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Md. Kamrul Bari , Shakila Yasmin , Md. Mirajul Islam

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APPLICABILITY OF QUANTITATIVE EASING TO DEAL WITH ECONOMIC SHOCKS IN EMERGING ECONOMIES

Md. Kamrul Bari¹, Shakila Yasmin², Md. Mirajul Islam³

*Corresponding author E-mail: bari.sarkar@gmail.com

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ABSTRACT

This paper conducts a detailed investigation of the applications of quantitative easing (QE) to tackle the great recession of 2008 and assesses the possibility of using QE as a tool to regain lost strengths of the world economy following the ongoing COVID-19 pandemic. A thorough analysis of the scale, frequencies and effects of using QE policies in both developed and developing economies is done. Special attention is paid to how the QE policies adopted by developed economies have affected the developing ones. Applicability and impact of QE policies following endogenous and exogenous economic shock in emerging economies are explored with rigor. Analysis of past QE policies reveals that QEs, in general, have positive impacts on the economies of the adopters. However, in the case of developing and/or emerging economies (EMEs) the impact is mixed. QE interventions can create an immediate impact by driving stagnant economic activities into motion. But if continued/ repeated over long-term, the market mechanism will remain disrupted which will result in serious disparities in the economy, magnify the problem of economic uncertainties (especially in the stock market) and lead the economies to make a choice between severe depression, unemployment, hyperinflation or, a complete systemic collapse. Hence this paper suggests QE interventions only as a short-term measure to withstand the economic shock of the ongoing COVID 19 pandemic.

1. INTRODUCTION

Central banks around the world use different traditional monetary policy mechanisms to fight economic slowdowns and shocks. They primarily reduce short term interest rate by adjusting the reserve upward (Aleksievska & Mumladze, 2020; Gnan & Masciandaro, 2016; Mishkin & Eakins, 2015). However, at a time when the global interest rate is falling towards zero or even below, monetary policy measures are considered to be exhausted and fiscal policies too cannot provide enough stimuli to take the economy back on track (Bartsch et al., 2019). Proof of such failure of the traditional mechanism is the great recession of 2008, which originated in the US and gradually spread over the world (Hartley & Rebucci, 2020). The interest rate in the US had approached near zero and the Federal Reserve was in desperate need of an alternative monetary policy to revive its economy (Aleksievska & Mumladze, 2020). This is the time when the Fed borrowed the concept of an

¹ Md. Kamrul Bari MIPA AFA, Doctor of Business Administration (DBA) candidate, Institute of Business Administration, University of Dhaka, Dhaka, Bangladesh

² Dr. Shakila Yasmin, Associate Professor and Coordinator of Management Development Program, Institute of Business Administration, University of Dhaka, Dhaka, Bangladesh

³ Md. Mirajul Islam, Lecturer, Shekh Fajilatunnesa Mujib University (SFMU), Jamalpur, Bangladesh

unconventional monetary policy from Japan called “Quantitative Easing (QE)” and took it to the global level. In modern times, the first-ever QE was originated in 2001, when the Bank of Japan (BOJ) introduced the Quantitative Easing Policy (QEP) to fight deflation (**Hartley & Rebucci, 2020**).

COVID 19 outbreak of 2020 has also been found to have a disastrous effect on the world economy and the severity of economic shock arising from this pandemic may already cross the catastrophic recession of 2008 (**Bashir et al., 2020; International Monetary Fund, 2020b, 2020a**). IMF projects that global output is expected to decrease by 4.35% in 2020, while the same had increased by 2.79% in 2019. In the first year following the financial crisis of 2008, global output decreased by 0.083% only. A detailed look at G7, Eurozone, emerging and developing Asian economies during 2007 – 2009 shows that GDP of this region in 2009 changed by -3.63%, -4.21% and +7.58% indicating that the emerging economies in Asia were immune to the great recession and in fact experienced an increase in total output. On the contrary, projected percentage changes in GDP data on the verge of the COVID 19 pandemic are as follows- GDP of G7 economies is expected to change by -5.90%, Eurozone’s by -8.26% and emerging and developing Asia’s by -1.734% (**Bashir et al., 2020; International Monetary Fund, 2020b, 2020a**). These figures indicate that no one is going to be spared this time and the magnitude of the fall of GDP of the developed economy is going to be double what they faced during the recession of 2008. Hence, this COVID 19 crisis is a mightier overarching economic shock than the crisis of 2008 when the major economies of the globe opted for QE interventions as all other conventional policies seemed inadequate or completely exhausted. The situation has made the authors believe that COVID 19 crisis is also going to force economies around the world to use nonconventional policies, like the QEs, as before. The researchers therefore became intrigued in looking into different dimensions of QE with a special focus on its applicability to the EMEs as a remedy to the calamitous consequences that this COVID 19 pandemic is going to take them through.

