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A REVIEW OF HELICOPTER MONEY

Over the years before the 2020 pandemic crisis, monetary financing and helicopter money were becoming increasingly popular. Since helicopter money is a radical and controversial instrument of economic policy, many economists still dismiss it, while others argue it might be useful particularly in deflationary economies facing aggregate demand shortage. This paper aims to provide an extensive review of recent literature on helicopter money and to the best of our knowledge delivering the most comperhensive review of studies involving its effectiveness. Other goals include a discussion of its advantages and limitations and potential problems among solutions that are linked to this tool. There is certain evidence such a policy can act countercyclically under given conditions without notable side effects. No convincing proof was found helicopter money would ultimately lead to uncontrollable inflation. Potential problems that come before, during, and after helicopter money implementation have attainable solutions. Policymakers have technical knowledge for its implementation. What is missing is a broader consensus and political willingness to implement the measure and find a set of rules and responsibilities that prevent its abuse. More academic and business discussion is needed to shed light on both positive and negative consequences that might arise while answering the question of whether it is time to take a different path in economic policy since helicopter money involves more cooperation between monetary and fiscal authorities and requires particular institutional changes.

Keywords: *helicopter money, monetary financing, money financing of budget deficits, direct money transfer to households*

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1. INTRODUCTION

What exactly is helicopter money? The list of economic policy tools called **helicopter money** (**HM**) and its definitions vary. To avoid confusion, it might be useful to identify which policies does this paper consider HM. Saravelos, Brehon and Winkler (2016) identify the next three options as HM[1]:

I. Money transfers to governments – funds can be transferred directly to the government or the **central bank (CB)** buys perpetual bonds bearing zero percent coupon interest. In the latter case, assets and liabilities of the CB grow at the same time, but the bank shows a loss since it does not receive interest on debt, while it has interest liability related to bank reserves. The government uses these funds to finance its spending, reduce taxes or make direct transfers to households or adults. The debt-to-GDP ratio does not change, which makes this policy neutral on the country's fiscal capacity (at least in the short run).

II. Monetary financing as debt write-off – the CB restructures or writes-off part of the government's debt and thus expands fiscal space for counter-cyclical impact. This option can be implemented once or following a pre-defined rule e.g. it is possible to write off a few percent of the debt until certain goals are reached (like target inflation). Buying negative yield securities fall into this category, given that the debtor returns less to the bank than he borrowed, which is equivalent to writing off part of the debt. Such a transaction results in a reduction of the CBs assets (in the amount of write-offs) and an equal reduction in liabilities.

III. Money creation and its transfer directly to individuals – through checks or bank transfers, bypassing the government. This is the most radical option that increases the CBs liabilities (after all cash is the central banks' liability) and decreases its capital.

When the term HM is mentioned in the literature, it is usually referred to as I. or III. option. We can define HM as an instrument of unconventional monetary policy (although some consider it an instrument of fiscal policy) that increases permanent/irreversible nominal stock of fiat base money (additional money doesn't get pulled from circulation ever) with zero interest rate, which respects the inter-temporal budget constraint of the consolidated CB and fiscal authority (Buiter, 2014). HM finances additional spending by the government and/or citizens from

[1] Similar classification can be found in Kashama (2016).

the primary issue, meaning it is a form of monetary financing (like **quantitative easing – QE** – is).

If implemented in form of an option I or II it is de facto a coordinated operation of monetary and fiscal authority and in form III a pure monetary policy action. Since HM includes government (excluding option III), authors usually refer to it as a **"money-financed fiscal stimulus"** (**MFFS**, for example, Buiter, 2014; Bernanke, 2016) or "overt monetary financing" (Turner, 2015; Johnson, Kozicki, Priftis, Suchanek, Witmer and Yang, 2020). To avoid confusion, this paper will refer to MFFS as money financed increase in government spending and/or tax cut, and by **money financed transfer to households (MFTH)** a direct money transfer to households/individuals, either directly from the CB or indirectly from CB to individuals/households via government.

