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HARNESSING RISK-SHARING UNIVERSAL BASIC ASSETS FOR TACKLING WEALTH INEQUALITY AND ECONOMIC DEVELOPMENT

SC-OCIS VISITING FELLOWSHIP
SCHOLAR IN RESIDENCE PROGRAMME
IN ISLAMIC FINANCE 2019-2020

SC-OCIS Scholar in Residence Programme

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SC-OCIS Scholar in Residence Programme

The collaboration between the Securities Commission Malaysia (SC) and Oxford Centre for Islamic Studies (OCIS), UK was established in 2010, with the objective of promoting intellectual discourse and research on applied and contemporary issues with respect to global Islamic finance.

The SC-OCIS Scholar in Residence Programme is one of the outcomes aimed to pursue further research that complements the flagship programme, which is the annual SC-OCIS Roundtable. A thought-leadership platform, the SC-OCIS Roundtable gathers distinguished scholars, academicians, regulators and Islamic finance practitioners to discuss and exchange views on contemporary issues in Islamic finance.

Tarik Akin (PhD), Head of the Department of Participation Finance at Finance Office of the Presidency of the Republic of Türkiye was the eighth Visiting Fellow of the SC-OCIS Scholar in Residence Programme for the academic year 2019/2020. During his tenure, he completed a research titled 'Harnessing Risk-Sharing Universal Basic Assets for Tackling Wealth Inequality and Economic Development'. The research articulates the role of wealth inequality in formation of inequality crisis and how inequality is directly associated with low economic growth and financial crises. It also outlines how it will later induce to other economic, social and political consequences.

Furthermore, the research explains how the interest-based contract contributes to wealth inequality and highlights several past and proposed risk-sharing asset redistribution mechanisms in tackling wealth inequality crisis.

Profile of Scholar

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SC-OCIS Scholar in Residence in Islamic Finance 2019/2020

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Harnessing Risk-Sharing Universal Basic Assets for Tackling Wealth Inequality and Economic Development

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Abstract

Extreme wealth inequality is one of the defining challenges of today's world. This paper argues that interest-based debt is one of the drivers of the formation of the wealth inequality and redistribution policies designed for tackling wealth inequality should consider this fact. The paper introduces the notion of risk-sharing asset redistribution, a novel and viable proposal, to tackle wealth inequality due to the fact that the real source of the inequality crisis is that many people are asset-poor. The paper proposes Public Basic Asset Fund (PBAF) as a blueprint for the implementation of the risk-sharing universal basic assets idea. Since wealth inequality is quite high in many member countries of the Organization of Islamic Cooperation (OIC), the Public Basic Asset Fund has the potential to tackle excessive wealth inequality and to finance real sector as well as infrastructure projects without giving rise to debt burden for the public sector.

Keywords: wealth inequality, asset-based redistribution, risk-sharing, universal basic assets.

1. INTRODUCTION

Increasing economic inequalities and mediocre rates of economic growth have been arguably the two defining challenges in the world after the 2008 Global Financial Crisis (GFC). On top of that, the COVID-19 pandemic has worsened these ongoing challenges. It is seemingly the first time in world history that within-country inequality has risen concurrently in all of the countries (Oxfam 2021). The inequality is still increasing at a fast pace by giving rise to serious economic, social, and political consequences for policymakers and societies. As highlighted by Oxfam (2021), "the increase in the 10 richest billionaires' wealth since the crisis began is more than enough to prevent anyone on Earth from falling into poverty because of the virus, and to pay for a COVID-19 vaccine for everyone." Apart from economic, social, and political effects of inequality, the literature on economic inequality points out that high level of economic inequality paves the way for financial crises (Kumhof, Rancière, and Winant 2015; Rajan 2010; de Haan and Sturm 2016; Turner 2016) and below potential economic growth (World Economic Forum 2017; OECD 2015; IMF 2017). Thus, understanding the deep determinants of economic inequalities and tackling the "inequality crisis" are of utmost importance in securing robust, sustainable and equitable growth for economies.

The ongoing discussions on inequality in academia and public substantially suffer from two misconceptions that needs to be clarified in order to understand the root drivers of the inequality crisis and to come up with proper solutions. Firstly, the notion of economic inequality is generally constrained and equated to income inequality. However, today the wealth inequality is responsible for many economic and social problems. It can even be stated that income inequality is a lesser of the two devils compared to the wealth inequality. Secondly, the source of wealth inequality is, to a large extent, economic rents mainly stemming from the dominant global financial architecture (Akin and Mirakhor 2019).

Economic inequality refers to disparities among individuals' income and wealth levels. The literature and mindset on economic inequality almost merely focused on income inequality, which is only one side of the economic inequality coin, for a long time. Wealth in all of its forms, like financial assets and real estate, encompasses a much larger scope than the notion of income and can reproduce itself at a faster pace as a stock variable as opposed to income, which is a flow variable. One important reason for focusing on income inequality is that the economic theory considered income inequality as the main determinant of wealth inequality since wealth was defined as the accumulation of income flows over time. However, the typical association between income and wealth has weakened for the last few decades. On the one hand, there is a slight improvement in global income inequality over the last few decades. To give an example, the share of global income going to top 10% highest incomes at the world level has decreased from 61% in year 2000 to 55% in year 2020 (World Inequality Lab 2021). On the other hand, available data on wealth inequality indicates that global as well as within-country wealth is much more unequally distributed compared to income. For instance, the share of wealth owned by the global top 0.01% (composed of 520,000 individuals) rose from 7% in 1995 to 11% in 2021 whereas the global bottom 50% owns 2% of wealth (World Inequality Lab 2021). The COVID-19 pandemic has also deteriorated the wealth distribution. Billionaires' wealth was "increased by a staggering $3.9 trillion between 18 March and 31 December 2020. Their total wealth now stands at $11.95 trillion, which is equivalent to what G20 governments have spent in response to the pandemic." (Oxfam 2021). The trends in the wealth distribution have dissociated from the trends in income distribution, reasons of which will be explained in the following parts, by making wealth inequality as the main driver of economic inequality. If income is not the main driver of the inequality crisis, it has implications for the designing of redistribution policies.

The question of why wealth inequality has substantially dissociated from the income inequality is directly relevant to the second misconception of economic inequality that wealth inequality is mainly a function of income, meritocracy and saving behavior (Akin and Mirakhor 2019). In other words, wealth is assumed to be mainly determined by capital accumulation, which is also a function of income and savings. As opposed to the assumption in neoclassical economic theory and its variants that the wealth distribution is mostly determined by capital accumulation, compelling evidence indicates that economic rents, which exist and grow out of the financial system, determine most of the wealth inequality (Stiglitz 2015b). In this regard, it can be argued that wealth inequality is composed of the determinants relevant to income inequality and "wealth residual", which can be defined as the wealth increase without concomitant increase in capital (Basu and Stiglitz 2016). Indeed, wealth residual is the primary determinant of wealth distribution. The notion of wealth residual is analogous to the Solow residual in economic growth literature. Solow (1957) calculated that only 13% of economic growth in the US could be attributed to the factors of production (labor and capital) whereas the rest was a residual which could not be explained by the factors in his growth theory. As indicated by Stiglitz (2015b), exploitative economic rents are the main culprit in formation of the wealth residual. In other words, economic rents are one of the underlying determinants of the wealth distribution. It is also argued in the literature that interest-based debt contracts are the main driver of the exploitative economic rents and wealth residual (Akin and Mirakhor 2019; Maghrebi and Mirakhor 2015; Akin 2017).

Understanding these misconceptions is important simply because it guides the academia and policymakers to develop effective redistribution mechanisms, which are the main ammunition to tackle the inequality crisis properly. If income and the determinants of income distribution are not the main driver of the wealth distribution, income redistribution policies may not be effective in dealing with wealth inequality. This study attempts to show that wealth residual targeting redistribution policies should be devised and implemented in order to tackle the wealth inequality.

As a response to the ongoing inequality crisis, current redistribution proposals roughly fall in two categories, namely, income-based redistribution and asset-based redistribution. The first category, income-based redistribution focuses on mitigating income inequality based on the underlying assumption that income is the main driver of the wealth inequality (Akin and Mirakhor 2019). Proposals under the income-based redistribution encompass "hard" income-based redistribution tools such as the taxing income and wealth at high rates. Many international organizations, such as Organisation for Economic Co-operation and Development (OECD) (2017) and International Monetary Fund (IMF) (2021), underline that less distributive tax and benefits systems are one of the important causes of increasing inequalities in the last several decades. G7's recent agreement on global minimum corporate tax rate of at least 15% is such an example of the "hard" income-based redistribution policy. There are also "soft" income-based redistribution proposals such as the notion of shared prosperity[1] pioneered by the World Bank (2016; 2020b). The "soft" income-based redistribution proposals basically take the current distribution of income and wealth as given and then focus redistribution of the additional income equitably through public investment in health and education, financial inclusion, insurance against idiosyncratic risks, and so on. However, the working mechanism of the notion of the shared prosperity leaves current wealth concentration intact so that

[1] According to the World Bank (2020b), "shared prosperity measures the extent to which economic growth is inclusive by focusing on household income or consumption growth among the population at the bottom of the income distribution rather than on the average or on those at the top."

market-determined rewards still go to the wealthy by supporting the ongoing wealth inequality. In turn, implementation of the soft income-based redistribution tools may have adverse effects in achieving more equitable distribution of wealth. Income-based redistribution tools, either hard or soft, may also have perverse incentive effects in labor markets (OECD 2017) and investment decisions (Seshadri and Yuki 2004). Moreover, keeping the current asset inequality intact means leaving the governance structures that give rise to emergence of inequality intact, too. The proposals addressing weakness in the income-based redistribution tools include wholesale change of economic rules of the game (Stiglitz 2015a), changing the underlying property right claims such as the asset-based approach (Bowles 2012) and risk-sharing asset redistribution (Akin et al. 2020; Akin and Mirakhor 2019; Akin 2017).

The second category, asset-based redistribution proposals focus on redistribution in the ownership of assets in order to narrow down the wealth gap between the rich and the poor. Since the main driver of the inequality crisis is the wealth inequality, redistribution policies directly aiming at the wealth inequality should consider how to redistribute wealth *per se*. In history, many different types of the asset redistribution policies were implemented such as the land reforms in Taiwan, Korea, and China.

This paper delineates the notion of asset redistribution and its connection with the inequality crisis. The paper also introduces risk-sharing asset redistribution and the risk-sharing universal basic assets to tackle the wealth inequality. Risk-sharing asset redistribution does not propose radical and hard redistribution but involves changes in contractual form of economic exchange towards risk-sharing mechanisms. As a blueprint for the risk-sharing asset redistribution, this paper proposes and delineates risk-sharing universal basic assets, which are important implications for Islamic finance as well. Part 2 investigates how interest-based debt is an important driver for the formation of the wealth inequality through wealth residual. Part 3 explains the mechanisms through which risk-sharing slows down and even prevents the formation of the wealth inequality. Part 4 introduces the notion of risk-sharing asset redistribution as an alternative to the mainstream redistribution proposals. Part 5 explains the risk-sharing universal basic assets (RUBA) idea and investigates its viability in real world. Part 6 gives a short blueprint for implementing the RUBA proposal in the OIC countries. Finally, Part 7 concludes and makes some recommendations for the way forward.

2. WEALTH RESIDUAL AND INTEREST-BASED DEBT

Part 1 highlights that the determinants of income inequality and income distribution per se are inadequate in explaining the distribution in wealth. It also introduces the notion of wealth residual in explaining the formation of wealth inequality. Subsequently, Part 2 explains how interest rate mechanism and interest-based debt contracts give rise to wealth inequality through wealth residual. If there is a link between interest rate mechanism and wealth inequality, redistribution mechanisms to tackle wealth inequality should be devised by considering this link.

