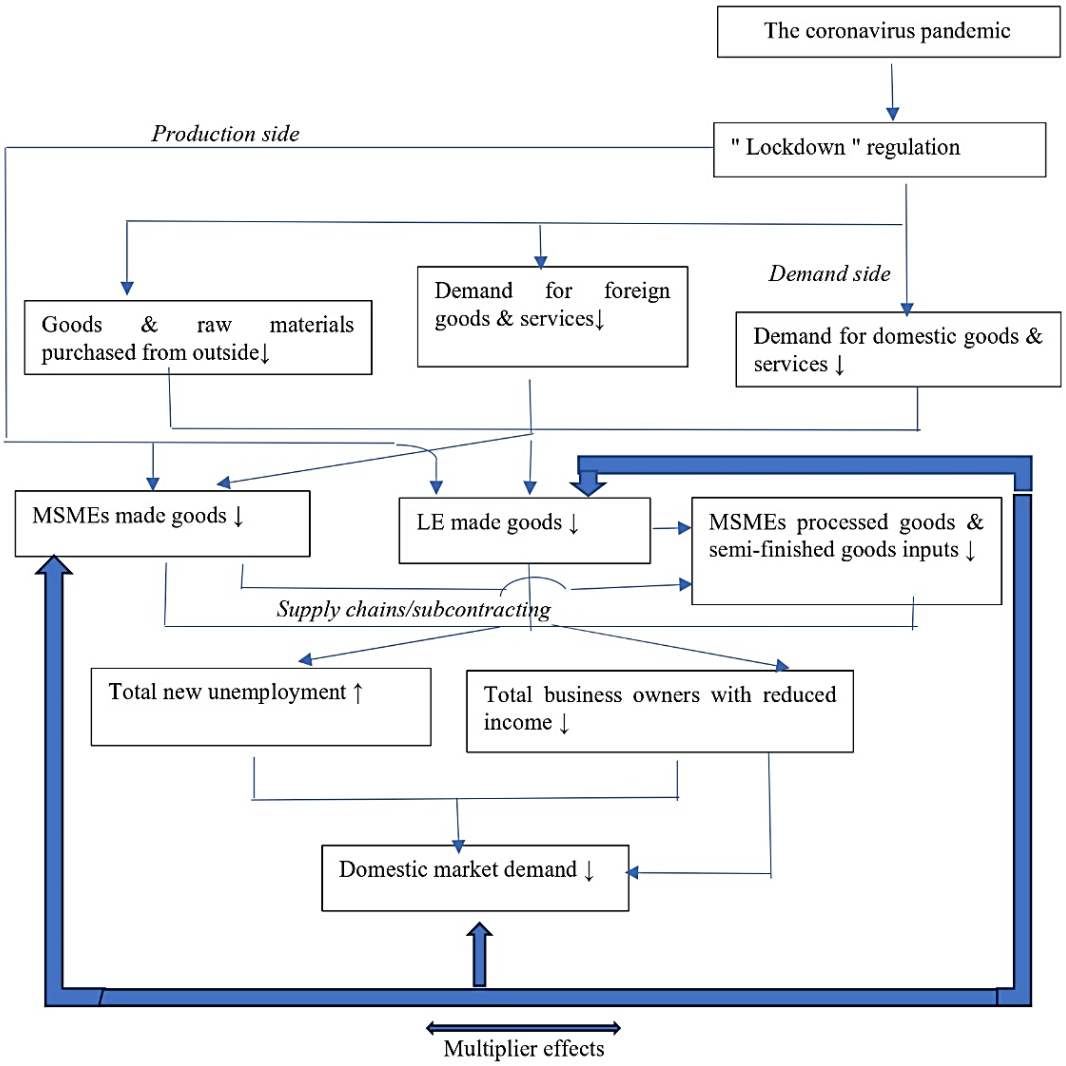

Fig. 1. The identified transmission channels of the economic impact of the coronavirus pandemic on MSMEs

Regarding the 1997/98 Asian financial crisis, research by [25] on MSMEs in the furniture and batik industries in Central Java found that the most common coping mechanism was replacing imported raw materials with locally available ones. During the 2008/09 global financial crisis, a field survey of MSMEs in three furniture production centers in Java conducted by the author in July-August 2009 identified various coping mechanisms. These included seeking new markets (diversifying export markets) in less affected countries, exploring the domestic market, halting new recruitment, reducing labor and non-labor costs, canceling or delaying facility upgrades, reducing working hours, and cutting back on production.