This paper summarizes important facts about helicopter money, discussing its advantages as well as limitations and issues considering this economic policy instrument. To the best of our knowledge, it delivers the most comperhensive review of studies involving its effectiveness. Helicopter money is likely the single most effective policy instrument when it comes tackling delfationary economics and liquidity trap. All the issues associated to helicopter money are solvable, and its key problem is of political nature – finding the appropriate institutional framework that would fit. That would require a new path in economic policy.

The structure of the paper is as follows: the first chapter tries to define helicopter money and give an example of it, second chapter argues helicopter money has some advantages over currently used monetary policy instruments, third chapter gives an extensive literature review of helicopter money effectiveness, fourth chapter discusses its most important issue – price instability, fifth part discusses other issues considering helicopter money, and final chapter gives a short discussion and sums up the paper.

2. HELICOPTER MONEY AND CURRENT ECONOMIC POLICY FRAMEWORK

When monetary policy alone is insufficient in boosting output and inflation, and fiscal policy is constrained by a high debt-to-GDP ratio, HM offers a way to boost future price level, future nominal GDP growth, and exit liquidity trap. Turner (2015) gives some compelling arguments in favor of HM stimulating the economy that is experiencing a liquidity trap and debt overhang, arguing that debt financing of fiscal deficits and unconventional monetary policy tools including QE,

forward guidance, and negative interest rates hadn't provided enough stimulus to growth post-financial crisis of 2008/2009, while also noting there are situations where HM would stimulate aggregate demand more certainly and with less risk of adverse side-effects than the tools mentioned above[2]. In addition, unconventional monetary policy tools have led to rising income and wealth inequality in advanced countries (Saiki and Frost, 2014; Domanski, Scatigna and Zabai, 2016; Mumtaz and Theophilopoulou, 2017), increasing corporate dividends instead of investments (Todorov, 2020), purchasing assets of polluting industries, fiscal dominance due to high holdings of governments debt (Martin et al., 2021), and CBs subsidizing commercial banks[3].

There are other advantages of using HM – spending is stimulated without more indebtedness by the private sector. There would be certain debt reduction in absolute terms and relative to income. Deleveraging can take place without lower aggregate spending (van Lerven, 2015). Next, HM can have a direct impact on aggregate demand, which implies improved monetary policy effectiveness as well. For example, QE affects the economy indirectly through the trickle-down effect of financial markets, while HM implemented in a form of transfers to households (or tax cuts) impacts private sector agents' disposable income directly (Jourdan, 2020).

In this context, one interesting and relatively new concept associated with HM is central bank digital currency (CBDC). CBDC is a digital form of a country's fiat currency that is also a claim on the CB[4]. Wieladek and Kumar (2021) argue CBDC may allow monetary authorities to conduct a form of HM through direct transfers to individuals effectively pushing down the lower bound for policy rates, lowering term premia, and keeping interest rates constantly lower. In sharp contractions of

[2] Some other suggestions for battling liquidity trap and sluggish economy include inflation overshooting, symmetrical approach to the inflation target, CBs increased risk-taking (purchasing riskier assets), cancelation of public debt (Martin, Monnet and Ragot, 2021), direct payments to individuals that start automatically early in the recession and continue if needed (Sahm, 2019), debt-financed fiscal stimulus combined with a CBs commitment to a nominal GDP path (Reichlin, Turner and Woodford, 2019), and Modern monetary theory (MMT) suggestion of sustaining any level of budget deficit that is consistent with closing the output gap, then hitting tax brakes if needed (Shirai, 2020).

[3] For example, the European central bank (ECB) buys bonds from commercial banks at a negative interest rate and then pays a higher rate equal to zero on funds that the banks receive in exchange for these bonds, effectively subsidizing banks. This results in lower profits that ECB forwards to the treasury (Martin, Monnet and Ragot, 2021).

[4] As of October 2021, 81 countries representing over 90% of global GDP are now exploring CBDCs (Source: https://www.atlanticcouncil.org/cbdctracker/). For a survey of research on CBDC's see Kiff, Alwazir, Davidovic, Farias, Khan, Khiaonarong, Malaika, Monroe, Sugimoto, Tourpe and Zhou (2020).

output, CBDC would ease the provision of HM. To encourage spending, CB might set conditions on CBDCs, such as a negative interest rate or an expiry date on transferred funds. CBDCs could also be used during health crises like COVID-19 as a way of transferring liquidity to households and businesses while providing shelter from the disease and a sharp decline in revenues (Bossone and Natarjan, 2020). Doing HM in this way would enable CB to act fast when needed. Implementation lag would be short and the economy might get stimulated quickly.