The starting point in understanding the link between interest rate mechanism and the wealth inequality is the "fundamental inequality" ($r>g$), where (r) stands for the real rate of return to capital and economy (g) for the rate of economic growth in a country. Piketty (2015b) explains the fundamental inequality as follows:

> The rate of return on capital significantly exceeds the growth rate of the economy (as it did through much of history until the nineteenth century and as is likely to be the case again in the twenty-first century), then it logically follows that inherited wealth grows

> faster than output and income. People with inherited wealth need save only a portion of their income from capital to see that capital grow more quickly than the economy as a whole. Under such conditions, it is almost inevitable that inherited wealth will dominate wealth amassed from a lifetime's labor by a wide margin, and the concentration of capital will attain extremely high levels – levels potentially incompatible with the meritocratic values and principles of social justice fundamental to modern democratic societies. What is more, this basic force for divergence can be reinforced by other mechanisms. For instance, the savings rate may increase sharply with wealth. Or, even more important, the average effective rate of return on capital may be higher when the individual's initial capital endowment is higher (as appears to be increasingly common). The fact that the return on capital is unpredictable and arbitrary, so that wealth can be enhanced in a variety of ways, also poses a challenge to the meritocratic model. Finally, all of these factors can be aggravated by the Ricardian scarcity principle: the high price of real estate or petroleum may contribute to structural divergence.

Although there is still controversy in the literature about the existence of the fundamental inequality and its connection with the wealth inequality (Acemoglu and Robinson 2015; Mankiw 2015; Weil 2015; Krusell and Smith 2014; Auclert and Rognlie 2016), the logic of the fundamental inequality is simple: if (r), the rate of return to wealth which is mostly owned by the rich, outgrows (g), a proxy for the rate of return to national income produced by all segments of the society, the wealth level of the rich increases over time compared to the wealth level owned by an average citizen by leading to increasing wealth inequality. The fundamental inequality is a general trend in capitalism and holds in average over time but not a concept that holds every time and everywhere. Existence of the fundamental inequality transforms meritocracy-based capitalism into patrimonial (inheritance-based) capitalism as a new form of aristocracy since *"the entrepreneur inevitably tends to become a rentier, more and more dominant over those who own nothing but their labor. Once constituted, capital reproduces itself faster than output increases. The past devours the future."* (Piketty 2014). The notion of fundamental inequality has significant implications about how we should address the sources of the wealth inequality.

Table 1 indicates that rate of return to wealth is systematically higher than the growth rate of the economies in 16 advanced economies from 1870 to 2015. Interestingly, the gap is increasing especially after the year 1980, which overlaps with the financialization.

Table 1: Rate of return on wealth and GDP growth in selected countries

	Full sample (1870-2015)		*1950-2015*		*1980-2015*	
	r	***g***	***r***	***g***	***r***	***g***
France	5.01	2.61	8.24	3.37	6.96	2.07
Germany	6.95	2.84	5.25	2.86	4.70	2.49
Japan	5.58	4.15	6.33	4.17	4.21	2.04
Spain	4.50	3.21	5.37	4.03	5.18	2.55
UK	4.70	2.04	5.92	2.50	7.29	2.45
US	5.91	3.38	5.77	3.32	6.37	2.80

Source: Jordà et al. (2019).
Notes: r stands for rate of return on wealth and g stands for growth rate of real GDP. In calculations, average annual real rates of return are calculated over the sample and sub-sample periods. Real return on wealth is a weighted average of bonds, bills, equity and housing. The weights correspond to the shares of the respective asset in each country's wealth portfolio. Period coverage differs across countries.

In economic theory, the main source of wealth inequality is income inequality, mainly in the form of wage inequality and return to capital[2], both of which are linked to economic activity. It means the rate of return to wealth (*r*) and the rate of return to national income (*g*) converge to each other by causing the fundamental inequality to disappear over time. If there is a persistent gap between these two rates of return, it means there are artificial impediments causing superior benefits for the rich. These impediments should also be the drivers of the wealth residual by causing the overall wealth inequality to outgrow the income inequality, which is mainly a function of meritocracy, savings and capital. This paper argues that interest rate and interest-based debt contracts feed the wealth residual by creating economic rents for the rich.

The basic relationship in the neoclassical economics is that the rate of return to capital is the interest rate in the economy. The interest rate, according to this definition, is then the reflection of the marginal productivity of capital and economic growth (see Ljungqvist and Sargent (2012), and Wickens (2008) for the textbook explanations of the interest rates). A natural extension of the relationship between the interest rate and economic growth is that the rate of return to wealth (*r*) and the rate of return to national income (*g*) should converge leaving no room for the formation of the fundamental inequality.

But how the interest rate mechanism causes, at least aggravates, the wealth inequality is a subsequent question that needs to be answered. The mechanisms through which the interest rate and interest-based debt contracts are associated with the formation and increase in wealth inequality are also important in the sense that these mechanisms justify resorting to the risk-sharing redistribution proposals in tackling wealth inequality.

The paper argues that interest rate mechanism support and/or amplify the formation of the wealth residual through two main interrelated channels, namely, the quantity and the price channel.[3]

2.1 Quantity Channel

The quantity channel occurs when interest-based debt contracts, by their nature, allows for different opportunity sets of access to finance to economic agents due to their initial level of wealth. In other words, the interest rate mechanism catalyzes the asset-rich's access to finance at more favorable terms while constraints the asset-poor's access to finance at more unfavorable terms by amplifying the wealth inequality through implicit economic rents for the asset-rich. The quantity channel mainly works through two features of the interest-based debt contracts: Collateral and the state-independent indebtedness.

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[2] It is important to distinguish between capital and wealth. Capital is relevant to productive activity while wealth encompasses capital, real estate, other financial assets, etc. For a comprehensive review of the difference between these two concepts and their implications on the inequality, see Akin and Mirakhor (2019).

[3] The quantity and price channel are associated non-wealth residual component of the wealth inequality, such as income inequality and savings, as well. For instance, capital income depending on the interest rates has an effect on the income inequality part of the wealth inequality. However, we assert that the bulk yet unexplored part of the wealth inequality is the wealth residual. Due to this fact, the quantity and price channels solely focus on the links that have an effect on the wealth residual.

2.1.1 Collateral and Constraints in Access to Credit

In an ideal world in economics, the contracts are complete and fully enforceable. These seemingly innocuous two assumptions have significant consequences on how economic agents have access to finance and the wealth inequality arise. In case of the fulfilment of the assumptions of complete and fully enforceable contracts, initial wealth only determines the budget constraint and has no effects on the behaviors and contractual opportunities of the economic agents (Bowles 2012). In other words, both of the asset-rich and asset poor economic agents have the same set of opportunities and conditions in their financial transactions, as well as, choices. On the other hand, incomplete and unenforceable contracts are norm in real world.[4] Hence, asset-poor economic agents do not have the same opportunity to take part in some class of contracts as the asset-rich has. Even if both of the asset-rich and asset-poor have the same opportunity set in their financial transactions, the terms of the same contracts typically differ to a large extent in favor of the former.

State-independent and fixed payments (principal amount plus interest) by the borrower to the creditor is the defining feature of a credit contract. It is information asymmetries and high monitoring costs that make credit more advantageous compared to other contracts, such as partnership-type contracts. As explained by Buiter and Rahbari (2015):

> The issue of monitoring costs is intrinsically linked to the issue of asymmetric information between entrepreneurs and borrowers. The seminal work in this area is Townsend (1978). In his setup, information is asymmetric, as only the entrepreneur observes the state of the world (the success of his investment project) as a matter of course and provides the investor with a report. The outside investor has to pay a (fixed) monitoring cost to learn the state (in Townsend, 1978, this monitoring cost is deterministic, given a state), which is why this manifestation of asymmetric information is referred to as 'costly state verification'. Monitoring here can be thought of as the time, resource and opportunity cost of observing the actions of the firm, its financial position as well as the environment within which the firm operates. Monitoring costs can indeed be high as effective monitoring may require financial as well as operational expertise. But monitoring costs also include the costs associated with bankruptcy. Townsend (1978) showed that in such a setting a contract that features constant, state-independent payments from the entrepreneur to the investor and no monitoring in the 'good states' and a state-contingent payoff (equal to the value of the project minus the cost of monitoring) in the 'bad states' is 'optimal', defined as maximising the payoff or utility of the entrepreneur, subject to satisfying a reservation (or participation) constraint for the investor.

However, credit contracts, as a type of interest-based debt contracts, are "impossible contracts" under the assumption of incomplete and unenforceable contracts in the sense that these contracts are not incentive-compatible under the standard axioms of economics such as self-interest and rationality. Since credit contracts don't include incentives (truth-telling, not speculative risk-taking, etc.) to increase the borrower's promise to pay back the debt, the rational behavior for the borrower is not to pay back the loan as much as possible (Iqbal and Mirakhor 2017). It is the pledge of own assets by the borrower as collateral in order to make the impossible contract more possible from the

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[4] As defined by Wang (2013, 63), "complete contract is a contract in which the income-sharing rule is capable of handling all possible contingencies so that additional mechanism are unnecessary."

side of the creditor. Indeed, the collateral is the key determinant of access to credit and not to be subjected to credit rationing (Serra-Garcia 2010). However, the asset-rich and the asset-poor significantly differ in pledging the collateral since the latter typically do not have assets to pledge collateral. Bowles (2012) summarizes the effect of collateral on access to finance and the terms of a contract as follows:

> The most obvious reason why an individual's amount of wealth influences the kinds of contract she can engage is that only those with sufficient wealth can undertake projects on their own account, that is, without borrowing. And among those who do borrow, those with more wealth borrow on better terms. This is because greater wealth on the part of the agent allows contracts which more closely align the objectives of principal and agent. This is the case, for example, when the borrower has sufficient wealth to post collateral or put her own equity in a project, and therefore has greater incentives to supply effort, to adopt the more prudent risk levels preferred by the lender (the principal), to reveal information to the principal, and to act in other ways that advance the principal's interests but that cannot be secured in a contract.

The direct effect of collateral on amplification of the wealth inequality is that the asset-rich can easily have access to credit at higher amount and more favorable terms even if its project is of lower quality compared to the asset-poor. Thus asset-poor economic agents have lower expected returns in their projects by giving rise to a wedge between (r) and (g). Collateral amplifies wealth inequality through different ways. An example of the effect of collateral on the formation of the wealth is real estate market. The real estate is generally the most important investment item for the households. The asset-rich can purchase real estate with more favorable conditions due to the existence of collateral. Once real estate becomes an investment class with high returns, the wealth begets wealth through collateral by distorting the wealth distribution. Moreover, less wealthy can purchase their homes in an environment with continuously increasing prices through bank lending but having high debt-low collateral combination is very dangerous mix as shown by many prominent authors, such as Mian and Sufi (2014), Hintermainer and Koeniger (2015).

2.1.2 State-independent Indebtedness

The collateral can be considered as a positive selection mechanism in the sense that it positively selects the asset-rich for allowing access to finance at more favorable terms. On the other hand, state-independent indebtedness is a negative selection mechanism as the asset-poor has to borrow and pay back more independent of the state of the world for them. When the economy is expanding and the credit conditions become milder, the asset-poor can also invariably borrow, generally overborrow compared to his capacity to pay back. However, state-independent payback of the principal and interest rate for the overborrowed contributes to the wealth inequality.[5] Buiter and Rahbari (2015, 151) explains that:

> The academic literature has emphasized that debt, particularly when it is relatively large, can cause either underinvestment (the debt overhang problem of Myers (1977)) or excessive risk-taking. For the former (debt overhang), the presence of existing (relatively

[5] It should be noted here that when it comes to existence of interest-based debt contracts both limited access and over-access are problems. It means not the quantity or pervasiveness of the debt contracts but the debt contracts themselves are the source of the problem.

large) debt means an entrepreneur faced with a capital call for an investment project or considering a new (positive NPV) investment project, may refuse to invest because the capital injection (by reducing the probability of default) would also lead to a wealth transfer to the existing lenders. For the latter, the presence of debt coupled with limited liability aggravates the issue that equity has a convex payoff function: the equity owner is able to capture all of the upside (after costs, including debt service), but her losses are limited to losing her equity investment. Debt, particularly if it is large enough, can, therefore, systematically induce adverse behavioral distortions in the decisions of individual households and businesses.