3. RESEARCH METHODS

This is an empirical exploration study, which consists of two blocks of data analysis, namely secondary and primary data analyses. The secondary data was obtained from the results of the 2020 National Survey of Micro and Small Enterprises (MSEs) in the Manufacturing Industry by the National Statistics Agency [58]. The primary data was collected from a field survey of 137 MSMEs during May-September 2020. The respondents were randomly selected in various cities and sectors in Indonesia, they were from the food and beverage business including restaurants, food processing, and catering. Some other respondents were in other businesses such as small shops or mini markets, clothing industries, café and coffee shops, and photocopy services. Haircut and washing services, transportation services, craft industries, music studios, creative content production workshops, groceries, printing, and laundry. Most of them marketed their products in a conventional way (offline).

Initially, there were 143 owners of MSMEs selected for the survey, but six of them were found to be no longer operational. They claimed to be bankrupt because their sales had fallen too much, which made it impossible to maintain their businesses. Because the survey aimed to find out what forms of CMMs were taken by affected MSMEs but still operating, then those six respondents were excluded from the sample.

The methodology chosen is depicted in the following diagram (Fig. 2).

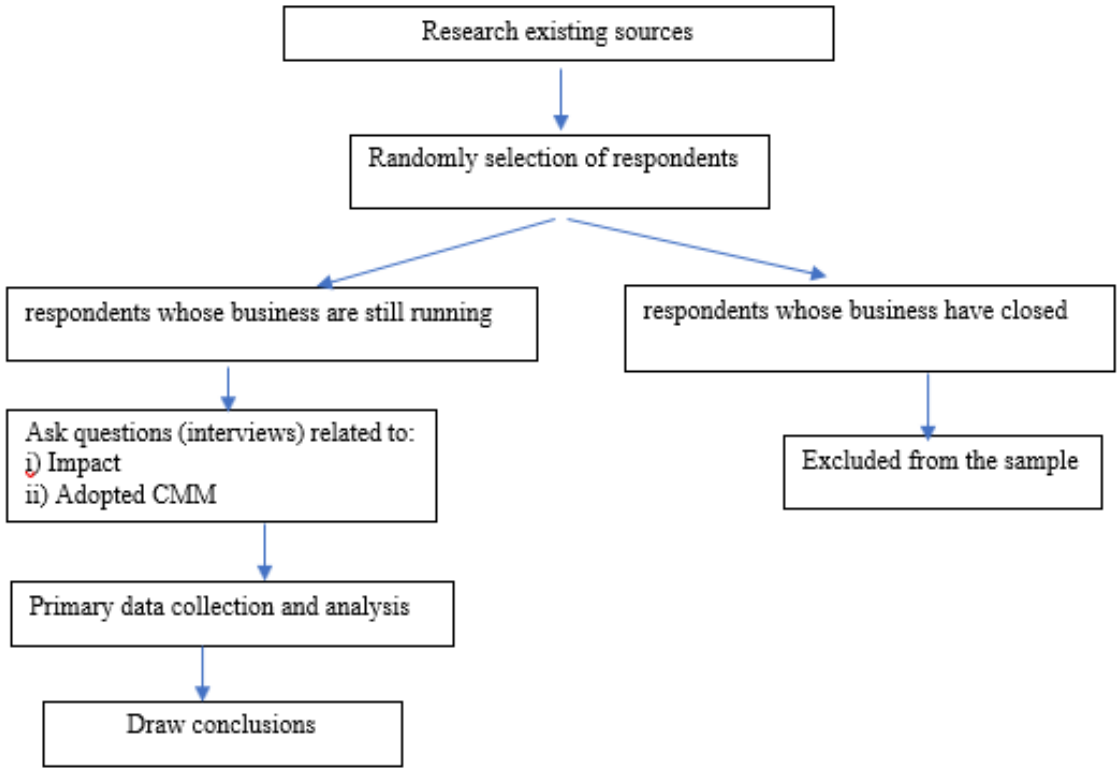

Fig. 2. Research method

4. FINDINGS AND DISCUSSION

4.1 Impact

The first channel was a drop in domestic demand due to lockdown policies. The second channel was a decrease in global demand, particularly from China, for Indonesian products, leading to a decline in Indonesia's exports [59]. The third channel involved reduced imports of processed raw materials and supporting materials, especially from China, which forced many businesses, including MSMEs in Indonesia that heavily rely on these imports, to reduce or halt production ([60,61]). The fourth channel was an increase in the number of poor people due to layoffs or wage cuts, further decreasing local market demand and impacting MSME businesses (see again Fig. 1).