Additionally, when implementing HM options, agents with a higher marginal propensity to consume (MPC) can be targeted rather than wealthier ones owning the assets whose prices are boosted by QE (Muellbauer, 2014). On average, households holding bonds are wealthier ones, thus providing money directly to the whole population would provide a greater stimulus than buying bonds considering MPC is a decreasing function of income. Funds can be allocated to households more equally affecting the distribution of goods and services. Therefore, HM could decrease income inequalities (Larue, Fontan and Sandberg, 2020)[5].

3. LITERATURE REVIEW ON HELICOPTER MONEY EFFECTIVENESS

Turner (2015) argues HM always results in increased nominal aggregate demand. It leads to an increase in nominal wealth of households regardless of Ricardian equivalence, forward-looking rational agents, full employment, and the liquidity trap. Even if Ricardian equivalence effects persist with debt financing, with HM there are no effects since there is no anticipation of future taxes. An increase in private-sector financial assets will not be offset by the anticipated net present value of future taxes[6]. This is possible considering money is an asset for the private sector, but a liability to the government (with a net present value of zero) as it is irredeemable and non-interest-bearing (Buiter, 2014). Furthermore, if agents are not rational, they will assume that the entire increase in nominal wealth is equal to the increase in real wealth. If they are rational and there is no output gap they will foresee the inflationary impact of money creation, hence will have an

[5] In the context of inequalities, Mencinger (2017) argues HM would be a viable option in implementing universal basic income – a government program that grants every adult citizen a certain amount of money in regular periods of time (every month, every third month, etc.) that is meant to lower risk of poverty and even replace other social programs that potentially require greater bureaucratic involvement.

[6] Even if this is not entirely true, Stanley (1998) in a meta-analysis comparing 28 studies finds Ricardian equivalence false stating there already exists strong evidence against this theorem.

incentive to spend a portion of new wealth before prices rise. Finally, if agents are rational and the economy is below full employment, an increase in output is possible and part of the newly acquired nominal wealth will result in increased real wealth. This increase in households wealth is obtained regardless of the zero lower bound – it does not depend on interest rates (either nominal or real) nor the fact that money and bonds are perfect substitutes. Therefore, HM will always provide stimulus to aggregate demand (Turner, 2015)[7].

Since large-scale HM drops were not implemented in modern economies, analyzing their effects on output and inflation is usually done by modeling and narrative approaches. Several papers analyzing HM within the DSGE model can be found in Table 1. In a nutshell, its effectiveness is confirmed in stimulating output and inflation in a normal economy (when the zero lower bound is not binding and risk-free nominal interest rates are positive), liquidity trap, and aggregate demand shortage, while there are mixed results regarding the magnitude of the impact of money financed vs. debt-financed fiscal expansion on inflation and GDP (at worst MFFS has the same impact). Its effectiveness has also been confirmed both for closed and open economies. A more persistent increase in inflation is noted for HM options vs. debt finances ones.

Table 1:

DSGE MODELS ANALYZING HM EFFECTIVENESS

Author(s)	Results and remarks
Ball (2008)	In a liquidity trap and low growth perspective, temporary MFTH is effective in reflating the economy and lifting output. Its long-run effects are virtually the same as a debt-financed fiscal stimulus, except money financing does not raise governments' debt in the short run. A MFTH that is permanent is calibrated to cause rising inflation and eventually hyperinflation.

[7] This statement does not hold if the public expects an increase in future taxes that will be used to pull out money from circulation. Hence, an increase has to be permanent, and the public has to believe it is permanent. Second, if the amount of HM is extensive and results in hyperinflation, the money created will be worthless, so there will be no increase in aggregate demand (Turner, 2015).