Mian and Sufi (2018) show that excessive increase in household debt is closely associated with severity of recessions and decline in real GDP growth, both of which have distributional consequences. A big run-up of household debt leads to a sizeable decline in household spending during a recession because of defaults and loss of wealth stemming from burst in asset prices. Resulting problems in debt servicing by the households negatively affect banks' non-performing loans, leading to harsh cuts in lending and subsequent credit crunch for the real sector. At the same time, businesses incur losses and run into financial difficulties due to adverse demand conditions and increasing unemployment. The financial problems of businesses reverberate further on banks and business activity declines even more followed by a banking crisis with credit freezing up.

The monetary and fiscal authorities invariably bail out lenders. As a result, severe financial crises and recessions exacerbate wealth inequalities by exposing borrowers and protecting lenders. Since the households at the lower end of the income and wealth distribution have higher marginal propensity to consume from their wealth, adverse conditions stemming from the credit freezing up make a pressure to pay back their debt.

2.2 Price Channel

The price channel occurs when interest-based debt contracts create capital gains for the asset-rich by giving rise to wealth residual for the benefit of the asset-rich. It is called the price channel because the source of the wealth residual is not differentiated access to finance as happening in the quantity channel but differentiated rent stemming from the interest mechanism itself. The price channel mainly works through two sources of rents allowed by the existence of the interest rate mechanism: Leverage and asset booms.

2.2.1 Leverage

The very nature of interest-based debt contracts is leverage, in which debt claims can be multiple of current output (Bezemer 2011). Leverage, which is typically measured as credit to GDP ratio, has tripled in advanced economies. Specifically, in the two decades before the 2008 Global Financial Crisis, growth rate of the credit by the financial institutions doubled that of the nominal GDP (Turner 2016). The same pattern now can be observed in many of the developing and emerging economies. Indeed, nearly two units of credit growth in order to secure only one unit of nominal GDP growth does not seem to be an efficient mix of finance and real sector growth. That much growth in credit

independent of the real sector activity has been possible thanks to the leverage. As highlighted by Turner (2016):

> Credit growth appears necessary to drive the economies forward. But if that is really true, we face a severe dilemma. We seem to need credit to grow faster than GDP to keep economies growing at a reasonable rate, but that leads inevitably to crisis, debt overhang, and post-crisis recession. We seem condemned to instability in an economy incapable of balanced growth with stable leverage.

It is the credit created by the banking sector, without any need for underlying real sector activity or trade, that allows for leverage in an economy. Most of the credit created by the banking system flows into consumption related activities, financial investments and purchase of already existing assets rather than productive investments which allows for optimal allocation of capital (Turner 2016). The leverage allows the poor to borrow for their consumption and increase their indebtedness. As indicated by Mian and Sufi (2014), the leverage have helped the poor and the middle-class in the US to cope with the decline in their real wage income and to maintain their living standards. Meanwhile, the rich increased their wealth by investing in income-generating assets such as the stock market and real estate. As long as there is no change in income or wealth level of the poor, the borrowing begets new borrowing by ever-increasing the level of indebtedness. The ever increasing indebtedness by the asset-poor and increasing rate of return by the asset-rich have contributed to the wealth inequality through wealth residual.

There is another effect of leverage on wealth inequality. Surpassing a threshold level, borrowers may suddenly realize that they are overleveraged and then cut their consumption and/or investment in order to secure their solvency. Turner (2016) explains the process as follows:

> When house prices fall, borrowers suffer a fall in net worth, and the higher their leverage is, the greater the percentage loss they experience. With a 90% loan to value mortgage, a 5% fall in house prices wipes out 50% of the household's equity in their house. Faced with falling net worth, many households cut consumption. This follows in part from a simple 'wealth effect': when people feel less wealthy, they tend to consume less and save more. But it is amplified if debtors are worried that the fall in their net worth could go so far as to make them insolvent, facing them with the additional costs of bankruptcy, repossession, and the sale of their home at a fire sale price. Fear that default might make it impossible to borrow in the future (except at exorbitant rates) may also be an important concern. So when house prices fall, highly leveraged households focus strongly on reducing their debt levels – the household equivalent of the Japanese companies that Richard Koo analyzed – and their reduced expenditure depresses demand in the economy. But this reduction is not offset by increased expenditure on the part of net creditors elsewhere in the economy: indeed, if asset house prices mean falling prices for credit securities, or concerns about bank solvency, net creditors may themselves reduce expenditure.

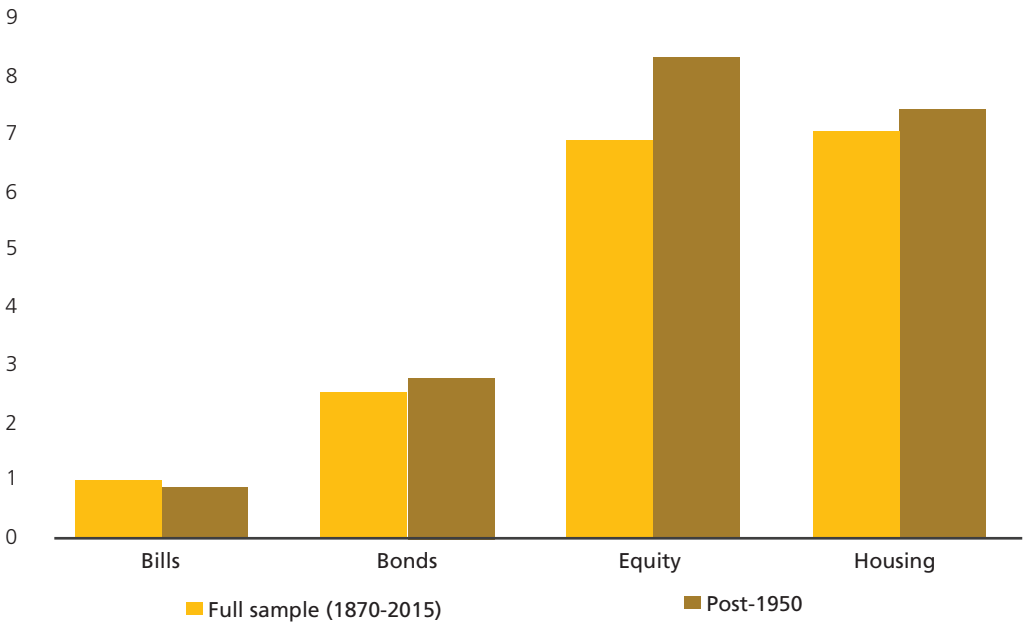
The whole process simply means that the rich save its net worth during a downturn whereas the poor disproportionally loses its net worth. The main role of leverage in increasing inequalities is to allow the rich to access to credit in large quantity in a world of volatile asset prices (Turner 2016). In such a world, collateral, leverage and asset booms are the complements for the benefit of the rich.

2.2.2 Asset Prices

Speculation and asset bubbles, both supported by monetary policy and excessive supply of credit, are also inherent features of interest-based debt system. Indeed, financial system cannot easily make profits from the real sector without speculation and high price volatility. The unlimited expansion of debt, stemming from leverage and money creation process, leads to upward pressure on prices, particularly on asset prices such as stocks, housing, and commodities. The demand for goods and assets is financed by abundant credit, not from income, with the result that pressure built up in asset prices. Not only the speculators but also rational individuals participate in asset price bubbles if they expect rising asset prices (Askari and Mirakhor 2015). Disconnection between the financial and the real sector, due to debt and leverage, validates expectations of ever-increasing asset prices. This is a vicious cycle.

The relevance of asset prices to wealth inequality is that heterogeneous income and wealth groups benefit from the asset booms unequally. As highlighted by Turner (2016), "superior access to credit in volatile economic circumstances has often been crucial to the accumulation of large fortunes". There are typically two mechanisms that give rise to accumulation of fortunes related to asset prices. Firstly, asset portfolios are different among the income and wealth groups. Asset portfolios are more diversified and holdings of equities in total portfolios are much higher in this at the top of the wealth distribution. On the other hand, the main portfolio items for the lower segments of the wealth distribution are real estate and deposits (Domanski, Zabai, and Scatigna 2016). As given in Figure 2, real estate and equity, which are usually owned by the top segment of the wealth distribution, have the highest rate of return over the course of modern history. Since the main financial asset of the poor, other than real estate, is deposits and we expect deposit rates do not much converge from bonds, there is a clear rate of return heterogeneity among the different segments of the wealth distribution.

Figure 2: Global Real Rates of Return (1870-2015)



Source: Jordà et al. (2019).
Note: Arithmetic average real returns per annum, unweighted, 16 countries.

Secondly, differences in access to credit, given differed collateral requirements and leverage, give rise to differentiated levels of indebtedness and portfolios between the rich and the others. Leverage is much lower for the top of the wealth distribution, whereas the lower segments of the wealth distribution are usually indebted for their real estate purchases.

Historically, capital gains in real estate stemming from asset booms are the main element of the price channel. Although equities have disproportionally smaller share at the middle and low segments of the wealth distribution compared to the top segment, this is not exactly true for real estate, which usually have a higher share in the middle and low segment's portfolio. The difference comes from the net worth position of the rich and the rest. Real estate is typically the most important asset for the households. The main mode of finance for real estate is bank credit. Indeed, in the last half century, banks' loan portfolio has moved from productive and investment related activities to real estate (Turner 2016). Furthermore, bulk of the credit for real estate goes to purchase of real estate assets that already exist. Since supply of land is fixed, more demand means higher prices. Once real estate prices increase due to the asset boom, it produces a vicious cycle as rising prices gives further impetus for buying more, which then gives rise to higher prices. This is formation of a bubble (Bacha and Mirakhor 2013). But such a bubble has asymmetric consequences for the rich and the rest. The rich certainly benefits from higher prices. The rich also benefits from easier access to credit in favorable terms as it allows purchasing more real estate when the prices are rising. On the other hand, ever increasing real estate prices means resorting to more bank credit, higher collateral and lower net worth for the rest of the society.

The rich gains disproportionally while the asset prices are increasing. Reversely, it is the highly-leveraged poor who have big losses while the asset prices are falling. This is because debt magnifies the fall in asset prices due to foreclosures and concentrating losses on the indebted. Thus, depending on the extent of the asset price collapse, the borrower may be forced to absorb most, if not all, of the losses, while the lenders equity (the rich) is senior and may be totally protected or bailed out by the government. As a result, severe financial crises and recessions exacerbate wealth inequality by exposing borrowers (those whose capital ownership is small) and protecting lenders (the fortunate ones with positive net capital) (Askari and Mirakhor 2015).

3. RISK-SHARING IN TACKLING WEALTH RESIDUAL

Part 2 underlines that the permanent divergence between (r) and (g) stemming from the interest-based debt contracts is an important driver for the formation of the wealth residual. This conclusion is the starting point for the viability of the notion of risk-sharing, which is an integral part of Islamic finance, to tackle wealth inequality amidst the ongoing inequality crisis. But how? Assume the rate of return to wealth is an ex-post function of economic activity instead of the rate of return to wealth which is determined by fixed and ex-ante interest rate. In such a case, the fundamental inequality ($r>g$) transforms into a type of cointegration relationship ($r=f(g)$), which means the rate of return to wealth moves in tandem with the growth rate of the economy. As argued by Maghrebi and Mirakhor (2015),

> Since the payoffs are contingent on the realization of a particular state of nature, the realized return on real investment is known only on ex post basis. The growth rate can be positive or negative depending on the realization of favorable or unfavorable states of nature. This implies that capital is not allowed to increase irrespective of growth rates, and that it is bound to decrease with negative growth.