While digging through the QE literature, we found that most of them are related to complexities, applications and impacts associated with the implementation of this non-conventional monetary policy on the developed economies, namely the US, the UK, Europe, Japan, Canada, Australia, New Zealand and Sweden (**Alekseievskia & Mumladze, 2020; B. Bernanke et al., 2004; Christensen & Gillan, 2017; Chuffart & Dell’Eva, 2020; Fernandez et al., 2018; Kapetanios et al., 2012; Shkodina et al., 2020; Thorbecke, 2020**). Only a few looked at emerging economies, such as: Indonesia, Malaysia, Thailand, Vietnam, Philippines, Israel, Korea, Colombia, South Africa, Poland, Romania, Hungary, Croatia, Mexico, Turkey, India, Indonesia (**Arisanti, 2020; Hartley & Rebucci, 2020; Lavigne et al., 2014; Lim & Mohapatra, 2016; Meszaros & Olson, 2020; Miyakoshi et al., 2020**). Except for the event study performed by Hartley & Rebucci (2020), no other literature offer comprehensive guides on different dimensions of QE’s implementation in both developed and emerging economies (EMEs) (**Hartley & Rebucci, 2020**). Only a handful of literature discussed different aspects of QE as a remedy to the COVID-19 hit economies, namely **Benigno et al. (2020), Giones et al. (2020), Guerrieri et al. (2020), Hartley & Rebucci (2020), Hevia & Neumeyer (2020), Kano & Oh (2020), Sunder (2020), Taskinsoy (2020), Verbeke (2020), Zhang et al. (2020)**. Out of the abovementioned noteworthy literature, only **Benigno et al. (2020), Hartley & Rebucci (2020)** and **Hevia & Neumeyer (2020)** covered discussions related to QE in EMEs. The subjects covered in all of the aforementioned literature ranges from the effectiveness of QEs to the spillover effects of these policies on the EMEs and even the spill backs. However, there is no literature present at this stage that summarized all of the major concerns covered in literature in one

place and create an integrated and condensed knowledge hub that can be used by other researchers like a comprehensive guide on the issues of QE with special focus on the EMEs.

The objective of this study, thus, is to investigate scale, frequencies and effects of past and present QE strategies of the world during the great recession as well as the COVID 19 pandemic and to assess the applicability of this tool in handling exogenous economic shocks (such as natural disaster and COVID 19) besides the endogenous (shocks arising from the sudden drop of inflation, policy rate, production and consumption as discussed later) ones in order to create a condensed knowledge bank for the economic policymakers and future researchers of this field. More specifically, the research question the authors are trying to answer is as follows:

Can QE be implemented in reversing the effects of COVID19 hit economies (both developed and emerging ones)?

In order to answer this question and furnish our evidence-based inferences, we are going to use a Systematic Literature Review (SLR) approach. The details of this method are discussed in the following section of this study.

The introduction should supply sufficient background information to allow the reader to understand. The introduction should also provide the hypothesis that was addressed or the rationale for the present study. Use only those references required to provide the most salient background rather than an exhaustive review of the topic.