Author(s)	Results and remarks
English, Erceg and Lopez-Salido (2017)	MFFS (increased government spending) is effective both in normal times and in liquidity trap if the public understands actions taken and sees them credible. A commitment to raising nominal currency holdings would boost outcomes of such an action more than those of debt-financed fiscal expansion alone. Altering the monetary policy in such a way would enlarge the expected future price level, lower the real interest rate, and therefore act expansively. MFFS generates a larger and more persistent increase in inflation. Also, the size and timing of the effects on prices would be hard to forecast. A more limited form of monetary and fiscal policy cooperation like a commitment by the CB to be more accommodative can be more facile and credible to communicate, while also being more effective.
Nishimura and Tamai (2017)	In this model residents have a long-run portfolio choice between land and money for an economy whose workforce is rapidly aging. In the policy regime where authorities make MFTH, they are better off since young people can transfer purchasing power into the future. In comparison to a fixed nominal stock regime, these transfers prevent a large rise in land and capital price thus improving welfare.
Caballero and Farhi (2018)	In an economy under safety trap (liquidity trap in which private agents want to substitute some of their risky assets for safer ones) MFTH is effective in stimulating output. Its effect varies – if the extra money is withdrawn by increasing taxes once the economy leaves the safety trap, the effect is equivalent to safe public debt issuances: the same amount of stimulus is created. Otherwise, it is more potent.
Di Giorgio and Traficante (2018)	MFFS is generally more expansionary than debt-financed one with respect to output and inflation and less powerful in an open economy setting as it triggers the counteracting effect of appreciation in the real exchange rate that limits the initial expansion of the primary deficit.
Gali (2020a)	In normal times and under the debt-financing regime, a tax cut is offset by the anticipation of a future tax hike and government spending is powerless since the CB adjusts interest rates to stabilize inflation. In a money financing regime, both tax cuts and government spending are effective considering there are no Ricardian equivalence effects and the CB temporarily suspends its price stability orientation providing accommodative monetary policy. In a liquidity trap and under the debt-financing regime, a tax cut is again offset by Ricardian equivalence, while government spending is not weakened by a rise in CB's interest rate and is actually amplified by higher inflation expectations (lower real interest rate), therefore is effective. In a money financing regime, a tax cut is effective due to a permanent increase in liquidity that lowers real interest rates, while government spending is even more effective. All conclusions hold under the sticky-price assumption.

Author(s)	Results and remarks
Harrison and Thomas (2019)	This model incorporates important features that other models usually do not: money earns a strictly positive rate of return (motivated by CBDCs), and reserves are interest-bearing. This allows the CB to control the stock of money independently of the nominal interest rates on short-term government bonds – monetary transfers can be used as a tool at the zero lower bound, without giving up the ability to use short-term bond rate to stabilize the economy in normal times. Another important feature is that households regard government liabilities as net wealth, which allows wealth effect on aggregate demand. In normal times, MFFS generates way more stimulus regarding output and inflation than the debt-financed one. If the short-term rate is determined by the Taylors rule the effects are much more similar. Next, money transfers to households that are permanent have a much larger effect than temporary ones. Also, large monetary expansions can be effective at the zero lower bound even without interest-bearing money. Finally, when CBDCs are introduced and money can yield positive interest, temporary MFTH can stimulate spending and inflation when the short-term bond rate is constrained by a lower bound, but similar effects could be achieved by bond-financed tax cuts.
Michau (2019)	If the government can sustain a Ponzi debt scheme under full employment, then the one-off MFFS can act expansively. If the real interest rate is larger than the output growth rate, the economy converges to full employment and a sustainable Ponzi scheme. Regardless of the Ponzi scheme, continuous MFFS can get the economy out of secular stagnation.
Tsuruga and Wake (2019)	Implementation lag considering MFFS may cause output contraction in normal times and amplify the recession in a zero lower bound environment. In addition, the longer the lag, the worse the recession is, whose depth depends on interest semi-elasticity of money demand. If the elasticity is unstable, the MFFS results in an unsteady effect on output, while the debt-financed one does not.
Benigno and Nistico (2020)	When prices are rigid in the short run, the only way to stimulate the economy out of a liquidity trap is by increasing the future price level which leads to lower real interest rates and acts expansively on consumption and output. When the government faces a consolidated budget constraint, MFTH that is not reversed in the future by tax hike can be effective. This is equivalent to financing the same amount of transfers by issuing treasury's debt, committing to a future tax cut, or committing to a future decrease in seigniorage revenues through a reduction in the long-run inflation target (if seigniorage is on the upward-sloping side of the Laffer curve).