Linking rate of return to wealth to the growth rate of the economy has the potential to cut down on the wealth residual. Hence, risk-sharing based redistribution tools can be very effective in tackling the wealth inequality. Before delving into the risk-sharing redistribution proposals, Part 3 explains the notion of risk-sharing and its relevance to mitigating wealth inequality. Understanding the conceptual and semantic differences among the risk, uncertainty and ambiguity should be the starting point of the concept of risk-sharing.

As stated by Bartholomew (2008), risk is an indispensable and necessary ingredient of human life by providing *"the richness and diversity of experience necessary to develop our skills and personalities."* Since the risk reflects human freedom and is created by human behavior with the free will, *"to forego risk is to forego freedom; risk is the price we pay for our freedom."*. The notion of risk includes the possibility of loss, whether small or big, and opportunity as propulsive power for human development and technological progress.

According to the economic theory, it is mostly rationality that guides human behavior. The rationality assumption also implies that economic agents' future expectations are only constrained by random errors with pre-specified distributions (Erbas and Mirakhor 2013). Rationality assumption gives rise to an ergodic, stable and stationary, stochastic world. In case of non-ergodic world, the future is ontologically uncertain; realization of systematic risks can occur but can never be predicted in advance (Davidson 2009).

Frank Knight (1921) states that risk applies to situations in which the odds can be measured while the outcome is not known and the uncertainty applies to situations in which even the odds are not available. The risk with known probability distributions can be insured. Whereas uncertainty is not subject to insurance because there is no known probability distribution with prospective payoffs to be insured. Developments in probability theory over the last century have led to a semantic alteration in the sense that uncertainty has come to mean what Knight referred to as risk and the uncertainty has become the term "ambiguity", which ultimately stems from "impossibility of cognitive completeness", which is then a reflection of missing information (Askari and Mirakhor 2014). Ambiguity renders decision-making almost impossible. Patience and acquiring more knowledge are the two strategies to stand against the ambiguity (Erbas and Mirakhor 2013).

The fields of behavioral economics and bounded rationality in economics pioneered by Daniel Kahneman and Amos Tversky have brought new insights into the human behavior under uncertainty (see Kahneman 2003; Kahneman and Tversky 1979). Kahneman (2003) discusses that economic agents' response to the risk in real life situations is different from what the rationality assumption predicts. Kahneman's models of human behavior under risk are based on the Framing Effects and the Prospect Theory. The framing effects states that the ambiguity is suppressed in perception in the sense that same situations result in different outcomes due to the differences in perceptions among economic agents (Kahneman 2003). It means the economic agents' response may differ to the same situations since each economic agent frame the same situation differently based on their perceptions. Prospect theory, on the other hand, states that an abrupt shift from risk aversion to risk seeking can be explained by the change in the attitudes toward gains and losses with respect to a reference point, not by a utility function alone (Kahneman 2003). This reference point is the status quo, which is called "endowment effects" according to which people can diverge from the status quo, rather than sticking to it, in case the prospect of gain overcomes that of loss with respect to the status quo

(Kahneman, Knetsch, and Thaler 1991). According to the framing effects, the way prospects are framed leads to different choices of the economic agents (Tversky and Kahneman 1981). The Framing Effects and the Prospect Theory give a guideline to address the risk and risk-sharing in real life. As stated by Askari and Mirakhor (2014):

(i) when it comes to a choice between certain and uncertain gains, people generally prefer certainty even if the prospect of uncertain gains is objectively much larger than certain gains;

(ii) in choosing between certain and uncertain losses, people generally prefer uncertain alternatives even if the prospective loss is larger than the certainty case; and

(iii) people generally overestimate small short-term risks and underestimate long-term risks.

There are two main types of risks, namely, systematic and idiosyncratic risks (Rizvi, Bacha, and Mirakhor 2016). The systematic risk is defined as the risk encountered by the whole system or market. The systematic risk is also known as undiversifiable risk because it is not possible to diversify or to transfer the risk among the economic agents. It is therefore uninsurable by nature. Resilience to realization of such a kind of risk is a function of the risk management at the macro level, as well as, institutional and policy infrastructure of the society or markets. The idiosyncratic risk is endemic to specific segments of the society, assets or markets such as supply shock to a specific sector, bankruptcy of individual banks or loss of job for people. While the idiosyncratic risks can play havoc with the economic agents, it is diversifiable as the inflicted parties can be compensated by the uninflected parties. One important instance of the idiosyncratic risk is the high dependence of consumption to income, which can be effectively mitigated by the risk-sharing instruments, such as capital markets.

Apart from classification of the risks with respect to their effects on system-wide (systematic) or individual (idiosyncratic) level, how the risk is distributed among the parties of the transactions brings about another classification. Financial transactions generate risks among the parties involved. These risks can basically be transferred, shifted or shared. The risk-transfer is an arrangement among the intermediary, depositor and borrower in which the risk is transferred from the surplus unit to the deficit unit (Bacha and Mirakhor 2013). The banking system is based on risk-transfer since it transfers the risk of savings from the surplus units to finance the investments of the deficit units. On the other hand, risk-shifting occurs when risk of a financial transaction is shifted to a third party that directly has no stake in the transaction and, generally, without consent of the third party (Mirakhor and Bao 2013). A well-known incidence of the risk-sifting is excessive risks taken by financial institutions with the expectation that none of them but the taxpayers bear the losses through bail outs. This is what has happened just before the 2008 Global Financial Crisis.

Risk-sharing basically can be defined as a contractual or societal arrangement whereby the outcome of a random event is borne collectively by a group of economic agents involved in a contract, a transaction or a community (Askari et al. 2012). Parties in the contractual or social arrangement undertake risk-sharing with the expectation that involvement of many participants, resources and skills result in lesser individual risk, as well as, greater output. Instances of risk-sharing arrangements range from purchasing stocks of domestic or foreign business entities, participating in cooperatives to insuring against idiosyncratic risks.

Risk-sharing finance is an effective mechanism to tackle the wealth inequality, especially, through preventing formation of economic rents, which are the main driver for the wealth residual. As opposed to the risk-transfer and risk-shifting, which are inherent features of the credit-based financial system, the risks are shared between the parties involved in risk-sharing. This prevents state-independent indebtedness to occur in the financial system since creditors are as responsible as the borrowers in case a negative shock hits to the system. Moreover, the risk-sharing finance as opposed to the credit-based finance mitigates pro-cyclicality in the financial system. Pro-cyclicality is the norm and intrinsic feature of the credit-based financial system due to the co-movements between economic activity and credit growth, as well as, liquidity and expectation shocks to the banking system (Rochet 2008). Against the debt-based system, risk-sharing system render the financial system counter-cycle due to its inherent nature that the returns depend on contingent realizations (Askari et al. 2010). Mitigation of the pro-cyclicality renders the financial system much more stable and prevents the asset booms to occur. Risk-sharing finance is not expected to give rise to leverage because the returns are determined ex-post and are totally depended on economic activity. Finally, since risk-sharing finance is mostly covering profit and loss sharing contracts, the collateral need is at minimum. All of these features of the risk-sharing finance prevent economic rents to dominate economic relations by keeping the wealth residual at minimum. As indicated by Mian (2013), the failure of risk-sharing is the fundamental driver of economic problems and financial crises.

4. RISK-SHARING ASSET REDISTRIBUTION

Asset redistribution aims at redistributing the ownership of assets rather than mitigating the income inequality, which is considered as the underlying driver of wealth inequality in the neoclassical economics. In modern history, several forms of the asset redistribution have been implemented such as land reforms, inheritance taxes and wealth taxes.

The high fiscal costs of the COVID-19 pandemic have increased the need for governments to seek for alternative sources of revenues. Since the 2008 Global Financial Crisis and especially after the outbreak of the COVID-19 pandemic, proposals for implementing wealth taxes for the richest segment of the societies have become more and more popular. One such concrete policy proposal is a globally coordinated wealth tax that allows for investing the tax revenues in infrastructure and education (Piketty 2014; 2015a). Piketty (2014) proposes a tax rate of 1% on wealth between 1 and 5 million Euros, 2% above 5 million Euros, 5% on additional top bracket over 1 billion Euros, an additional 0.1% on all wealth below 200,000 Euros and 0.5% on wealth between 200,000 and 1 million Euros. Political viability, coordination problems, and compliance by the rich are the main challenges of implementing such a proposal. Meanwhile, 130 countries have agreed to overhaul a minimum corporate tax rate of at least 15% in 2021 as a first step to implement globally coordinated tax initiative. However, globalization of finance, inter-country competition on attracting financial flows, and the tax heavens may dilute the effectiveness of the proposal.

It should also be noted here that current asset redistribution proposals do not change the credit-based contractual form spread over the economy. Given the high level of wealth inequality, the aforementioned proposals may not work effectively. Highly unequal distribution of wealth inhibits implementation of growth-enhancing governance structure[6] for three reasons. Firstly, asset-poor

[6] Bowles (2012) defines a governance structure as productivity-enhancing *"if the winners could compensate the losers (which would make the change a Pareto improvement), except that the implied compensation need not be carried out or even be implementable under the informational conditions and other incentive problems in the economy"*.

people cannot enter contracts available to the asset rich people. For instance, the former group will have to accept fixed-price contracts in many transactions rather than returns that are more in line with the opportunity cost of their resources. Fixed-price contracts impede productivity-enhancing behavior, such as putting full effort to work, providing full information, risk taking, and cooperation. One feature of the fixed-price contracts, such as debt contract, is that productivity-enhancing behavior cannot be included in contracts because there are high monitoring costs. In effect, fixed-price contracts do not incentivize the borrower to elicit maximum levels of efforts. Secondly, these types of contracts lead to coordination failures (principle-agent problems) because of weaknesses in the incentive structure. Thirdly, maintaining high level of inequality in the society is costly for the wealthy because it requires expensive supportive institutional structure, such as security forces. It also requires unemployment levels high enough to be used as a labor-disciplining device with ever-present threat of job loss. Furthermore, with these contracts that, by nature, have weak incentive structures, there is the additional cost of monitoring, supervising and policing by individual producers as expenditure necessary to support unequal income and wealth distribution. These costs divert resources away from productive activities thus involve allocative inefficiencies. These are a few sources of inefficiency when wealth is highly concentrated.

There are other important inefficiencies of high asset concentration in terms of lost opportunities to would be entrepreneurs, investors, and innovators who could well enhance the productivity of the economy. There is considerable evidence that asset-poor entrepreneurs are either shut out of credit markets or have to pay higher rates than with higher level of wealth. Asset-poor investors are forced to accept much lower rates of return on their assets than their wealthier counterparts. There is also evidence that the asset-poor have much higher rate of time preference, as well as, higher level of risk aversion (Lawrance 1991; Moseley 2001; Carney and Gale 2005; Hopkins 2018). Bowles (2012, 37) argues that,

> where contracts in financial markets are incomplete or unenforceable, individuals lacking in wealth are either precluded from engaging in a class of contracts that are available to the wealthy, or enter into these contracts on unfavorable term. [...] why an individual's amount of wealth influences the kinds of contract she can engage in is that only those with sufficient wealth can undertake projects on their own account, that is without borrowing. And, among those who borrow, those with more wealth borrow on better terms. This is because greater wealth on the part of the agent allows contracts which more closely align the objectives of principal and agent. This is the case, for example, when the borrower has sufficient wealth to post collateral or put her own equity in a project, and therefore has greater incentive to supply effort, to adopt more prudent risk levels preferred by the lender (the principal), to reveal information to the principal, and to act in other ways that advance the principal's interests but that cannot be secured in a contract.

An alternative yet innovative asset redistribution proposal does not involve radical, hard redistribution but changes in contractual framework of economic exchange from credit-based contracts to the ones that allows for skin-in-the game (Bowles 2012). It is the contention of the asset redistribution that there is a class of contractual relationships in economic exchange that is incentive-compatible, enhances productivity and generates higher economic growth. Such incentive-compatible contracts reduce or eliminate the distinction between principal and agent when and where it is due to ownership

structure. Asset redistribution in effect rewrites property rights claims rule by allowing agents to share in the three crucial dimensions of property rights: (a) right to control access to the asset; (b) right to control the disposition over its use; and (c) right of claim on the residual income produced by the asset (Bowles 2012). An example of these forms of contracts is a joint partnership where the ownership of an economic venture is shared between two or more partners. They share the property rights claim jointly and have joint claim on the residual income of the venture as well. Each has residual claim but also the control that is involved in the property rights claim.