2. MATERIALS AND METHODS

This research paper is going to use a descriptive review methodology. Such a methodology uses a systematic review and examination of published literature to find the latest instances and examples as such to answer particular research questions (**Bertoldi et al., 2008; Paré et al., 2015; Wirth, 2018**). Brereton et al. (2007)'s three-phase principles of SLR is adopted here. After formulating the research question (stated near the end of the introduction section) the review protocol is developed. Through an automated keyword search on major research databases (e.g. google scholar, Taylor & Francis, Elsevier, Wiley, Emerald and Springer, Researchgate.net and others) research articles for review have been selected by adopting a snowballing (**Barros-Justo et al., 2017**) approach. Relevant research papers published between 1973 and 2020 have been selected and review was done by a manual reading of the papers. While reviewing the research papers, the authors critically scrutinized the key aspects and issues (e.g. endogenous and exogenous economic shocks, COVID 19 as an economic shock, adoption of QE in developed and emerging economies, impacts of QE and its spillover effects etc.) that deemed relevant for answering the research question.

Its purpose is to describe the experiment in such detail that a competent colleague could repeat the experiment and obtain same or equivalent results. Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

3. FINDINGS FROM SLR

The information and insights extracted from SLR are organized as follows- first, economic shocks and their typologies are defined and elaborated; second, the impact of COVID 19 on economies is assessed to testify if it is an exogenous economic shock; third, QE policies adopted in the past in developing and developing or emerging economies are evaluated; and fourth, impacts of QE interventions are elaborated in positive, negative and spillover terms.

3.1 Endogenous and exogenous economic shocks

Any unpredicted change in overall macroeconomic conditions is termed to be economic shocks. (Chakrabarti, 2015; Tybout & Bark, 1988). Depending on the type of originating factors, economic shocks can be categorized as exogenous and endogenous shocks. Economic shocks arising from political (e.g., war, strike, uprising, mass movement etc.) and environmental (e.g. natural calamities like tornado, earthquake, flood etc.) factors are generally exogenous shocks. On the other hand, a sudden drop of inflation, federal fund rate, industrial production and/or consumer expenditure can be viewed to cause an unpredicted financial uncertainty or, shocks and hence can be considered as endogenous shocks (Carriero et al., 2018). Emerging economies often experience economic or financial shocks arising from political uprising, monetary policies, interest rate movement of the developed countries and/or their major trading partners, even by speculative behaviors of investors from different geographical location (Canova, 2005; Chakrabarti, 2015; Dornbusch et al., 2000; Hong et al., 2010). Such shocks too therefore, are termed exogenous shocks.

3.2 Is COVID 19 an exogenous shock?

Most researchers in literature have pointed out COVID19 as an exogenous shock (Beirne et al., 2020) ; Giones et al., 2020; (Verbeke, 2020); Kano & Oh 2020 and others). They have asserted the fact that this global pandemic has caused a disruption of unprecedented magnitude to almost all economic activities carried out in an economy. Modern economies built upon the global value chain have experienced sudden supply disruption and simultaneous demand shocks triggered by the outbreak and lengthy propagation of the pandemic. In this regard, BEKAERT et al. (2010) and Guerrieri et al. (2020) argued that although COVID-19 is an exogenous shock to the economy, closures to businesses and laying off workers create a Keynesian supply shock through reduction of productivity of firms and produces a new endogenous shock to the economy. Hence, the economic shock created by COVID-19 has been seen as a cause of an exogenous and endogenous decline in the expected growth of an economy (Caballero & Simsek, 2020).

3.3 QE policies adopted in developed and developing or emerging economies

Over time, unconventional monetary policies have turned out to be a handy tool for different central banks when they are put to test to bring normalcy in handling crises. QE can be placed at the top of the list of such unconventional monetary policies. QE can be defined as the process of broadening the monetary base of an economy by purchasing long term government bonds, Mortgage-Backed Securities (MBS), corporate bonds and other assets from the central bank (Alekseievskaya & Mumladze, 2020; Fernandez et al., 2018; Joyce et al., 2012; Miyakoshi et al., 2020).

Bank of Japan (BOJ), as mentioned earlier, was the first-ever central bank to come up with this concept in order to fight deflation in the economy. BOJ simply intended to buy government securities in order to supply fresh reserves to the banks so that they can use these reserves to make loans. It tends to serve two purposes: *a. decrease in interest rate and b. spillover of these funds would cause assets price to appreciate and remove deflation* (Joyce et al., 2012). Economies with a small inflation rate often experience reduced medium-term inflation expectations. It reduces the current consumption of the households as well as business organizations. Such actions of the said parties cause deflation. Under these circumstances, it becomes difficult to reduce real interest rates at a level to contribute to full employment. Businesses in these situations are more likely to lay off people in an effort to reduce costs even though other means may be available to them. The cost of debt servicing

also rises (Alekseievskia & Mumladze, 2020). Japan, after 13 years of unsuccessful fighting with crises and a huge problem of debt burden, took the bold step of introducing the QE program.