Author(s)	Results and remarks
Carter and Mendes (2020)	In a model with non-interest-bearing money, MFFS is more potent than a debt-financed one. This requires CB to abandon its feedback rule for an extended period and allow the interest rates to be determined by the rate of money creation. Also, additional stimulus associated with MFFS cannot be attributed to Ricardian equivalence and is driven by its implication on interest rates, therefore forward guidance and debt financing can replicate welfare outcomes. Money financing would also allow money demand shocks to generate volatility. In a second model with interest-bearing money, MFFS brings no extra stimulus than debt-financed.
Cespedes, Chang and Velasco (2020)	Authors build a model of macroeconomics of a pandemic, searching for an effective tool against the viruses like COVID-19. In a state of zero lower bound advanced economies have the fiscal space to pursue huge debt-financed stimulus, but emerging and developing countries do not. Several unconventional economic policies can help in closing the output gap, including wage subsidies, equity injections, loan guarantees, and HM drops of liquid assets (government bonds bearing the market interest rate, which is zero at the lower bound, therefore bonds are equivalent to money).
Bilbiie and Ragot (2021)	MFTH is a better way to issue money than open market operations considering it has better insurance properties: it provides a direct transfer within the same period and doesn't rely on the Pigou effect. Aggregate demand is (optimally) more cyclical under MFTH considering funds are transferred to households that don't participate in the bond market and that have higher MPC, which translates to more stable inflation. In the response to the same shock, the welfare gain of switching from open market operations to MFTH is very small.
Ngotran (2021)	The model builds on a new monetary policy tool – interest on reserves (IOR) and electronic money (implying cashless economy) which allows CB to use both instruments simultaneously. With IOR, the price of reserves might disconnect from the quantity of reserves in the banking system and electronic money can earn a positive nominal interest rate. Therefore, CB can increase the level of reserves and raise rates at the same time. In normal times, the policy Taylor rule is effective in controlling output (as in the New Keynesian model). In economic crises, banks cannot expand credit due to capital constraints, and the Taylor rule becomes inefficient. Forward guidance and negative IOR do not help enough in this situation – inflation expectations depend on the path of the money supply. Targeting both money supply (by using HM) and interest rate (by adjusting IOR) is effective in boosting output and inflation.

Author(s)	Results and remarks
Okano and Eguchi (2021)	MFFS is effective in boosting output and inflation both in normal times and in a liquidity trap. These results apply to a small open economy, as well as a closed one. MFFS is more effective in a small open economy compared to a closed one.
Punzo and Rossi (2021)	Effects of MFFS are larger than those of a debt-financed both in normal times and in a zero lower bound environment. Redistribution from borrowers to savers is greater in money-financed options. Additionally, MFFS results in larger fluctuations of GDP and inflation gap leading to greater welfare loss than a debt-financed fiscal stimulus (the differences in results between these two types of financing are enhanced in a liquidity trap situation).

Source: author; MFFS – Money financed fiscal stimulus (both increased government expenditure and tax cut); MFTH – Money financed transfer to households

Other papers worth mentioning among others include Auerbach and Obstfeld (2005). Their model finds that in a liquidity trap the effect of debt-financed fiscal stimulus on output and inflation is significantly strengthened if economic agents anticipate a permanent increase in liquidity rather than a temporarily one (which is a HM attribute). Buiter's (2014) partial equilibrium model that is an extension of his earlier work (Buiter, 2003) finds that the MFTH can increase aggregate demand irrespective of Ricardian equivalence both in normal times and at the zero lower bound noting this policy always increases demand if the price of money is positive, money is irredeemable and households perceive fiat money as an asset. This is contrary to Eggertson and Woodford (2003) who argue that expanding monetary base will be powerless in a liquidity trap. Buiter (2014) points out they do not account for irredeemability of base money, which means that base money is an asset to the holder but not a liability to the issuer.