Bowles (2012) states that:

> In contrast to income-based egalitarian strategies, which are rarely better than productivity-neutral (and often a lot worse), asset-based egalitarianism can in principle be productivity-enhancing. This is true both because it can implement more efficient distributions of residual clamancy and control rights and because redistributing assets addresses a major cause of unequal incomes, and thus gives greater scope for markets to do what they are good at: identifying losers – firms that fail to produce good products at competitive prices – and getting them out of the game.

Asset-based redistribution has the potential to enhance efficiency and effectiveness in the economy as each party to the contract has "skin-in-the-game" thus eliminating or minimizing principle-agent differences. Existence of "skin-in-the-game" can also minimize monitoring and supervision costs. One direct result of the "skin-in-the-game" is that the parties of the contract can choose higher risk-higher return projects. Moreover, asset-based redistribution can create a reciprocal and trusting environment that strengthens social cohesion, promotes social mobility and reduces income inequality without perverse incentive effects and resentments that would lead to resistance to changes in status quo that marks income-based redistribution efforts. While Bowles' asset-based redistribution proposal provides a theoretical background and shows why asset redistribution is a better alternative compared to income-based redistribution proposals, it does not provide a blue-print on how to put the asset redistribution proposal into implementation.

Islamic finance has potential to put Bowles' asset redistribution into action through its risk-sharing emphasis. As declared in the Kuala Lumpur Declaration in 2012 by the prominent experts in Islamic Jurisprudence and economists, risk-sharing is the essence of Islamic finance (ISRA 2012). Risk-sharing in Islam is achieved mainly through three interrelated forms (Maghrebi, Iqbal, and Mirakhor 2016):

(i) redistributive institutions for risk-sharing such as *zakah*, *sadaqah*, *qard al-hasan* and *waqf*;

(ii) intergenerational risk-sharing through inheritance rules in Islam; and

(iii) risk-sharing financial instruments such as *mudaraba* and *musharaka*.

Regarding the redistributive institutions as a form of risk-sharing, *zakah* is the most important redistributive mechanism and one of the five pillars of Islam. Indeed, from a redistributive perspective, *zakah* is a more effective alternative to the wealth tax proposals in tackling inequality. *Zakah* is subject

to at least 2.5% of eligible wealth items of every Muslim who has a wealth level above *nisab*.[7] Interestingly, the minimum rate of *zakah* is quite close to the optimal rate of wealth tax proposed by Piketty (2014). However, *zakah* (not a tax) has an important advantage over the wealth tax: It is an injunction in Islam so that rule-compliance ensures the implementation issues of Piketty's proposal (political viability, global coordination and compliance) can be alleviated. Besides *zakah*, other forms of redistributive institutions such as *waqf* have played an important role in the history of Muslim civilization. Regarding the intergenerational risk-sharing, the Qur'an and *Sunnah* have outlined very clear rules on the inheritance rules. On the other hand, how risk-sharing financial instruments can be used as an effective redistribution tools to tackle wealth inequality is an area of research that has not been studied enough.

One of the most important redistribution tools to be implemented by the governments is risk-sharing public policy instruments. Indeed, the notion of risk-sharing is not unique to Islamic economics and finance. Conventional economists, such as Robert Shiller, argue over the concept of collective risk-sharing mechanisms for fiscal policy. One such promising risk-sharing instrument to improve risk-sharing in public finance is so called macro-market securities that "can allow people to mitigate risks to their income and countries to enhance international risk sharing" (Rizvi, Bacha, and Mirakhor 2016). Risk-sharing sukuk in public finance can be a very close instrument to the macro-market securities. For instance, GDP-linked sukuk is one such macro-market instrument which is based on risk-sharing of the country's output (Bacha, Mirakhor, and Askari 2015; Bacha, Lahsasna, and Diaw 2014; Ismath Bacha and Mirakhor 2017). Three advantages of the GDP-linked sukuk is specifically related to the asset-based redistribution to mitigate wealth inequality (Bacha, Mirakhor, and Askari 2015, 207). Firstly, investors prospectively have higher and more stable returns that co-moves with the national output growth.[8] This is an important alternative to the debt-based instruments which are pro-cyclical, as discussed before. Secondly, these instruments reduce the systematic risks stemmed from public sector debt, which is an important cause of financial crises, as they are equity in the balance sheet of the public sector. Thirdly, inherently regressive feature of the debt contract, which is a primary reason for increasing inequality, is eliminated.

Akin and Mirakhor (2019) provide the first quantitative analysis of implementing risk-sharing asset redistribution in public policy. The public sector allows for the lowest 40% of the population to hold risk-sharing instruments but there is no secondary market in which the household transact the GDP-linked sukuk in case they need money. Since the GDP-linked sukuk is substituted for the transfer payments, which are an income class by definition, in the model setup, the households give up some of their income in exchange for having new risk-sharing assets. The simulation results in income distribution underlines the need for secondary market or other complementary income redistribution tools in implementing an asset-based redistribution policy (Figure 3 and Figure 4).

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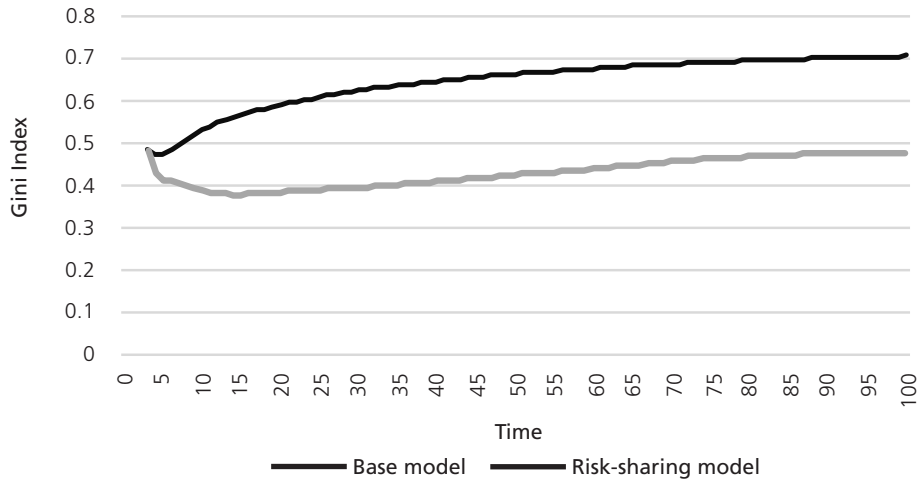
7 *Nisab* is the minimum amount of wealth over which a Muslim is obliged to *zakah*.

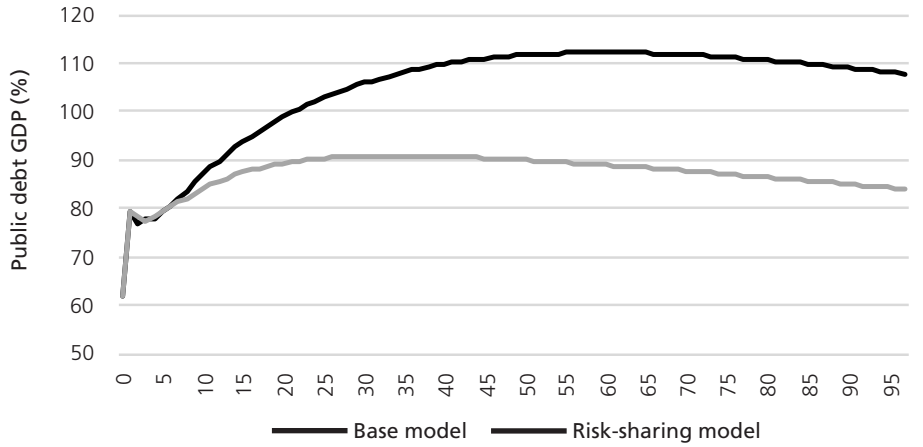
8 It might be argued that tying sukuk returns to GDP makes the returns more volatile and risky. However, it is possible to redesign the rate of return mechanism to reduce the volatility. For instance, there can be upper or lower bounds in rate of return in GDP-linked sukuk. Studies and simulations on GDP-linked bonds indicate that resorting from conventional bonds to GDP-linked bonds has benefits for the high-debt economies including less macroeconomic volatility and lower risk premium.

Figure 3: Wealth Gini Coefficient (Base vs Risk-Sharing Model)



Source: Akin and Mirakhor (2019).

Figure 4: Public Debt to GDP (%) (Base vs Risk-Sharing Model)



Source: Akin and Mirakhor (2019).

The GDP-linked sukuk and its variants, such as revenue generating sukuk for the infrastructure projects, can be the base financial instruments to implement the risk-sharing asset-based redistribution idea. However, how such instruments can be used for the risk-sharing asset-based redistribution mechanism is still an unanswered question. For instance, the theoretical model developed by Akin and Mirakhor (2019) assumes the sukuk is somehow distributed to the bottom 40%. However, in real world how such sukuk is distributed is the main policy issue to consider. The next sections attempt to develop such a viable and doable policy tool.

5. RISK-SHARING UNIVERSAL BASIC ASSETS (RUBA)

Since economic benefits are increasingly accruing to the asset-rich, most of the current ex-post redistribution proposals, such as wealth tax and shared prosperity, may not be sufficient to mitigate ever increasing wealth inequality. As a complementary step to the existing redistribution proposals, the paper introduces risk-sharing universal basic assets (RUBA) to tackle wealth inequality. RUBA are income-generating macro-market securities that are unconditionally (or partly conditionally) distributed annually to every citizen below the age of 18. Part 5 starts with discussing the general features of the Universal Basic Income (UBI) programs, which are quite similar to the universal basic assets (UBA) proposal in many respects. Subsequently, Part 5 explains the main features and scope of the RUBA proposal as a further improvement over the existing UBA proposal.

UBI, is a government social program that rests on making regular and unconditional cash payments to all of the citizens in a country. It is *"a stable and predictable basic income, paid come rain come shine, is thus different from a minimum income guarantee, which tops up low incomes to a given level, usually requiring complex means tests. And it is different from a negative income tax or tax credits, which are withdrawn as income rises"* (Standing 2017). Although debates on the UBI idea started in 1980s around a small group of economists, philosophers and other social scientists in Europe, the UBI proposal has gained popularity both among the academicians and policymakers after the 2008 GFC. The proponents of the UBI idea or its different variants now include some prominent names in economics including James Buchanan, Herbert Simon, Angus Deaton, Joseph Stiglitz, Tony Atkinson, and Robert Skidelsky. The discussions on UBI encompass not only the implementation plan or viability of the UBI but also the role of the state and markets, as well as, the scope and role of redistribution in the post-GFC era. Tony Atkinson (2011) notes that *"[UBI] is not just a form of redistribution; it is a moral statement".*

Recent interest in the UBI idea is mostly a reflection of increasing inequalities accompanied by erosion in social protection systems and social safety nets in the face of automation, globalization, pervasive informality, and degradation in human capital (Gentilini et al. 2020). As indicated by Standing (2017):

> The growing interest in basic income partly reflects a recognition that current economic and social policies are producing unsustainable inequalities and injustices. The twentieth-century income distribution system has broken down, as globalization has swept forward, as 'neo-liberal' economics has done its work, and as the technological revolution has facilitated transformative changes in labour markets. One outcome has been a growing 'precariat', consisting of millions of people facing unstable, insecure labour, a lack of occupational identity, declining and increasingly volatile real wages, loss of benefits and chronic indebtedness.