In comparison, the 1997/1998 crisis affected MSMEs through both demand and supply channels. On the supply or production side, the effects were seen in the market for production factors and other inputs. On the demand side, the effects were observed in the market for finished and semi-finished goods and components. The supply-side effects of the IDR depreciation had both positive and negative impacts. The negative impacts stemmed from two main sources. First, the financial market: a significant rise in interest rates due to tight national liquidity as a direct monetary policy response to the depreciation, combined with the collapse of domestic banks due to financial losses in transactions with foreign banks and increased non-performing loans. As a result, many local MSMEs faced financial difficulties because bank credit became unavailable or too expensive. Second, the inputs market: the increase in IDR prices for imported processed raw materials, components, and other inputs severely affected local MSMEs that relied heavily on imports for their inputs.

The identified transmission channels of the economic effects of the 1997/1998 crisis on MSMEs based on field evidence from many sectors or industries and regions across Indonesia are provided in Fig. 3. The depreciation of IDR against USD makes the cost of importing in IDR and the cost of borrowing from abroad expensive. The positive impact, at least in theory, is that the price competitiveness of Indonesian export products abroad increases. Furthermore, on the one hand, imports decrease, while on the other hand, Indonesian exports can increase. If the decrease in imports is greater than the increase in exports, the impact on MSME production can be negative, and vice versa.

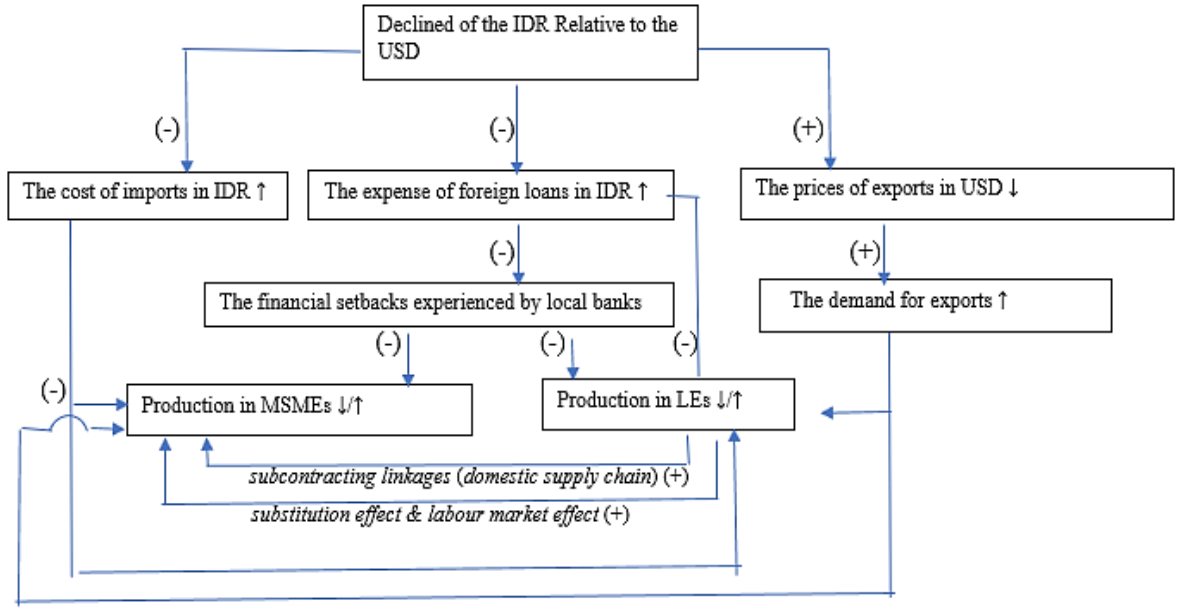

Fig. 3. The identified transmission channels of the economic effects of the Asian Financial Crisis on MSMEs

Notes: (+) positive impact; (-) negative impact

Fig. 4. Growth rates of production in MSEs in the manufacturing industry, 2020
Source: [58]

Table 2. Number of manufacturing MSEs by business status (%), 2020

	Stayed in the same industry	Switched industries	Production temporarily stopped	Closed	Others
Q1-2020	76,6	0,53	13	4,28	5,6
Q2-2020	76,7	0,29	15,35	5,43	2,23
Q3-2020	80,11	0,22	11,55	6,03	2,1
Q4-2020	79,39	0,18	11,25	7,06	2,12

Note: KBLI = Indonesian Standard Industrial Classification/KBLI
Source: [58]

The labor market experienced a positive supply-side effect. As numerous businesses went bankrupt due to the weakening of the IDR, many people found themselves unemployed. In Indonesia, where there is no unemployment benefit, those without formal jobs had to seek employment in the informal sector, which is dominated by micro and small business activities, or start their own micro or small enterprises.