However, the QE efforts of BOJ in 2001 did not see the intended success. BOJ was involved in purchasing 37 trillion Yen of securities as a QE measure causing the monetary base to expand by around 70% (Greenwood, 2017). M2 virtually did not change at all and bank lending had declined (B. Bernanke et al., 2004; Greenwood, 2017; Hartley & Rebucci, 2020). Despite the expansion of the monetary base, the failure of the country to sufficiently increase its broad money aggregate due to the poor condition of the balance sheet of the borrowers and the lenders made lending difficult for the banks causing accumulation of idle balances in the banks (B. Bernanke et al., 2004).

Following the great recession of 2008, Japan employed “Quantitative and Qualitative Easing”. In the year 2010, BOJ intervened to stimulate the economy lowering down interest rate from 0.1% to 0-0.1% and started to purchase Japanese Government bonds ((Alekseievskia & Mumladze, 2020). In fact, Japan’s QE measures continue to be in operation from 2000 – 2015, making it a long-term alternative monetary policy measure to get the economy back on track (Matousek et al., 2019).

Among the developed economies, the United States’ QE programs following the great recession of 2008 are the most discussed ones. After Lehman Brothers crisis the Federal Reserve (Fed) started to sharply cut down policy rates. When this rate neared zero lower bound, the Fed had no other choice but to employ unconventional monetary policy like the QE. QE involved large-scale asset purchases which included assets like long-dated government bonds and Mortgage-Backed Securities (MBS) in three episodes between 2008 and 2013 (Lim & Mohapatra, 2016).

Even the United Kingdom (UK) adopted QE to tackle 2008’s financial crisis. UK created provision for liquidity support centering on £185 billion of special liquidity scheme allowing banks to swap MBS for Treasury Bills. A discount window facility was also created (Kapetanios et al., 2012). European Central Bank (ECB) also employed QE back in 2015 which allowed them to keep targeted inflation at around 2% (Central Bank of Ireland, 2020).

When looked closely, it is evident that there is no fundamental difference between the QE programs adopted by developing and emerging economies. They differ only in terms of the channel used and the asset base covered under the QE programs. The QE attempts of the developed economies are bolder in the sense that they went for more diverse asset purchase programs (such as: including asset-backed securities) and the assets are purchased by bypassing the direct banking channel (through non-bank public institutes).

3.4 Impacts of QE

3.4.1 Positive Effects of QE

As mentioned in Alekseievskia & Mumladze (2020), QE increase lending in the country in which it is announced and employed. Because, asset purchases of the central bank will replace illiquid or, other assets of the banks with cash causing an increase in their lending capacities. It lowers the interest rate. If looking from the opposite side, QE increases the likelihood of increasing household and business borrowings due to the availability of credit at a low-interest rate. Another positive impact of QE is an increase in expenses. As the interest rate declines with QE, spending is likely to rise since a lower interest rate makes savings unattractive. QE also increases jobs indirectly. Rising consumptions of consumers increase demands for goods and services causing enterprises to take cheaper debt to increase production and jobs (Alekseievskia & Mumladze, 2020). Economies, which take QE policies, are found to have experienced rising inflation. It is a natural outcome of an increase

in money supply.

The politics of QE and the aforementioned positive impacts have hence caused US, EU and Japan to experience high growth of QE amounting to around US\$10 trillion in 2016 (which was as little as US\$2 trillion just a decade ago) (Miyakoshi et al., 2020).

3.4.2 Negative Effects of QE

QE does have negative side effects too. As Thorbecke (2020) mentions, QE may have a harmful effect on the banking sector since lower short term interest rate coupled with a reduced spread between short and long term interest rates causes a reduction in bank profitability (B. S. Bernanke & Gertler, 1995; Thorbecke, 2020).

