The Impact of Covid-19 Pandemic and Social Distancing on Banks' Asset Quality: An International Evidence

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ABSTRACT

This paper aims at testing the significance of each of Covid-19 pandemic and social distancing on banks' asset quality, using a sample of 30 banks representing 10 countries according to GMM technique. Data have been collected from the World Health Organization during 2020. The research covers 10 countries (Egypt; Saudi Arabia; Indonesia; Germany; France; Russia; India; Mexico; South Korea and Nigeria) where 3 banks have been investigated from each country.

Results indicate that banks' asset quality measured by Average change of nonperforming loans ratio seems to be sensitive to Covid-19 spread, measured by Average cases of COVID-19. Besides, findings support the effect of social distancing, measured by each of average staying at residential and average social distancing for retail-recreation. It's important to pinpoint that results do not support the effect of each of average deaths of Covid-19 and average social distancing for workplaces, residential, grocery pharmacy, parks and transit stations.

Keywords: asset quality; banking performance; Covid-19 pandemic; industry effect; social distancing.

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I. INTRODUCTION

All crises have financial consequences that may become visible at different levels: the state, the corporates, the households and eventually the financial sector itself. Then the real economy and banks may be heavily affected and non-performing loans (NPL) levels will eventually rise in the aftermath of such crises. So, banks have to deal with the increased level of NPLs in a way that protect their own viability (Kasinger *et al.*, 2021).

NPLs are appearing when the amount of repayment falls below the contracted value carried on bank's balance sheet. When this happens, loan loss provisions (LLPs) are made, as accounting deduction. A key economic consequence of insufficient LLPs and the persistence of NPLs on bank balance sheets is the combined threat of a "capital crunch" with a "credit crunch" (Hoshi & Kashyap 2009; Hoshi & Kashyap, 2008). The prominence of NPLs in today's crises is nothing new. On the contrary, NPLs represent recurring features of economic and banking crises.

In brief, this study tries to investigate the impact of Covid-19 pandemic and social distancing on banks' asset quality. After this introduction, section 2 illustrates the research problem and section 3 reviews research literature. Section 4 explains how to measure research variables and illustrates how to test the hypotheses. Section 5 is for presenting results and discussing how these results answer research questions. Section 6 summarizes the paper and provide remarks about conclusions.

II. RESEARCH PROBLEM

During 2020, Coronavirus spread has grown rapidly, measured by average deaths and average cases. Consequently, social distancing has been affected. The following figures illustrate these changes in 10 countries, as follows:

Fig. 1. Average Deaths of Covid-19 per 100,000.

Fig. 2. Average Cases of Covid-19 per 100,000.

Fig. 3. Annual Average of Social Distancing for Workplaces.

Fig. 4. Annual Average of Staying at Residential.

Fig. 5. Annual Average of Social Distancing for Retail-Recreation.

Fig. 6. Annual Average of Social Distancing for Grocery Pharmacy.

Fig. 7. Annual Average of Social Distancing for Parks.

Fig. 8. Annual Average of Social Distancing for Transit Stations.

This paper attempts to address the following questions:

1. Is there an impact of Covid-19 pandemic on banks' asset quality?
2. Is there an impact of social distancing (due to Covid-19 pandemic) on banks' asset quality?

III. LITERATURE REVIEW

Many scholars have investigated the stock market response to Covid-19 spread, while the banking performance especially in the aspects of asset quality needs to be more elaborated. For example, Alber (2020a) investigates the effects of Coronavirus spread on the stock markets of the worst 6 countries, while Alber (2020b)

addresses these effects for the European stock markets. Moreover, Alber & Saleh (2020) attempts to investigate these effects in the stock markets of GCC countries. Besides, Arafa & Alber (2020) indicates that stock market returns in the MENA countries tend to be negatively affected Coronavirus cumulative deaths and Coronavirus new deaths during.