Considering econometric estimates, here are mentioned a few studies: Renault and Savatier (2021) find that MFTH of two percentage points of GDP would lead to a rise in inflation in the euro area close to one percentage point (half percentage point within one year). Authors note MFTH can also be seen as a tax refund within the accommodative monetary policy nexus. Some studies point out tax changes affect output significantly and strongly: Cloyne (2013) using UK data estimates large, persistent, and positive effect of exogenous tax cut on output (output increases up to 2,5% over three years). Hayo and Uhl (2014) using German data find that one percentage point increase in tax-to-GDP ratio leads to a 2,4% output reduction. Van der Wielen (2020) using EU country's data finds medium-term revenue-based tax multipliers in the range of -1,1 to -1,9 for an unanticipated tax change.

Some useful insights about HM efficiency can be obtained from recent economic developments. As an answer to the COVID-19 pandemic many countries around the globe debt-financed transfers to households hoping to keep the economy functioning and giving aid to sectors and workers that were hit hard. Those transfers were not HM as it is considered in this paper but the two are closely related by their nature – both are made to be spent, stimulate demand and avoid deflationary effects. As we can see of by the end of 2021, growth and inflation were stimulated and output loss was reduced (Bayer, Born, Luetticke, and Müller, 2020)[8]. The latter is related to the question of whether the funds obtained through MFTH would be spent. Studies find it would, while marginal propensity to consume (MPC) differs between countries and studies, ranging from 12% to 57% (Drescher, Fessler and Linder, 2020; ING, 2016; Van Rooij and de Haan, 2019; Djuric and Neugart, 2021). Findings from these studies complicate HM implementation in monetary unions like the Eurozone since heterogeneity of MPC is shown both between countries and within them. The same amount of money given to all households (let's say 500€) would be spent in greater shares in some, and lower shares in other countries, leading to a heterogeneous response of output and inflation. MFTH would therefore act asymmetrically, thus complicating monetary policy for the ECB. On the other hand, if people would receive their net monthly wage, residents of lower-income countries would be discriminated.

4. PRICE INSTABILITY AND HELICOPTER MONEY

Regarding price instability that might occur after HM drops, there is no reason not to produce a controlled effect on demand and inflation – the choice is not binary (no effect or hyperinflation), and there are no indications of strong nonlinearities where small initial stimulus leads to strong and self-reinforcing inflationary spiral (Turner, 2015)[9]. Comprehensive literature review from previous chapter confirms this notion. In addition, Ryan-Collins (2015) finds that monetary financing

[8] Of course, inflation was not stimulated merely by those transfers and other government spending, but largely due to a negative supply shock that the pandemic, lockdowns, and their aftermath induced.

[9] However, Turner (2015) states there are situations that are unlikely: a strong rise in inflatory expectations and consequent hyperinflation might happen if agents expect HM to be used multiple times and to an excessive amount. A key factor for the successful implementation are therefore expectations (just like with any other monetary policy instrument) and there are three potential self-reinforcing effects to look out for: if agents expect a new (and greater) stimulus after the initial one, they might anticipate strong growth in aggregate demand and inflation – a self-fulfilling prophecy could end in an inflationary spiral. Second, if rapid and strong inflation growth is expected, nominal

has historically rarely led to uncontrollable inflation (the most prominent case was Germany between the world wars)[10]. Anyhow, policymakers might find HM undesirable as it triggers large and unpredictable effects on inflation, and because it would risk unanchoring long-term inflation expectations (English et. al, 2017).