Although the QE interventions decrease liquidity premiums and improve market liquidity (Christensen & Gillan, 2017), banks cannot be forced to give more loans just because they have received increased reserve. Lending volume depends on the prospects of economic growth and profitable business ventures and overall risks of doing business in the economy. QE may also trigger a significant increase in individual debts, thereby increased the cost of banking services, enhance risk of the banks' asset portfolio (Aleksievska & Mumladze, 2020). For example, QE interventions by BOJ failed to boost the growth of Japanese economy as expected because increased liquidity or flow of funds incentivize investors to invest in the Foreign Exchange (FX) market rather than in local corporate securities (Chuffart & Dell'Eva, 2020).

Some scholars argue that QEs are becoming political liabilities for the implementers (central banks) around the world (Xing, 2017). The reasons for making such an argument are as follows:

- a. Following a QE, asset prices are expected to rise, causing it difficult for the middle-income and poor people to purchase assets. This leads to inequality and contribute towards an uprising against the incumbent Government
- b. Politicians can affect the independence of the central bank by forcing them or, supporting them to increase redistribution of money, which is often termed as "Helicopter Money", in an attempt to reduce inequality induced by different policies of the policymakers (politicians)
- c. Some officials from different financial authorities are demanding deeper research into the inequality and social impacts that are being created by the implementation of QE by expressing their concerns over the negative effects of such policies (Xing, 2017).

The political effects of QE, as defined by the "helicopter money" earlier, is inevitable since it ultimately causes the Government to ease off liquidity crunch by indirectly printing money while purchasing long-term financial assets from open market (Buiter, 2014). In case of asset purchase program of the Central bank, same phenomenon is evident as the Government has to eventually pay off its obligation (Buiter, 2014).

Interestingly, it has been found through the study of Fabo et al. (2020) that the central bank's papers have a tendency to magnify the positive impacts of QE, such as the ones that indicate an increase in output and inflation, implying the fact that the possible negative impacts are more likely to be hidden by these authorities (Fabo et al., 2020). This has obviously created an agency conflict between the central banks and the people since the people are the true principals and the central bank officials are their agents (FRATIANNI et al., 1997; Jensen & Meckling, 1976).

3.5 Spillover (spillbacks) effects of QE on (from) emerging economies from (to) developed economies

QEs and retreat from QEs of developed economies have been found to affect stock returns of the EMEs in opposite directions (MacDonald, 2017; Papadamou et al., 2019). For, example, The

US QEs in the past have caused Asian stock markets to experience a boom (Sugiyarto, 2015) followed by a massive contraction of the market as FED retreat from QE policies (MacDonald, 2017). If the economic fundamentals of the EMEs do not improve, stock markets thereby may experience crashes following withdrawals of QE measures in developed economies.

It has also been found that herding behavior, a behavior of copying the actions of other investors blindly, may occur in the EMEs as a result of QEs implemented in the developed economies (Arisanti, 2020; Gleason et al., 2004). Researchers found that financial literacy of the investors in the developing economies is relatively lower than that of the developed ones (Arisanti, 2020). It is also argued that in absence of complete transparency in a financial market, herding behavior does occur (Arisanti, 2020; Kremer & Nautz, 2013). Findings of Arisanti (2000) suggest that herding behavior does occur in the Southeast Asian countries implying that these markets lack transparency and efficiency (Arisanti, 2020). Therefore, implementation of QE in the developed economies, which causes financial markets of the EMEs to experience a boom, may cause the less financially literate investors of the aforementioned countries to become overly enthusiastic about the market, may induce them to follow the herd and eventually bid the asset prices even higher.