The 2020 National Survey of MSEs in the Manufacturing Industry revealed that the first year of the pandemic crisis led to a sharp contraction in the production growth of MSEs compared to the growth rates in 2018 and 2019 (Fig. 4). Among the 23 industry groups, the beverage industry had the lowest percentage of MSEs closing or temporarily halting production, at approximately 11.95 percent during the fourth quarter of 2020. By the end of 2020, 7.06 percent of all MSEs in the manufacturing industry had closed, and 11.25 percent had temporarily stopped production. By province, Banten had the smallest percentage of manufacturing MSEs closing or temporarily ceasing production, at 11.22 percent during the fourth quarter of 2020.

Nearly a quarter of MSEs in the sector were unable to produce during the 2020 pandemic. The lowest percentage of MSEs that continued production, whether they stayed in the same industry ("fixed 2-digit KBLI") or switched industries ("different 2-digit KBLI"), was 76.70 percent in the second quarter of 2020 (Table 2).

Most MSEs that continued production remained in the same type of business. The number of producing MSEs fluctuated throughout 2020, reflecting their efforts to stay operational and within the same industry, which were highly dependent on pandemic conditions. When the COVID-19 pandemic worsened and economic activities were further restricted, many MSE businesses were directly impacted.

Interviews with 137 MSME owners conducted during the field survey (May to September 2020) revealed two main impacts: a decline in turnover

due to reduced market demand and/or increased production costs resulting from higher prices of imported raw and supporting materials. This increase in costs was primarily due to reduced imports, especially from China, and possibly stagnant transportation within the country. Some respondents experienced only a decrease in turnover, others only an increase in production costs, while many faced both issues.

Regarding increased costs, Table 3 categorizes respondents based on the extent of cost increases. The highest number of respondents reported cost increases of up to 10 percent and between 10 to 20 percent. However, a significant number of respondents, 36 in total, did not experience any increase in costs.

In terms of declined turnover, the same table categorizes respondents based on the extent of sales decline. The largest group of respondents reported a turnover decline of between 40 to 50 percent. Only four respondents indicated that their turnover had not decreased.

"The interviews with the 137 MSME owners during the field survey (May September 2020), revealed two forms of impact, namely declined turnover caused by fallen market demand and/or increased production costs because of increased prices of imported raw and supporting materials caused by reduced imports, especially from China, and possibly also due to stagnant transportation between regions within the country. Some respondents only experienced a decrease in turnover, some others only experienced an increase in production cost, and many others experienced both. Concerning increased cost, Table 3 shows the number of respondents according to the cost increase category. The categories with the highest number of respondents experiencing it are the cost increases of up to 10 percent and beyond 10 percent and up to 20 percent. However, the number of respondents who did not experience an increase in costs is much higher, 36 respondents. Concerning declined turnover, the same table shows the number of respondents according to the sales decline category. As seen, the category with the largest number of respondents is the decline above 40 percent and up to 50 percent. Only four respondents admitted that their turnover had not decreased".

4.2 Types of Business Risk and CMMs

Typically, when a business encounters an unexpected drop in market demand for its products, especially when the decline is anticipated to be long-term, it will implement various adjustment measures to alleviate the pressure on its profits. Similarly, when the cost of raw materials rises significantly due to supply chain disruptions or currency depreciation, businesses heavily reliant on these materials will adopt certain measures to continue production. These measures, known as crisis mitigating measures (CMMs), can take various forms, such as reducing production volumes, shortening working days or hours, laying off workers, substituting raw materials, and altering marketing strategies. The specific measures depend on the type of crisis, the nature of business risks, the visible impact of the crisis, and, importantly, the business owner's expectations for the future.