The UBI is considered as an economic right within the context of social justice, not just a poverty reduction program. In this regard, the UBI can be conceived as a social dividend. Indeed, the logic of the UBI is to secure income smoothing against the loss in purchasing power in a simple and straightforward manner. Although the rationale for a new redistribution scheme based on the UBI is touted as a security measure against formation of the income inequality stemming from the formation of the new rentier class (Standing 2017), it is mainly a relief mechanism against wage inequality. It does not aim at tackling inequalities stemming from the wealth residual. This key feature of the UBI should be kept in mind.

The universality feature of the UBI idea is mostly related to the coverage problems with most of the existing social protection schemes. According to the estimates by the World Bank, as low as 18% of the eligible population can receive some form of social assistance in some of the low-income countries while the share increases as the country gets more developed (Gentilini et al. 2020). Limited awareness and high costs of application contribute to low access to the eligible population segments in most of the current social protection schemes. As explained by Gentilini et al. (2020), the rationale for implementing the UBI idea rests on several arguments. First, provision of unconditional cash payments to whom meeting simple eligibility criteria, such as citizenship or age, minimizes issue of exclusion and inclusion errors. Second, universality feature of the UBI may also minimize any stigma attached to most of today's welfare programs that affect beneficiaries' eagerness to benefit from such social protection mechanisms due to pride, fear and ignorance. Third, elimination of selection and application processes by the beneficiaries may reduce transactions costs to a large extent. Fourth, breaking the link between getting benefits and labor supply (prospective beneficiaries just exceeding the threshold of getting the benefit may reduce their labor supply to be eligible for the benefits) is efficiency-increasing. Fifth, the UBI may be politically attractive as the voters would draw from the entire income distribution.

There are many claims against the viability of the UBI idea ranging from whether making unconditional payment to all citizens take resources away from the poor who are benefiting from existing social programs to disincentive effects associated with participation in labor markets. However, seemingly the main concern for implementing the UBI idea rests on its financial costs to the governments. Indeed, the cost of regular payments to all of the eligible citizens is significant in any measure. How the UBI policy is financed, such as a reduction in existing social protection schemes or increase in taxes, directly affect the viability, net economic benefits and political support of implementing the UBI idea. The literature finds that a budget-neutral UBI is likely to reduce the existing level of social protection to the poor in many countries (Gentilini et al. 2020).

Growing interest towards the UBI proposal is mostly due to the fact that the welfare state of the 20th century and its income distribution system has broken down. Declining share of labor in national income due to many factors such as globalization, technological change, and rise in rentier income requires a new income redistribution system in the world. However, even a fully implemented UBI can have a needed impact on inequalities, especially the wealth inequality, is still a big question mark. Similar to the shared prosperity proposal of the World Bank, the UBI proposal does not aim at solving the fundamental drivers of the wealth inequality. However, as argued previously, as long as the root causes of the wealth residual is not addressed properly, the ongoing wealth inequality keeps replicating itself. In such a case, implementing the UBI idea will have even perverse effects on inequality and poverty since the resources that would be directed towards the most vulnerable segments of the society can now be allocated to all of the citizens, including the non-vulnerable segments of the society.

This paper asserts that RUBA is a much more effective proposal compared to the UBI idea in tackling the wealth inequality. However, many features of the UBI can be used to construct an effective RUBA framework. Some of the lessons drawn from the UBI idea should be considered in devising and implementing an effective RUBA framework. The lessons can be summarized as follows:

- As highlighted by Acemoglu (2019), implementing UBI is prohibitively expensive unless accompanied by deep cuts to the rest of the safety nets or significant increase in tax revenues.

An asset redistribution mechanism should not create a significant burden for the public finance resources.

- Universality feature of the UBI idea may give rise to negative effects for the most vulnerable and poorest segments of the society in return for making payments to all of the citizens, including the billionaires.

- The main source of the enthusiasm for implementing the UBI idea is to provide a social protection mechanism against wage inequality stemming from the failure of the welfare state. However, tackling the wealth inequality stemming from the wealth residual is a bigger and more urgent problem.

- Income inequality is the lesser of the two evils. The main problem for the economies and societies is the wealth inequality, mainly stemming from the wealth residual. Thus, the UBI idea most possibly will not tackle increasing wealth inequality. A basic capital grant aims at leading to 'capitalism with equal starts', which permits market-driven inequalities, whereas a basic income aims for 'capitalism with baseline income maintenance' (Standing 2017).

- Social justice argument for the justification of the UBI idea should be reconsidered. In the real world in which contracts are incomplete and unenforceable, one of the real sources of injustice is the uneven effects of the interest-based debt contracts. As discussed previously,

  (i) credit constraints may prevent high-quality projects from being implemented by the asset-poor;

  (ii) credit-constrained agents typically have lower expected returns in their projects;

  (iii) access to credit increases risk-taking by the economic agents with higher expected returns; and

  (iv) credit-constraints are related to economic agents' degree of impatience, which affect saving and investment decisions.

- Given above, it should be noted that the UBI gives the recipients an imputed income from the government budget or a stock of capital (like in the Alaska Permanent Fund), but not the capital or asset itself. On the other hand, asset-poorness is the drawback of the wealth inequality. People need assets to "start a business, or buy a house, or invest in their education or blow it." (Skidelsky 2001). Indeed, once people have income-generating assets, their income will be a substitute for basic income.

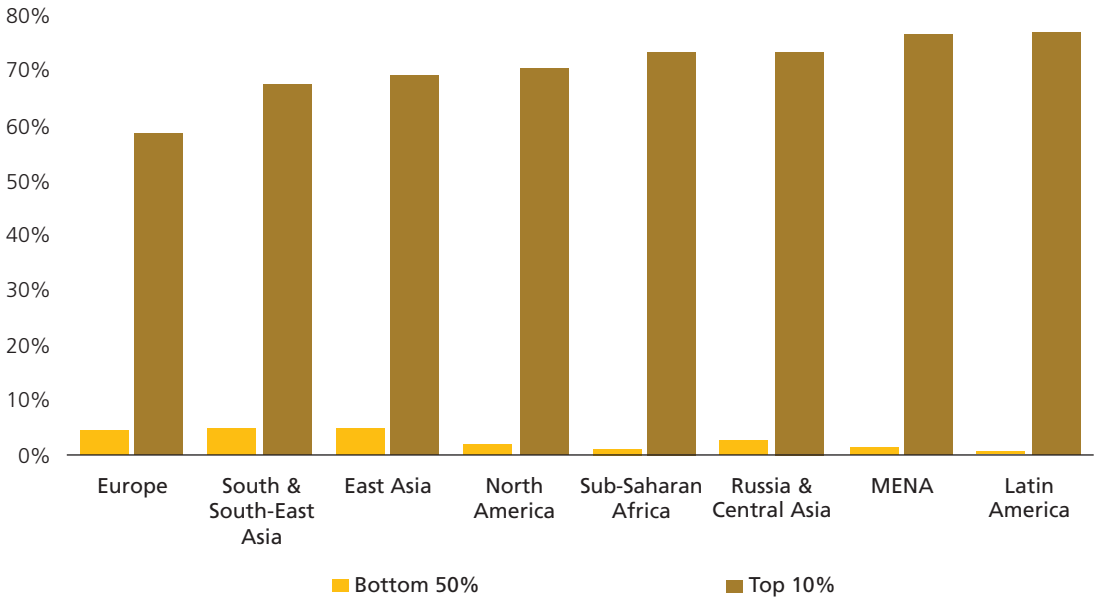
In this regard, the next section proposes a blueprint for implementing risk-sharing asset redistribution framework by using Islamic finance instruments to tackle wealth inequality.

6. A BLUEPRINT FOR THE RUBA: PUBLIC BASIC ASSET FUND (PBAF)

Part 6 proposes a viable blueprint for risk-sharing asset redistribution proposal in the OIC countries called the PBAF, which is basically a citizen trust endowment for all young adults. The fund is established by the government. The PBAF allows the eligible participants to accumulate financial assets through investing in risk-sharing financial instruments. This will also be a "two birds with one stone" policy since investing in risk-sharing instruments will also help risk-sharing economy thrive. Once the preset conditions are met, the participants can use their assets for their predefined objectives: education, health, housing or entrepreneurship. The participants, once becoming eligible for using their shares in the PBAF, can transact these shares in the capital markets.

The OIC region, which includes the Middle East and North Africa (MENA), Sub-Saharan Africa, most of the Central Asia and South & South-East Asia, has a highly unequal wealth distribution (Figure 5). This makes the PBAF proposal, as a risk-sharing redistribution mechanism, very relevant for the OIC countries to tackle the wealth inequality.

Figure 5: Wealth Inequality Across the Regions (2021)



Source: wir2022.wid.world/methodology.

Although the PBAF is overall a novel idea based on risk-sharing, there are similar precedents being implemented in the world. Child Trust Fund (CTF) program, which is a long-term tax-free savings account for children, is a similar asset redistribution policy tool in the U.K. The CTF program was announced in 2001, the implementation started in 2005 and the program was abolished in 2010. The main goal of the program was to help children save and understand managing personal finance, with relatively less emphasis on asset redistribution. Each eligible child would be given a voucher worth £250 (£500 for low-income families) at birth to open the account, and additional payment of £250 (£500 for low-income families) into the account at age 7 by the government. Parents were

allowed to add to the account subject to an annual limit. The CTF was replaced by the individual saving accounts in 2011 mostly due to political reasons. Alaska Permanent Fund and the Norwegian Pension Fund are also similar initiatives in the sense that the revenues of these funds are distributed as social dividends to the eligible citizens. As indicated by Standing (2017), *"viewed as a rightful share of income flowing from our collective wealth, the social dividend approach is politically attractive since it would not require either dismantling existing welfare systems or raising taxes on earned income".*

In Malaysia, Permodalan Nasional Berhad (PNB) resembles the PBAF proposal in many respects and lessons from the PNB experience can be a good indication for the prospective contribution of the PBAF to wealth distribution and economic development. PNB was established in 1978 and designed as a model for creation and redistribution of wealth by increasing economic participation of all Malaysians, especially the Bumiputera. PNB offered investment opportunities in unit investment trusts for the investors. As highlighted by the World Bank (2020a):

> The intent was to increase equity ownership of Malays up to 30% of the total value of listed companies, as part of the NEP's aim of creating a share-owning class among the Bumiputera. The government created an institution designed to encourage Malay participation in corporations and to assuage traditional fears of losses given the risk averse nature of Malay society. The government also wanted to promote long-term investments and avoid speculative profit-making, envisaging PNB as a vehicle to both increase and sustain economic participation. The aim was to create a less disparate society with shared prosperity.

PNB's assets under management reached RM 322.6 billion with more than 14.5 millions of accounts in year 2020. The PNB experience shows that a public-driven capital markets fund can reach most of the population and can generate profitable investment opportunities for risk-averse households.

Given the experience of the CTF program, Alaska Permanent Fund, the Norwegian Pension Fund and PNB, public funds providing social dividends can work as mass scale redistribution mechanisms. In this regard, the Public Basic Asset Fund has the same potential to be a sustainable and inclusive asset redistribution mechanism.

The blueprint for the Public Basic Asset Fund proposal includes three main steps:

- Establishment of the Public Basic Asset Fund,
- Investing in risk-sharing instruments,
- Using Public Basic Asset Fund shares in the secondary market.