A large number of studies have tested the spillover effects of QE on EMEs. One such study shows that QE has spillovers in the EMEs through the following channels (Lavigne et al., 2014):

- a. Portfolio balance channel
- b. Signaling channel
- c. Exchange rate channel and
- d. Trade-flow channel
- e. Liquidity channel

This spillover is explained as capital inflows (apart from FDIs) to the EMEs from the developed economy. In the case of *Portfolio Balance Channel*, it is argued that purchases of government securities by the central banks cause scarcity of these investment opportunities to the private investors. Therefore, investors start to look for alternative higher risk investment opportunities including the ones from EMEs and often rebalance their portfolios by investing in these assets. It causes capital to flow from the developed economies to the EMEs causing both positive and negative effects on the latter (Lavigne et al., 2014; Lim & Mohapatra, 2016; Meszaros & Olson, 2020; Miyakoshi et al., 2020). The positive effect is the fact that such capital flows ease off financial conditions of the EMEs such as: lowering yields of the EMEs' financial assets (Lavigne et al., 2014). However, the flip side of this event is the fact that asset prices of the EMEs often rise due to such capital flows and sometimes it becomes difficult for the EMEs to manage such a price hike. For example, a few studies showed that due to the QEs imposed in the US, EU and Japan, real estate prices in Hong Kong had significantly increased (Miyakoshi et al., 2020). Another study quoted South African Finance Minister in 2008 saying that the country was facing inflationary pressure due to capital inflows. There was truth in his statement. Data showed an increase in the inflation figure during the said period. However, it was not statistically significant (Meszaros & Olson, 2020). Capital flow from the developed to the EMEs, caused by the implementation of QEs in the priors, does not only cause a significant increase in inflation in the developing ones but also causes deflationary pressure in the developed ones (Lavigne et al., 2014; Lim & Mohapatra, 2016; Meszaros & Olson, 2020; Miyakoshi et al., 2020; Sung & Kim, 2016). Hanna et al (2020) have also mentioned that there is uncertainty related to the direction and timing of the influence of QE on inflation of the country involved (de Haan & van den End, 2018). However, Sung & Kim (2016) argued that the

possibilities of inflationary pressures on the EMEs (which are caused by capital inflows from the developed to the developing economies) can be controlled by controlling capital flows through implementation of capital control mechanism, such as: imposing a tax on financial transactions (**Sung & Kim, 2016**).

Another transmission channel of QEs is the *signaling channel* (**Lim & Mohapatra, 2016**). It is also argued that QEs are often considered as a commitment of the central bank to lower policy rates for a longer period of time (**Lavigne et al., 2014**). The reason for such a belief is the fact that an early rise in interest rate would reduce the value of the assets held by the central bank (**Bauer & Rudebusch, 2014; Clouse et al., 2003; Lim & Mohapatra, 2016**). It may cause large interest rate differentials to persist between a developed economy with QE and EMEs, which will also influence capital inflows to the EMEs from the developed ones (**Lavigne et al., 2014**).

The exchange rates of the developed, as well as the emerging economies, are affected by the implementation of QE policies in the developed ones (**Lavigne et al., 2014**). **Lavigne et al. (2014)** mentioned that the portfolio flows, as discussed earlier, from the US to the emerging economies cause the exchange rate of the dollar to fall, making the emerging market's currency to be stronger against the dollar. It eventually causes a reduction of US's demand for foreign goods and services causing a negative impact on the exports of the EMEs (**Lavigne et al., 2014**). This spillover happens through *exchange rate channel*.

Interestingly, the opposite also does happen. As pointed out by **Lavigne (2014)** again, if a developed economy, such as the US, implements QE, domestic demand for goods and services increases causing a rise in the exports of the EMEs to the US (Because, some of those goods and services may have been exported by the EMEs) (**Lavigne et al., 2014**). **Lavigne et al (2014)** considered this transmission to be transmission through the *trade-flow channel*.

QE transmission also happens through the *liquidity Channel*. QEs causes an increase in reserves in the balance sheets of the banks and these reserves can be more easily traded in the secondary market than the long term securities causing a decline in liquidity premium and helps liquidity constrained banks to lend money easily by tapping into this secondary market at a lower borrowing cost. These funds may eventually be lent to the EMEs directly or, through carrying trade (That is borrowing in a currency that bears a lower interest rate and investing into the assets in a different currency at a higher interest rate) (**Gagnon et al., 2018; Joyce et al., 2012; Krishnamurthy & Vissing-Jorgensen, 2011; Lim & Mohapatra, 2016**).