Table 3. Respondent distribution by impact category

The size of the impact (%)	Breakdown of Respondents by the size and type of the impact	
	Cost ↑	Turnover ↓
0	36	4
10	29	4
20	28	13
30	12	27
40	6	19
50	11	36
60	1	10
70	4	15
80		2
90		3
100	1	

Source: field survey 2020

The 1997/98 Asian financial crisis and the COVID-19 pandemic underscore that these crises have distinct triggers, transmission channels, and types of business risks, such as production, credit, or market risks. As a result, the suitable CMMs for MSMEs during the 1997/98 crisis were different from those required during the COVID-19 crisis. During the Asian financial crisis, the primary business risks included: (1) production risk (high production costs due to expensive imported raw materials); (2) credit risk (high loan interest rates); and (3) market risk (reduced or no demand from subcontracting linkages). The identified transmission channels were imports, credit, exports, and domestic supply chains.

Given these varied risks, the appropriate CMMs included: (1) substituting raw materials; (2) improving efficiency in raw material usage; (3) reducing labor and other non-labor costs; (4) seeking alternative funding sources; and (5) finding alternative subcontracting arrangements both domestically and internationally. However, despite the crisis presenting several business risks, research by [25] on MSMEs (mainly MSEs) in the furniture and batik industries in Central Java found that replacing imported raw materials with local ones was their primary CMM.

In contrast, the 2020 COVID-19 crisis was a combination of a production crisis and a market demand crisis, with three transmission channels: import, export, and domestic demand. The business risks included: (1) market risk (reduced domestic demand); and (2) production risk (halted production due to lockdown regulations). According to several researchers (e.g. [62,63,64,65,66,45]), based on their field observations in various regions and industries across the country, the appropriate CMMs included changing business lines, altering marketing strategies, reducing production costs (e.g., laying off workers or reducing working hours), and cutting back on production. They found that MSMEs in different sectors primarily adopted two main CMMs: changing their business lines and shifting their marketing strategies from offline to online, or from in-store waiting to home delivery via phone calls, SMS, or WhatsApp.

The results of the 2020 National Manufacturing MSEs Survey [58] show that the highest percentage of MSEs that temporarily ceased production occurred in the second quarter, amounting to 15.35 percent, but this tended to decline in the subsequent quarters. In the third quarter of 2020, the number of MSEs that temporarily stopped production was around 11.55 percent, and in the fourth quarter of 2020, it was around 11.25 percent. Besides temporarily halting production, a small number of MSEs were forced to close their business activities. Business closures continued throughout 2020. In the first quarter of 2020, the number of closed MSEs reached 4.28 percent of the total MSEs in the sector. This number continued to rise each period, reaching 5.43 percent in the second quarter, 6.03 percent in the third quarter, and 7.06 percent in the fourth quarter. The increasing trend of closed MSEs indicates that the COVID-19 pandemic continued to impact the resilience of MSEs throughout 2020.

During the COVID-19 pandemic, MSEs in the computer, electronic, and optical industries (KBLI 26) demonstrated greater resilience compared to other sectors. Approximately 96.43 percent of MSEs in KBLI 26 managed to maintain production throughout 2020. In fact, during the first, third, and fourth quarters of 2020, all MSEs in this industry continued their operations. Similarly, the KBLI 10 industry, which includes food products like cakes and brown sugar, also showed a high percentage of continued production during the pandemic, with an average operational rate of 77.05 percent.

The pandemic posed significant threats to many MSEs in the manufacturing sector and beyond, pushing them to adapt to the evolving market conditions. To survive, many MSEs transitioned to different industries, not always shifting from low-demand products to high-demand ones, but sometimes moving to industries with technological similarities. About 21.38 percent of MSEs that changed their products were in the wood, cork, and woven goods industries (KBLI 16), with a significant number transitioning to the furniture industry (KBLI 31) and the machinery and equipment industry (KBLI 28).

Throughout 2020, the largest industry transitions were to KBLI 16 (18.28 percent), KBLI 31 (15.52 percent), and other processing industries (KBLI 32) at 13.79 percent. Conversely, MSEs that did not transition included those in the tobacco processing industry (KBLI 12), the paper and paper goods industry (KBLI 17), and the computer, electronic, and optical goods industry (KBLI 26).