Regarding the effect of Covid-19 on “banking asset quality”, there is no common definition for NPL but in common level, an NPL is a loan where a borrower is not making repayments in accordance with contractual obligations. However, the detailed definition of an NPL is not universal (Angklomkiew, George & Packer, 2009). Besides, NPL is defined as a sum of borrowed money upon which the debtor has not made his or her scheduled payments for at least 90 days (Cortavarria *et al.*, 2000).

Banks response to Covid-19 spread should be more elaborated, where banks’ asset quality seems to be sensitive to social distancing due to Covid-19 spread. Haselmann & Troger (2021) addresses three characteristics that are unique to the present the current pandemic, as follows: a) extraordinary differences in the pandemic effects across industry sectors. b) an unprecedented level of government intervention and fiscal support at the industry level. c) a high level of expectation ambiguity as to the longer-term real sector consequences, due to serial lockdowns.

It’s important to pinpoint the diverse consequences on many industries which are caused by a policy of lockdowns that are rather harmful in many industries, such as tourism, restaurants and culture, while pushing the business model up in other industries. E-commerce, communication, information technology in general and pharmaceuticals are examples of industries that get benefits from the Covid-19 (Gourinchas *et al.*, 2021).

Forces that can make NPLs resolution after the Covid-19 events are different from that after the 2008- 2012 crisis. Anyway, a sound management of NPL should consider the following:

1. Transparency providing information basis for both sellers and buyers, leading to decrease the bid-ask-spread and enabling better trading decisions, allowing the free entry of intermediaries as trading platforms or market makers, hence reaching market efficiency by motivating uses of innovative technology and trading models.

2. A central data hub, which will allow banks and practitioners to improve the accuracy of NPLs valuation and then reduce the negative consequences of overdue loan loss recognition (Dilba & Denis, 2020).

3. A robust and well-improved secondary loan market, contributing for the stability of the banking sector in state and improving the loan quality information that is available for customers (Gourinchas *et al.*, 2020).

Kasinger *et al.* (2021) indicates that total bank capital seems to be large enough to ingest potential NPL losses, even in an inverse scenario. Real sector disorders affect the banking sector indirectly, by weakening companies’ business models, and by reducing household capital, leading to a weaken bank’s loan book, none performing, and lowering the bank’s economic capital.

Regarding social distancing due to Covid-19, Alber & Dabour (2020) investigates the opportunities of growth

under restrictions of social distancing for FinTech. Results indicate that social distancing may affect digital payments for retail and recreation, grocery and pharmacy, transit stations and workplaces, without any evidence about significant effects for parks and residential. Besides, stock market winners and losers have been addressed, where Alber & Refaat (2021) investigate the effects of Coronavirus spread on the Egyptian Exchange. Results support the significant negative industry effects for each of Food, Beverages and Tobacco and Health Care & Pharmaceuticals (as losers) and the significant positive industry effects for each of Energy & Support Services, Shipping & Transportation Services and Trade & Distributors (as winners).

Accordingly, Covid-19 has caused increase in many sectors failures, raising the risk to the banking sector through a rise in non-performing loans (Gourinchas *et al.*, 2020). Governments applied a package of precautionary measures and fiscal policies, such as tax deferrals, direct cash transfers, government guaranteed loans, and equity-like injections to provide support to struggling companies (Mongey *et al.*, 2020; Moreno *et al.*, 2020). According to (Wagdi & Rabie, 2021), there are impact of Covid-19 pandemic on business activities, and consequential this may affect banking asset quality.

To our knowledge, literature hasn’t concern with the effect of both of Covid-19 spread and social distancing on banks’ asset quality. This is why we try to work on this research gap.