4. DISCUSSION: COVID-19 ECONOMY AND THE QE

The Covid-19 pandemic has put tremendous economic pressure on almost all the economies of the world. It cannot be compared to the great recession of 2008. Common sense dictates that the impacts are similar or can even be worse. **Zhang et al. (2020)** found that the risk in the global financial market has significantly increased due to this pandemic. It further showed that uncertainty associated with the pandemic and consequent economic losses caused large market volatilities (**Zhang et al., 2020**). Studies also show that a number of emerging economies, who are primarily producers of different commodities, have experienced a sharp decline in their export prices, while a few other economies saw a sharp decline in remittance earnings and tourism (**Benigno et al., 2020; Blanchard, 2020; Hevia & Neumeyer, 2020**).

It has been identified by **Caballero and Simdek (2020)** that QE practices, such as large-scale asset purchases (LSAPs), can prove to be effective during this pandemic. The reason for

such a comment is the ability of the aforementioned policy to reverse the falling asset price spiral (Caballero & Simsek, 2020). Sunder (2020) shows that QE employed during this pandemic caused the expansion of Assets in the US balance sheet by 66% between March 4 and May 20, 2020 (Sunder, 2020). Korea, Columbia, South Africa, Poland, Romania, Hungary, Croatia, Philippines, Mexico, Turkey, India and Indonesia had reportedly taken QE initiatives, such as Long-term Government Asset Purchase before even the interest rate reached the zero lower bound (Benigno et al., 2020). QE implementation had also helped the US stock market to recover most of its losses (Sunder, 2020). Sunder (2020), however, was extremely critical of the fact that such actions of the Fed (that is employing QE) may be politically correct but economically wrong as it creates an expectation in the minds of the investors about the fact that the stock market is always going to go up (Sunder, 2020). Similarly, Taskinsoy (2020) argued that the economic scenarios created by the coronavirus are different than that of the Great Recession of 2008 and the Great Depression of the 1930s. This crisis is argued to be exogenous (as described in an earlier section of this paper) to not only the banking system but also to the economy as a whole, creating a risk of a severe recession which may easily beat its immediate predecessor, the 2008's great recession (please see tables 1 & 2 of the appendix). However, Taskinsoy (2020) argued that supplying massive liquidity through QE or other measures may not be the right thing to do at this stage (Taskinsoy, 2020). To further enlighten the issue, Walker's (2020) evaluation of QE policies can be deeply examined. According to Walker (2020), QE had somewhat cushioned a disastrous recession and had some influence on real economic activity through its effect on inflation and interest rate. However, some of these positive effects were tarnished by the continued downturn in the economy. Therefore, the real effectiveness of QE is questioned creating an immediate need for further research to either develop a new tool or, to enhance the efficiency of the monetary policy (Walker, 2020). Moreover, Shkodina, Melnychenko, & Babenko (2020) argued that QE can be used as a stimulus tool for short term period but using it for a long term period [Japan's QE is an example of a long term or persistent implementation of QE, see (Matousek et al., 2019)] is not good for the economy as it undermines market mechanisms (QE is intervention after all), causes an increase in administrative influence and may take the world to a systemic collapse (Shkodina et al., 2020). These researchers argued that QE tools, such as issuance of money, have been used by the Fed well before a real recession of 2019. The balance sheet of the Fed increased by 2.4 trillion dollars within 2 months of implementing this policy causing a mammoth increase in public debt. Free money also started to accumulate in the banks. Excess liquidity started to flow to the financial markets fueling its speculative nature even further. Such monetization of fiscal policy (or, money printing in short) would only cause asset prices to rise, causes the central bank to lose its independence, real economic activity will hardly turn around, unemployment will rise and the Chinese economy alone will not be able to save the world as it is also fighting with the problem of unproductive investments and high debt (Page et al., 2020; Shkodina et al., 2020). However, an event study conducted by Hartley & Rebucci (2020) shows that QE announcement alone reduced volatilities in the global bond markets and helped this market to stabilize during heavy uncertainties created in the wake of the Covid-19 pandemic. Hartley and Rebucci's (2020) study proves the fact that at least to build confidence among the investors, QE can be utilized during this Covid-19 crisis (Hartley & Rebucci, 2020). Therefore, it can be concluded that to provide a jump start to the economy QEs can be used during this pandemic. However, the long term continuation of such policies may not be helpful for the revival and growth of the real economy. This conclusion can be further supported by the moral hazard problem, which is found to be more profound during problematic economic times (Fawley & Neely, 2013; Fukuda, 2011; Reichlin et al., 2013).