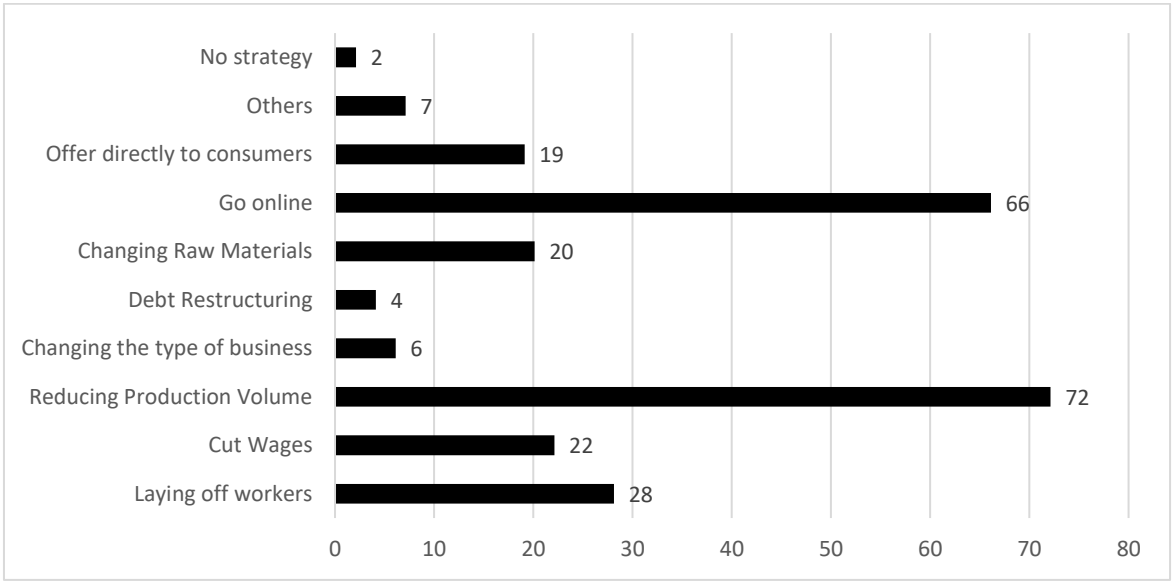

Fig. 5. No. Of Interviewed Owners of MSEs by Adopted form of CMM
Source: field survey 2020

A survey conducted by the author on 137 MSMEs between May and September 2020 revealed that many respondents adopted multiple forms of CMMs. Most of them faced significant declines in turnover or substantial increases in costs, necessitating various adjustment strategies. Fig. 5 illustrates the number of respondents according to their chosen CMMs. The most commonly adopted CMMs were reducing production volume and transitioning from conventional or offline marketing systems to online marketing systems or e-commerce. The government strongly recommended this shift to online marketing to help MSMEs maintain or stabilize their sales during the COVID-19 period.

5. CONCLUSION: THEORETICAL AND PRACTICAL CONTRIBUTIONS

This study offers two significant contributions: theoretical and policy-related. Theoretical contribution: different crises impact MSMEs through various transmission channels and present distinct business risks, necessitating tailored CMMs. An economic crisis does not uniformly affect all MSMEs across sectors; its impact depends on the crisis type and its transmission channels. For example, the COVID-19 pandemic can be seen as a blend of market demand and supply (production) crises, driven by 'anti-COVID-19 impact policies.' On the demand side, MSMEs producing finished goods and relying solely on offline marketing were severely affected as people stayed home. On the supply side, large companies with many employees, such as textile and apparel firms, and businesses that attract crowds like cafes, restaurants, entertainment venues, cinemas, hotels, and malls, had to shut down during the pandemic. Conversely, micro-businesses with fewer than five workers, such as small car repair shops, car washes, small shops, or solo-operated units like craftsmen, small traders, and food stalls, remained operational.

Policy contribution: to effectively assist crisis-affected MSMEs, this study suggests two policy implications. First, for a stimulus package to be effective, it is crucial to identify the most affected MSMEs. This requires understanding the crisis type, its primary transmission channels, and the associated business risks. Second, the form of stimulus should align with the CMMs adopted by the targeted MSMEs. In other words, a stimulus program must complement the adopted CMMs. Therefore, different CMMs employed by affected MSMEs in response to various business risks require support from the government through tailored policy approaches and stimulus packages.

6. FUTURE RESEARCH

This study has shown CMMs adopted by MSEs, both based on secondary data and the results of a field survey. However, there is no further information on the results of the forms of CMM they chose during the crisis: whether their

businesses are now growing rapidly because of the choice of these forms of CMM, or whether the forms of CMMs they adopted turned out to be the best choices, and what factors were involved at that time that chose a form of CMM appropriate or inappropriate. Questions like these are future research questions.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

The author hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

COMPETING INTERESTS

The author has declared that no competing interests exist.

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