IV. MEASURING VARIABLES AND DEVELOPING HYPOTHESES

This paper aims at testing the significance of each of Covid-19 pandemic and social distancing on banks’ asset quality. This has been conducted using a sample of 30 banks representing 10 countries according to GMM technique. Data have been collected from the World Health Organization during 2020. The research covers 10 countries (Egypt; Saudi Arabia; Indonesia; Germany; France; Russia; India; Mexico; South Korea and Nigeria) where 3 banks have been investigated from each country. Data about Coronavirus are obtained from: <https://www.worldometers.info/coronavirus> and research variables are calculated as follows:

TABLE I: THE RESEARCH VARIABLES

Variable	Sign	Type
Average cases of Covid-19 per 100,000	CAS	Independent
Average deaths of Covid-19 per 100,000	DEA	Independent
Average social distancing for workplaces	WOR	Independent
Average staying at residential	RES	Independent
Average social distancing for retail-recreation	RET	Independent
Average social distancing for grocery pharmacy	PHA	Independent
Average social distancing for Parks	PAR	Independent
Average social distancing for transit stations	TRA	Independent
Average change of nonperforming loans ratio	NPL	Dependent

This paper aims at testing the following two hypotheses:

1. There is no significant impact of COVID-19 pandemic on banks’ asset quality.
2. There is no significant impact of social distancing (due to COVID-19) on banks’ asset quality.

Regarding the above-shown hypotheses, the null hypothesis H0 states that, $\beta = 0$, while the alternative hypothesis H1 states that, $\beta \neq 0$

$$NPL = \alpha + \beta_1 CAS + \beta_2 DEA + \beta_3 WOR + \beta_4 RES + \beta_5 RET + \beta_6 PHA + \beta_7 PAR + \beta_8 TRA + \varepsilon$$

Regarding each hypothesis, the null hypothesis H0 states that $\beta = 0$, while the alternative one H1 states that $\beta \neq 0$.

V. DESCRIPTIVE STATISTICS AND TESTING HYPOTHESES

Tables (2) illustrates the descriptive statistics variables for the research variables, as in Table II.

Regarding normality, Jarque-Bera values indicate that all independent variables are normally distributed at a P-value of 0.10.

Tables III shows the correlation coefficients between the research variables, as in Table III.

Regarding the problem of autocorrelation, correlation coefficients indicate that it may exist in case of having RET and DEA, RET and WOR or TRA and WOR in the same

model, where correlation coefficients aren't whining -0.7 to 0.7.

This paper aims at testing the significance of each of Covid-19 pandemic and social distancing on banks' asset quality, using a sample of 30 banks representing 10 countries according to GMM technique. For the first and second hypotheses, we can reject the null hypothesis and accept the alternative one. A robustness check has been conducted by examining the whole effect, as shown from Table IV.

Results indicate that banks' asset quality measured by Average change of nonperforming loans ratio (NPL) seems to be sensitive to Covid-19 spread, measured by Average cases of COVID-19 per 100,000 (CAS). Besides, findings support the effect of social distancing, measured by each of average staying at residential (RES) and average social distancing for retail-recreation (RET).

It's important to pinpoint that results don't support the effect of each of average deaths of Covid-19 and average social distancing for workplaces, residential, grocery pharmacy, parks and transit stations.

TABLE II: DESCRIPTIVE STATISTICS

Variables	CAS	DEA	WOR	RES	RET	PHA	PAR	TRA	NPL
Mean	5607.136	130.9250	-21.696	9.464000	-26.122	-3.744	-2.831	-26.918	0.027142
Median	2915.835	73.96000	-21.91	10.68500	-25.97	-6.185	-13	-29.455	0.020486
Maximum	28433.73	411.1500	-8.06	14.13000	-13.68	14.52000	52.13000	-9.19	0.083833
Minimum	148.9800	1.800000	-31.23	2.850000	-45.49	-13.19	-38.92	-50.23	0.004719
Std. Dev.	8241.113	136.8363	6.602470	3.700447	9.509474	8.048062	29.33144	12.96799	0.024148
Skewness	2.124882	1.009074	0.573561	-0.47634	-0.49029	1.115687	0.468427	-0.08221	1.338920
Kurtosis	6.373381	2.667896	2.706979	1.868109	2.557434	3.326770	1.961995	2.033556	3.800506
Jarque-Bera	36.80024	5.229019	1.752186	2.735949	1.446738	6.357266	2.443938	1.201307	9.764546
Probability	0.000000	0.073204	0.096407	0.084622	0.085115	0.041643	0.094649	0.08453	0.007580
Observations	30	30	30	30	30	30	30	30	30

Source: outputs of data processing using EViews10.