Moreover, the EMEs must be careful in tackling the spillover effects of the QE implementation in the developed economies. EMEs must also implement capital control **Sung & Kim (2016)** in order to control the flow of capital from the developed economies to their economies in case, such a flow is a concern for them. Interestingly, if both EMEs and the developed countries implement QE strategies simultaneously, capital flight may also happen in the reverse direction. However, if sufficiently large and positive interest rate differentials can be kept at the EMEs with their developed counterparts, this may not happen. EMEs must also be careful about the spillback. It has been identified by **Lavigne et al. (2014)** that at a time when the economic activities at the EMEs are weak, their demand for exports from advanced economies will reduce. During such periods, equity and commodity prices are also found to be lower than that of a normal year. Therefore, a chance of spillback from the EMEs to the advanced economies may take place during these times through trade, financial and commodity-price channels (**Lavigne et al., 2014**). If the EMEs themselves implement QE, they must also be careful about other side-effects of QEs as discussed in **Xing (2017)**, such as: the influence on central bank's independence, transferring the risk from the Government to the central bank and most importantly, asset price bubble and inequality (**Xing, 2017**). All these discussions suggest that QE, however beneficial as an alternative to conventional monetary policy tools during a crisis period, must be implemented with extreme care. Moreover, the elongated implementation of such a tool has an inherent problem of moral hazard associated with it, which may become a reason for the ineffectiveness of such a policy in taking the economy back on track. In addition, the effectiveness of QE also depends on the channels through which it is implemented (such as: asset purchase from non-bank public or, from commercial banking channel) (**Greenwood, 2017**). **Greenwood (2017)** clearly showed that the BOJ's and ECB's QEs were not effective due to their choice of purchasing only a few specific government securities from commercial banks. Therefore, this decision is also an important one while deciding the implementation of QEs in tackling the economy back on track during COVID – 19 led exogenous economic shock.

5. CONCLUSION AND FUTURE RESEARCH DIRECTION

QE, despite being an unconventional monetary policy tool, has been quite frequently used alongside its conventional counterpart in the developed economies. A number of EMEs have also started using it during this pandemic [see **Benigno et al. (2020)**]. In this paper, we have shown that QE has both positive and negative effects on the country employing it. Positives include an increase in lending and borrowing, job creation, increase in expenditure by households while negatives include an increase in inflation, inability of QE to ensure increased lending by the banks and an increase in personal debts even beyond the capacity of an individual. However, the positives are proven to outweigh the negatives. Apart from the effects described earlier, QE also has spillover effects on EMEs. Some of these spillovers are positive while some are negative. During the covid-19 pandemic, several countries have already employed QE in order to bring confidence in the mind of the consumers and it proved its efficacy in fulfilling that objective. However, researchers are extremely critical about using QE as a long-term alternative to conventional monetary policy. Therefore, QE can be used as a short term mechanism during this pandemic in order to bring some degree of stability in bond and stock markets and stimulate economy, not as a long term mechanism for stimulating economic activities. But whether the intuitions, observations and findings developed from this literature review-based study can be replicated in emerging economies under the COVID situation require validation. But as less than a year has passed since the outbreak of the pandemic, it is still too early to validate the propositions using field data.

This paper can be considered as an attempt to organize existing knowledge and create a pathway for developing newer ones. This paper rigorously analyzed most arguments related to QE as an unconventional monetary policy tool, its usage and impacts on the EMEs in particular. Therefore, this paper works as a guide to the existing literary arguments and evidence of QE. Moreover, the applicability of the QE tool during the pandemic hit economies of the world have also been thoroughly assessed in this paper. However, it does not produce any statistical evidence of the application of QE in the Eastern and the Western part of the world during COVID-19. In fact, data is also scarce at this stage. Therefore, a quantitative look into the impacts of QE's implementation in the EMEs (primarily the Eastern parts of the world) will be interesting to look into.

Conflict of interests

The authors declare no conflict of interest.

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