6.1 Establishment of the Public Basic Asset Fund

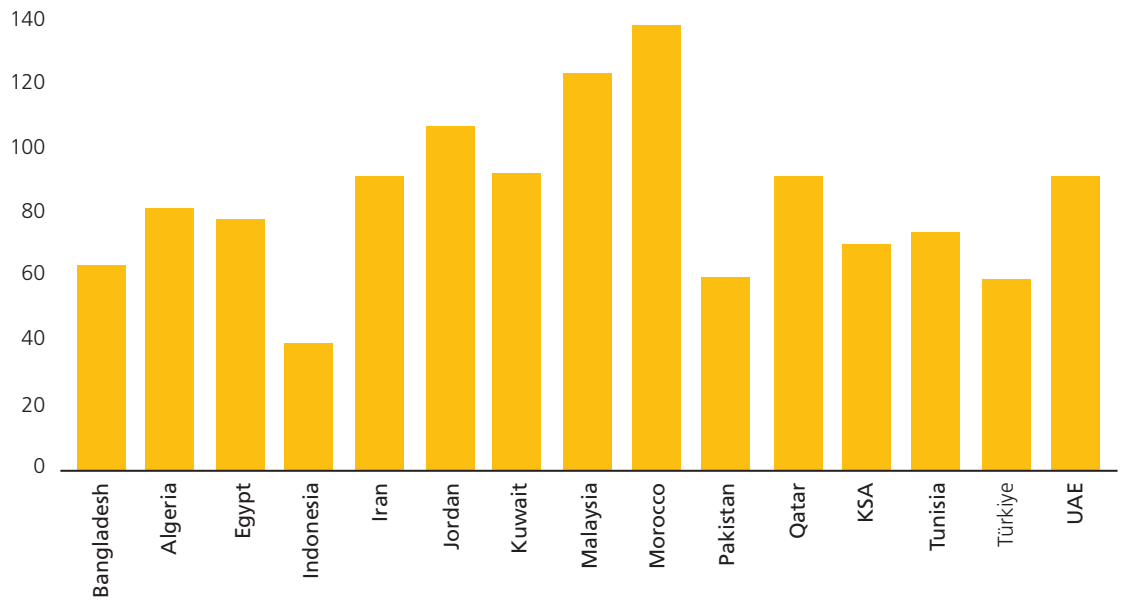
One of the main issues regarding the UBI proposal is its prospective high cost on the public finance since it is based on using taxation or other means of public revenues. Instead, the PBAF idea depends on the central (investment) deposits (CDs) to initialize the income-generating asset base. It should be noted here that public wealth funds can also be harnessed in resource-rich countries as a complement to the CDs. However, the author believes that CDs should be the main source for the establishment of the PBAF in both of the resource-rich and resource-poor OIC countries.

The fractional reserve system weakens the grip of the central banks on money supply since the banks can create a multiple of the money supply through interest-based lending and the public sector borrows money from the banking system through the interest-based credit which is created by the central bank, a public institution. Moreover, money created in the fractional reserve system is one of the important drivers of the wealth inequality (Hodgson 2013; Dietsch 2021; Colciago, Samarina, and Haan 2019). As indicated by Al-Jarhi (1981), application of total reserves provides the central bank with absolute power to control the money supply and helps wealth inequality tame. In this regard, Al-Jarhi (1981; 2020) proposes the CDs, which are created by apportioning the total money supply into Islamic and conventional shares. The CDs are subject to total central bank reserves and used as investment funds to be placed in Islamic banks with Shariah-compliant modes of contracts. In parallel, Al-Jarhi proposes a Shariah-compliant and tradable monetary management instrument, central deposit certificates (CDCs), proceeds of which are added to the CDs. The rate of return on the CDs reflects the underlying real sector activity in contrast to the rate of interest, which is determined in the debt-based money market.

Inspired by Al-Jarhi's original idea, the most important source for the establishment of the PBAF, especially for the natural resources-poor OIC countries, is the CDs. A portion of the current money supply is replaced with the CDs. Since the total money supply is kept intact and the certificates can only be used for real investment in real sector, its inflationary effect is at minimum. This is a big advantage over the current UBI proposals since whole-scale base payments to the citizens may trigger upward inflation dynamics.

As given in Figure 6, money supply (proxied by broad money) is around 80% to 100% of the GDP in the OIC countries implying a big potential to establish the PBAF even if around 5% of the money supply is transformed into the CDs.

Figure 6: Broad Money to GDP in Selected OIC Countries (2019, %)



Source: World Bank Development Indicators (2021).

The CDs proposal as a tool for risk-sharing asset redistribution may come non-viable and costly at the first-sight. However, monetary policy is already one of the main redistribution tools that give rise to excessive wealth inequality. As underlined by Standing (2017), *"the $4.5 trillion in QE by the US Federal Reserve was enough to have given $56,000 to every household in the country… Instead, QE has enriched the financiers, worsened income inequality and hastened the alarming oncoming crisis of underfunded pension schemes."*

6.2 Investing in risk-sharing instruments

Establishment of the PBAF is the starting point of the RUBA proposal. What makes the fund income-generating and risk-sharing based is how the initial fund is invested and used in general. There are two main investment areas for the RUBA fund:

- Real sector activity through Islamic banks.
- Infrastructure investments.

Al-Jarhi (2020) proposes that the CDs can be placed with Islamic banks based on *mudaraba*. In means, the central bank places some portion of the CD annually to the Islamic banks through *mudaraba* contracts on the condition that the Islamic banks can only use the allotted fund to invest in selected sectors/transactions/modes of finance. At the end of the *mudaraba* contract, the returns are shared between the Fund and the Islamic banks. The average rate of return to the *mudaraba* contract should reflect the real sector rates of return as the funds are employed in the real sector activity.

Another area that has big potential to harness the CDs is financing infrastructure projects by the public sector. Using the CDs for financing infrastructure projects through risk-sharing instruments also provide significant benefits for the OIC countries. As indicated by Bacha and Mirakhor (2017) risk-sharing instruments are especially easy to implement for development projects that produce revenue. Projects like tolled highways, railroads, mass rapid transit systems, airports, can be subjected to risk-sharing public finance instruments. Furthermore, around 30% to 40% of the government budgets in the OIC countries are devoted to development projects. Thus, there is a big opportunity for using the risk-sharing based instruments in the developing countries as an alternative to the debt-based borrowing. Investing in the infrastructure projects by the PBAF allows the high rate of return generated by the infrastructure projects harnessed by the shareholders of the PBAF. It allows for the PBAF to grow steadily over time, as well.

6.3 Using PBAF shares in the secondary market

The PBAF idea is based on having revenue-generating assets for the asset-poor. Hence, eligibility criteria for becoming a shareholder in the PBAF is another important part of the proposal.

According to the proposal delineated here, similar to the Child Trust Fund (CTF) program in the UK and Baby Bonds proposal in the US, every child receives at birth a trust account in the Public Basic Asset Fund and s/he is eligible for using her or his share at the age of 18. Hence, her or his share will grow over time until s/he becomes eligible for using the share, an income-generating financial asset. Of course, the share can be kept intact and continues to grow over time.

In addition to the eligibility criterion, how the shares can be liquidated is of significant importance. For the proposal to work, there should be a developed secondary market to buy and sell these income-generating financial assets. The PBAF idea proposes that the secondary market is established within the national stock markets, shareholders can transact and liquidate their shares through the stock exchange. The shares can also be used as collateral in case they are not liquidated. An important point is that, in order not to allow the Public Basic Asset Fund idea leads to accumulation of the shares in a few hands over time, no one is allowed to hold more than 0.5% of the total PBAF stock.

7. CONCLUSION

This paper proposes a novel risk-sharing asset redistribution plan to tackle excessive wealth inequality problem. Redistribution is arguably the most important policy tool against income and wealth inequalities. However, most of the mainstream redistribution proposals are either not directly targeting the wealth inequality or have serious implementation problems with side-effects. Risk-sharing asset redistribution can tackle the existing wealth inequality problem since it depends on risk-sharing contracts against the formation of the wealth residual, which is closely associated with the interest rate mechanism, and it directly targets wealth not income.

The public asset fund, as one concrete policy variant of the risk-sharing asset redistribution idea, can be a very effective policy tool to mitigate wealth inequality in the OIC countries. There are also other large-scale benefits of implementing the public asset fund proposal. Firstly, the public asset fund can be the first large-scale implementation of risk-sharing finance. Although, there is a general consensus that risk-sharing is the core concept in Islamic finance, it is of secondary importance in action. Islamic finance institutions are reluctant to use risk-sharing contracts and to harness its benefits due to many reasons. Secondly, the proposal allows for financing infrastructure investments in the OIC countries without interest-burden in public finance. As the OIC countries need to invest in infrastructure and other development related projects in huge amount in the future, financing these projects with risk-sharing instruments should be considered very seriously given the benefits of risk-sharing on stable, as well as, equitable growth. Thirdly, the most important redistribution tool in Islam, *zakah*, should be supported by other asset redistribution tools due to the fact that excessive wealth inequality continues as long as the root cause of the wealth residual, interest rate mechanism, is not eliminated from the financial system.

REFERENCES

Acemoglu, Daron. 2019. "Why Universal Basic Income Is a Bad Idea." *Project Syndicate*, June 2019.

Acemoglu, Daron, and James A. Robinson. 2015. "The Rise and Decline of General Laws of Capitalism." *Journal of Economic Perspectives* 29 (1): 3–28. https://doi.org/10.3386/w20766.

Akin, Tarik. 2017. "Financialization, Risk-Sharing and Wealth Inequality in A Stock-Flow Consistent Model." The International Centre for Education in Islamic Finance (INCEIF).

Akin, Tarik, Obiyathulla Ismath Bacha, Zamir Iqbal, and Abbas Mirakhor. 2020. "Risk-Sharing Asset-Based Redistribution in Public Finance: A Stock-Flow Consistent Analysis." In *Handbook of Analytical Studies in Islamic Economics and Finance*, edited by Nabil Maghrebi, Tarik Akin, Zamir Iqbal, and Abbas Mirakhor. Berlin: De Gruyter Oldenbourg.

Akin, Tarik, and Abbas Mirakhor. 2019. *Wealth Inequality, Asset Redistribution and Risk-Sharing Islamic Finance*. Berlin: De Gruyter Oldenbourg.

Al-Jarhi, Mabid Ali. 1981. *Towards an Islamic Monetary and Financial System: Structure and Implementation.* Jeddah, Saudi Arabia: The International Center of Research in Islamic Economics, King Abdulaziz University.

———. 2020. "The Islamic Macroeconomic Model: How to Apply It." In *Islamic Monetary Economics*, edited by Taha Egri and Zeynep Hafsa Orhan, 28–55. Oxford: Routledge.

Askari, Hossein, Zamir Iqbal, Noureddine Krichene, and Abbas Mirakhor. 2010. *The Stability of Islamic Finance: Creating a Resilient Financial Environment for a Secure Future*. Singapore: John Wiley & Sons.

———. 2012. *Risk Sharing in Finance*. 1st ed. Singapore: John Wiley & Sons.

Askari, Hossein, and Abbas Mirakhor. 2014. "Risk Sharing, Public Policy and the Contribution of Islamic Finance." *PSL Quarterly Review, Economia Civile* 67 (271): 345–79.

———. 2015. *The Next Financial Crisis and How to Save Capitalism*. 1st ed. New York: Palgrave Macmillan US.

Atkinson, Anthony B. 2011. "Basic Income: Ethics, Statistics and Economics." Centre for Research in Economic Analysis, University of Luxembourg. https://www.nuff.ox.ac.uk/users/%0Aatkinson/Basic_Income Luxembourg April 2011.pdf.

Auclert, Adrien, and Matthew Rognlie. 2016. "Inequality and Aggregate Demand." *Working Paper,* no. September: 1–66. https://doi.org/10.3386/w24280.

Bacha, Obiyathulla Ismath, Ahcene Lahsasna, and Abdou Diaw. 2014. "Public Sector Funding and Debt Management: A Case for GDP-Linked Sukuk." *Islamic Economic Studies* 22 (1): 185–216. https://doi.org/10.12816/0004135.

Bacha, Obiyathulla Ismath, and Abbas Mirakhor. 2013. *Economic Development and Islamic Finance.* Edited by Zamir Iqbal and Abbas Mirakhor. *Economic Development and Islamic Finance.* The World Bank. https://doi.org/10.1596/978-0-8213-9953-8.

Bacha, Obiyathulla Ismath, Abbas Mirakhor, and Hossein Askari. 2015. "Risk Sharing in Corporate and Public Finance: The Contribution of Islamic Finance." *PSL Quarterly Review, Economia Civile* 68 (274): 187–213.