It is worthwhile mentioning an argument that large-scale QE operations haven't led to high inflation, therefore HM wouldn't. This statement is false – QE doesn't have to be accompanied with inflation, but HM (if the stimulus is strong enough) will surely lead to higher rates of inflation. To understand why, it is crucial to recognize different ways in which base money enters the economy, as Stella, Singh and Bhargava (2021) emphasize. In models like Lucas' (1972) money enters ex nihilo (out of thin air) and appears in people's hands. An increase in money in this context is similar to HM. Actually, in models like this and historical episodes of sudden monetary financing, the quantity of money is closely related to inflation. In modern monetary systems, money enters the economy quite differently, through a swap of financial assets – reserves are exchanged for local currency sovereign debt or foreign exchange reserves. Excess reserves do not translate into more credit since other factors are at play (low demand for credit, capital constraints, and creditworthiness). Consequently, there cannot be more expenditure nor inflation from these actions.

How private banks influence aggregate demand and prices is best understood in terms of the credit they create. Thus, simple quantitative theory of money connection between money and inflation and a textbook line of causation from reserves to money supply, GDP and inflation cannot properly distinguish between cases of money created in exchange for bonds and money created to finance fiscal spending by increasing money in the system permanently[11]. The collapse of the money multiplier accompanied with a strong decline in the velocity of money means expanding CBs balance sheet in a way QE does is not inflationary – it's merely an exchange of bonds held by banks or the public for reserves. As interest rates on alternative assets are very low, households keep a larger proportion of their wealth in money without using it to do financial transactions or buy goods and services that contribute to value-added in the economy, hence lower velocity is not a surprise (Houte, 2020).

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demand growth could raise prices, but not quantities. Third, if agents expect the impact on prices to be strong but no change in quantities, the same might happen.

[10] A brief history of monetary financing can be found in van Lerven (2015) or Ryan-Collins (2015). HM drops were implemented way before Friedman (1969) came up with the idea. For example, Goodhart, Maschiandaro and Ugolini (2021) describe helicopter money drop in Venice during pandemic and famine in the early 1600s.

[11] Anyhow, unsustainable fiscal spending will result in increased inflation no matter the source of financing – money or debt (Stella et al., 2021).

Meanwhile, monetary financing in shadow (Gabor, 2021) and some form of debt monetization are already taking place (Houte, 2020). As Turner (2020) states: "Monetary finance doesn't have to be explicit to be permanent. All asset purchases by CBs over the past decade might in retrospect entail some (permanent) monetary finance…the best policy may be to provide monetary finance while denying the fact". Since the global financial crisis, sovereign debt held by CB as a percentage of total government debt substantially increased from below 10% to around 40% in Japan, 35% in the United Kingdom, and 20% in Italy and France (Gabor, 2021). In practice, the ECB buys new bonds upon maturity. Time will tell if this was permanent or temporary monetary financing. However, as explained, monetary financing per se doesn't need to be pro inflationary, as we have seen with QE, quite frankly, it can be accompanied with low inflation. Inflationary potential is defined by how the money is ultimately used – a part of QE ultimately financed new spending (through government spending and other channels such as the wealth effect), while HM solely finances spending – its spending multipliers are larger than those of QE, so is its effect on aggregate demand and inflation.

5. OTHER ISSUES CONCERNING HELICOPTER MONEY

Dowd (2018) argues the opportunity cost of HM is lost seigniorage – CB does not bear any interest on money financed bonds that do not promise to pay back, which means no future payments in face value nor interest. However, CBs profits usually get back to the treasury, meaning forgone seigniorage does not matter to CB. What might matter is the fact that the monetary base can be multiplied many times if there is excess credit demand. With high levels of private sector indebtedness, this is unlikely. However, this can be offset by rising reserve ratio requirements or by moving to a 100% reserve banking (Turner, 2015). Another question concerning reserves includes the fact that HM would certainly result in increased reserves. Assuming remuneration rate rises alongside interest rates, HM advantages over debt-financed fiscal deficits are reduced as emphasized by Borio, Disyatat, and Zabai (2016). Bernanke (2016) solves this issue by proposing interest should be paid on new reserves, simultaneously imposing a new tax on banks, precisely in the amount paid on reserves. This would cancel any payments without enforcing new costs on banks. In addition, ECB already has a two-tier system for remunerating excess reserve holdings which can be adjusted to fit new circumstances concerning the reserve remuneration problem mentioned above[12]. CBDC's

[12] For questions related to the ECBs two-tier system for remunerating excess reserve holdings see https://www.ecb.europa.eu/mopo/two-tier/html/two-tier_qa.en.html

might also solve the problem – assuming that no interest will be paid on digital money (Dyson and Hodgson, 2016).