TABLE III: CORRELATION COEFFICIENTS BETWEEN THE RESEARCH VARIABLES

	CAS	DEA	WOR	RES	RET	PHA	PAR	TRA	NPL
CAS	1								
DEA	0.802382	1							
WOR	-0.53107	-0.68186	1						
RES	0.302572	0.435001	-0.56043	1					
RET	-0.66484	-0.77614	0.702063	-0.69771	1				
PHA	-0.25677	-0.41599	0.692358	-0.69763	0.346618	1			
PAR	-0.25338	-0.41719	0.24802	-0.72228	0.524501	0.345441	1		
TRA	-0.12786	-0.38626	0.702798	-0.55478	0.607172	0.51022	0.379509	1	
NPL	0.828064	0.61797	-0.30046	0.067606	-0.58524	0.173136	-0.2061	0.017101	1

Source: outputs of data processing using EViews10.

TABLE IV: IMPACT OF COVID-19 PANDEMIC AND SOCIAL DISTANCING ON NPL USING GMM TECHNIQUE

Item	COVID-19 pandemic Effect	Social Distancing Effect	The Whole Effect
C(1)	0.016032 (0.005018)**	-0.001907 (0.021089)	0.000879 (0.016302)
CAS	-2.74E-06 (7.40E-07)***		-2.05E-06 (6.04E-07)***
DEA	-2.68E-05 (4.45E-05)		-4.58E-05 (4.89E-05)
WOR			
RES		-0.004146 (0.002334)*	
RET		-0.002472 (0.000823)**	-0.001129 (0.001122)*
PHA			
PAR			
TRA			
R-squared	0.633902	0.780780	0.893217
Durbin-Watson stat	1.767426	0.860918	1.767426

Source: outputs of data processing using EViews10.

VI. SUMMARY AND CONCLUSION REMARKS

This paper aims at testing the significance of each of Covid-19 pandemic and social distancing on banks' asset quality, using a sample of 30 banks representing 10 countries according to GMM technique. Data have been collected from the World Health Organization during 2020. The research covers 10 countries (Egypt; Saudi Arabia; Indonesia; Germany; France; Russia; India; Mexico; South Korea and Nigeria) where 3 banks have been investigated from each country.

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APPENDIX

THE RESEARCH SAMPLE

No.	Country	Bank
1	Egypt	Commercial International Bank
2	Egypt	Credit Agricole – Egypt
3	Egypt	National Bank of Egypt
4	France	BNP Paribas
5	France	Crédit Coopératif
6	France	TARGOBANK AG
7	Germany	DekaBank Deutsche Girozentrale
8	Germany	Deutsche Bank AG
9	Germany	NRW BANK
10	India	Axis Bank
11	India	Bandhan Bank
12	India	Catholic Syrian Bank
13	Indonesia	Bank Danamon
14	Indonesia	Bank Negara
15	Indonesia	Bank Rakyat (BRI)
16	Mexico	Banamex
17	Mexico	BBVA Bancomer
18	Mexico	Santander Mexico
19	Nigeria	Access Bank
20	Nigeria	Guaranty Trust Bank (GTBank)
21	Nigeria	Zenith Bank
22	Russia	Alfa Bank
23	Russia	PromSvyaz Bank
24	Russia	VTB Bank
25	Saudi Arabia	Al Rajhi Bank
26	Saudi Arabia	Banque Saudi Fransi
27	Saudi Arabia	Riyad Bank
28	South Korea	KB Financial Group
29	South Korea	NongHyup Financial Group
30	South Korea	Shinhan Financial Group

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