Bartholomew, David J. 2008. *God, Chance, and Purpose: Can God Have It Both Ways?* 1st ed. Cambridge, UK: Cambridge University Press.

Basu, Kaushik, and Joseph E. Stiglitz. 2016. *Inequality and Growth: Patterns and Policy Volume I: Concepts and Analysis.* 1st Editio. London, UK: Palgrave Macmillan UK. https://doi.org/10.1057/9781137554543.

Bezemer, Dirk J. 2011. "Causes of Instability: Don't Forget Finance." *Levy Economics Institute Working*

Papers No. 665. https://doi.org/10.2139/ssrn.1808020.

Bowles, Samuel. 2012. *The New Economics of Inequality and Redistribution (Federico Caffè Lectures).* Cambridge: Cambridge University Press.

Buiter, Willem H., and Ebrahim Rahbari. 2015. "Why Economists (and Economies) Should Love Islamic Finance." *JKAU: Islamic Economics* 28 (1): 139–62.

Carney, Stacie, and William G. Gale. 2005. "Asset Accumulation Among Low-Income Households." In *Assets for the Poor: The Benefits of Spreading Asset Ownership,* edited by Thomas M. Shapiro and Edward N. Wolff, 165–204. New York, NY: Russell Sage Foundation.

Colciago, Andrea, Anna Samarina, and Jakob Haan. 2019. "Central Bank Pilicies and Income and Wealth Inequality: A Survey." *Journal of Economic Surveys* 33 (4): 1199–1231. https://doi.org/10.1111/joes.12314.

Davidson, Paul. 2009. "Can Future Systemic Financial Risks Be Quantified? Ergodic vs Nonergodic Stochastic Processes." *Revista de Economia Política* 29 (4): 324–40. https://doi.org/10.1590/S0101-31572009000400001.

Dietsch, Peter. 2021. "Money Creation, Debt, and Justice." *Politics, Philosophy & Economics* 20 (2): 151–79. https://doi.org/10.1177/1470594X21999736.

Domanski, Dietrich, Anna Zabai, and Michela Scatigna. 2016. "Wealth Inequality and Monetary Policy." *BIS Quarterly Review, March.*

Erbas, S. Nuri, and Abbas Mirakhor. 2013. "The Foundational Market Principles of Islam, Knightian Uncertainty, and Economic Justice." In *Economic Development and Islamic Finance*, edited by Zamir Iqbal and Abbas Mirakhor, 93–130. Washington, D.C.: The World Bank. https://doi.org/10.1596/978-0-8213-9953-8.

Gentilini, Ugo, Margaret Grosh, Jamele Rigolini, and Ruslan Yemtsov. 2020. *Exploring Universal Basic Income: A Guide to Navigating Concepts, Evidence, and Practices.* Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-1458-7.

Haan, Jakob de, and Jan-Egbert Sturm. 2016. "Finance and Income Inequality: A Review and New Evidence." *DNB Working Paper No.530.* De Nederlandsche Bank.

Hintermaier, Thomas, and Winfried Koeniger. 2015. "Household Debt and Crises of Confidence." *IZA Discussion Paper No. 9409.*

Hodgson, Graham. 2013. "Banking, Finance and Income Inequality." *Positive Money,* no. October: 35.

Hopkins, Ed. 2018. "Inequality and Risk-Taking Behaviour." *Games and Economic Behavior* 107 (January): 316–28. https://doi.org/10.1016/j.geb.2017.11.007.

IMF. 2017. *Fiscal Monitor: Tackling Inequality. Fiscal Monitor.* Washington, D.C.: International Monetary Fund.

———. 2021. "COVID-19 Recovery Contributions." Washington, D.C.

Iqbal, Zamir, and Abbas Mirakhor. 2017. *Ethical Dimensions of Islamic Finance*. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-66390-6.

Ismath Bacha, Obiyathulla, and Abbas Mirakhor. 2017. "Funding Development Infrastructure without Leverage: A Risk-Sharing Alternative Using Innovative Sukuk Structures." *The World Economy,* June, 1–11. https://doi.org/10.1111/twec.12512.

ISRA. 2012. "Kuala Lumpur Declaration." In *The Second Strategic Roundtable Discussion ISRA-IRTI-DURHAM University*, 1–3. Kuala Lumpur, Malaysia.

Jordà, Òscar, Katharina Knoll, Dmitry Kuvshinov, Moritz Schularick, and Alan M. Taylor. 2019. "The Rate of Return on Everything, 1870–2015." *The Quarterly Journal of Economics* 134 (3): 1225–98. https://doi.org/10.1093/qje/qjz012.

Kahneman, Daniel. 2003. "A Perspective on Judgment and Choice: Mapping Bounded Rationality."

American Psychologist 58 (9): 697–720. https://doi.org/10.1037/0003-066X.58.9.697.

Kahneman, Daniel, Jack L Knetsch, and Richard H Thaler. 1991. "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias." *Journal of Economic Perspectives* 5 (1): 193–206. https://doi.org/10.1257/jep.5.1.193.

Kahneman, Daniel, and Amos Tversky. 1979. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 47 (2): 263–91.

Knight, Frank H. 1921. *Risk, Uncertainty, and Profit.* Boston: Houghton Mifflin Company.

Krusell, Per, and Tony Smith. 2014. "Is Piketty's 'Second Law of Capitalism' Fundamental?" *Journal of Political Economy* 123 (4): 1–19.

Kumhof, Michael, Romain Rancière, and Pablo Winant. 2015. "Inequality, Leverage, and Crises." *American Economic Review* 105 (3): 1217–45. https://doi.org/10.1257/aer.20110683.

Lawrance, Emily C. 1991. "Poverty and the Rate of Time Preference: Evidence from Panel Data." *Journal of Political Economy* 99 (1): 54–77. https://doi.org/10.1086/261740.

Ljungqvist, Lars, and Thomas J. Sargent. 2012. *Recursive Macroeconomic Theory*. Third. Cambridge, MA: MIT Press.

Maghrebi, Nabil, Zamir Iqbal, and Abbas Mirakhor. 2016. *Intermediate Islamic Finance*. Singapore: John Wiley & Sons Singapore Pte. Ltd. https://doi.org/10.1002/9781119191551.

Maghrebi, Nabil, and Abbas Mirakhor. 2015. "Risk Sharing and Shared Prosperity in Islamic Finance." *Islamic Economic Studies* 23 (2): 85–115. https://doi.org/10.12816/0015021.

Mankiw, N. Gregory. 2015. "Yes, R>g. So What?" *American Economic Review* 105 (5): 43–47. https://doi.org/10.1257/aer.p20151059.

Mian, Atif. 2013. "Monetary Policy and Macro-Prudential Regulation: The Risk-Sharing Paradigm." *Working Paper No. 713. Central Bank of Chile.*

Mian, Atif, and Amir Sufi. 2014. *House of Debt: How They (and You) Caused the Great Recession, and How We Can Prevent It from Happening Again.* First Edit. Chicago: University of Chicago Press.

———. 2018. "Finance and Business Cycles: The Credit-Driven Household Demand Channel." *Journal of Economic Perspectives* 32 (3): 31–58. https://doi.org/10.1257/jep.32.3.31.

Mirakhor, Abbas, and Wang Yong Bao. 2013. "Epistemological Foundation of Finance: Islamic and Conventional." In *Economic Development and Islamic Finance*, edited by Zamir Iqbal and Abbas Mirakhor, 25–66. Washington, D.C.: The World Bank.

Moseley, William G. 2001. "African Evidence on the Relation of Poverty, Time Preference and the Environment." *Ecological Economics* 38 (3): 317–26. https://doi.org/10.1016/S0921-8009(01)00184-7.

OECD. 2015. *In It Together: Why Less Inequality Benefits All.* Paris: OECD Publishing. https://doi.org/10.1787/9789264235120-en.

———. 2017. *Bridging the Gap: Inclusive Growth 2017 Update Report.* Paris: OECD Publishing.

Oxfam. 2021. "The Inequality Virus." Oxford, UK. https://doi.org/10.21201/2021.6409.

Piketty, Thomas. 2014. *Capital in the Twenty-First Century.* Cambridge, MA: Belknap Press of Harvard University Press.

———. 2015a. "Capital and Wealth Taxation in the 21st Century." *National Tax Journal* 68 (2): 449–58. https://doi.org/10.3386/w20871.

———. 2015b. "Putting Distribution Back at the Center of Economics: Reflections on Capital in the Twenty-First Century." *Journal of Economic Perspectives* 29 (1): 67–88. https://doi.org/10.1257/jep.29.1.67.

Rajan, Raghuram G. 2010. Fault Lines: *How Hidden Fractures Still Threaten the World Economy.* 1st ed. New Jersey: Princeton University Press.

Rizvi, Syed Aun R., Obiyathulla Ismath Bacha, and Abbas Mirakhor. 2016. "Risk Sharing and Public Policy." In *Public Finance and Islamic Capital Markets*, 65–98. New York: Palgrave Macmillan US. https://doi.org/10.1057/978-1-137-55342-3_4.

Rochet, Jean-Charles. 2008. "Procyclicality of Financial Systems: Is There a Need to Modify Current Accounting and Regulatory Rules?" *Banque de France Financial Stability Review No:12*.

Serra-Garcia, Marta. 2010. "Moral Hazard in Credit Markets: The Incentive Effect of Collateral." Tilburg University Working Paper.

Seshadri, Ananth, and Kazuhiro Yuki. 2004. "Equity and Efficiency Effects of Redistributive Policies." *Journal of Monetary Economics* 51 (7): 1415–47. https://doi.org/10.1016/j.jmoneco.2003.10.006.

Skidelsky, Robert. 2001. "Asset Based Welfare." 2001. https://web.archive.org/web/20120307200422/http://www.skidelskyr.com/print/asset-based-welfare.

Solow, Robert M. 1957. "Technical Change and the Aggregate Production Function." *The Review of Economics and Statistics* 39 (3): 312–20. https://doi.org/10.2307/1926047.

Standing, Guy. 2017. *Basic Income: And How We Can Make It Happen*. London: Penguin Books.

Stiglitz, Joseph E. 2015a. *Rewriting the Rules of the American Economy: An Agenda for Growth and Shared Prosperity*. New York: W. W. Norton & Company.

———. 2015b. "New Theoretical Perspectives on the Distribution of Income and Wealth among Individuals: Part III: Life Cycle Savings vs. Inherited Savings." *NBER Working Paper Series No. 21191*. Cambridge, MA.

Turner, Adair. 2016. *Between Debt and the Devil: Money, Credit, and Fixing Global Finance.* 1st ed. Princeton, New Jersey: Princeton University Press.

Tversky, Amos, and Daniel Kahneman. 1981. "The Framing of Decisions and the Psychology of Choice." *Science* 211 (4481): 453–58. https://doi.org/10.1126/science.7455683.

Wang, Susheng. 2013. *Organization Theory and Its Applications (Routledge Studies in Business Organizations and Networks)*. 1st edition. New York, NY: Routledge.

Weil, David N. 2015. "Capital and Wealth in the Twenty-First Century." *American Economic Review* 105 (5): 34–37. https://doi.org/10.1257/aer.p20151057.

Wickens, Michael. 2008. *Macroeconomic Theory A Dynamic General Equilibrium Approach*. New Jersey: Princeton University Press.

World Bank. 2016. *Poverty and Shared Prosperity 2016: Taking on Inequality*. Washington, D.C.: World Bank. https://doi.org/10.1596/978-1-4648-0958-3.

———. 2020a. "Malaysia Islamic Finance & Financial Inclusion."

———. 2020b. *Poverty and Shared Prosperity 2020: Reversals of Fortune*. Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-1602-4.

World Economic Forum. 2017. "The Inclusive Growth and Development Report." Geneva: World Economic Forum.

World Inequality Lab. 2021. "World Inequality Report 2022."

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