Regarding the monetary policy framework, Bernanke (2016) draws attention to interest rate targeting as an instrument. Suppose CB finances the government with a certain amount of newly created money. In reality, central banks do not target monetary aggregates but adjust them to influence short-term interest rates, therefore it is ambiguous how to reconcile targeting interest rates with a permanent increase in the money supply. Bernanke mentions one possible solution involving a temporary increase in inflation target – given that money supply and price level are proportional in the long run, targeting a higher price level would roughly correspond to targeting a higher money supply. Koo (2018) states the biggest problem with QE and HM is the difficulty CB will have to face when the time comes for normalizing monetary policy. Simultaneously interest rates will have to rise and the monetary base will have to be cut down, a task that has never been successfully attempted in past.

Another potential drawback with respect to HM options includes reducing the CB's capital. Blyth and Lonergan (2014) point out that the negative net worth of CB should not be a concern at all, as CB insolvency is de facto impossible – it can always print money out of thin air. In fact, constant losses can be financed by printing new money. Hampl and Havranek (2021) collect 146 estimates from nine studies finding no trade-off between CB equity and long-run inflation (CBs' financial strength does not correlate with inflation performance).

HM implementation might face another issue related to free-riding. In political and economic unions like the EU, every country will have an interest in undercalibrating the amount of stimulus hoping for spillover effects from other countries. This problem is not relevant for the US, considering its decisions are made at the federal level. In Europe things are different, and the ECB is perhaps the only (existing) institution capable of solving this coordination issue (Martin, et al., 2021). Implementing HM might also limit fiscal and structural reforms leading to instability of sovereign currency, possible deprecation, triggering inflationary spiral, or reducing incentives to work (Karakas, 2016). Such criticisms may be reasonable if it is used frequently and/or in excessive amounts. Martin et al. (2021) argue that if HM is done in the euro area in a combination of both expansionary fiscal and monetary policy, then the euro shouldn't depreciate, but trade surplus would be reduced since increasing demand means more imports as well.

In general, there is a consensus among scholars studying HM it should be an option exclusively in exceptional circumstances where the remaining economic policy instruments are proven ineffective. Its use would require closer cooperation between the fiscal and monetary authorities, and the central bank independence

(CBI) might get undermined by the government. Belke (2018) cites Bundesbanks' president Weidmann who strongly believes HM would be incompatible with CBI arguing monetary policy is not a cure that can replace structural reforms in EU member states, and therefore cannot solve Europe's growth problems. German governor believes that rather than launching new and even more radical monetary policy instruments, it would make sense to stop before it is too late. On top of that, CB would be making redistributions that are fiscal in nature and as Stockman (2016) emphasized, would lead to the unelected central bankers gaining power[13].

Ryan-Collins (2015) emphasizes the link between CBI and inflation became widely accepted in the 1980s after several papers have shown the negative correlation between the two variables. Vuletin and Zhu (2011) state this hypothesis was studied in more than 9.000 papers (and that was more than ten years ago). A recent study by Baumann, Schomaker and Rossi (2021) finds no strong evidence of this hypothesis arguing many papers have found proof in favor, while some find exactly the opposite[14]. Although evidence is inconclusive, lowering CBI and allowing the domination of the political cycle could lead to uncontrolled fiscal spending. It is worth noticing that coordination between the CB and fiscal authorities does not require giving up on CBI (Bartsch, Boivin, Fischer and Hildebrand, 2019).

However, it may be possible to implement a strategy that would keep CBI and traditional roles between fiscal and monetary authorities. Bernanke (2016) proposes a „dual key" approach in which the CB would authorize the placement of funds in a special account that the fiscal authorities could use to finance spending. The parliament would need to authorize that decision. Therefore, both the monetary and fiscal policy would need to reach a consensus before the program is implemented[15]. By adopting this approach, CB wouldn't get any more power than it already has, and redistribution would be approved by fiscal authorities. Reichlin et al. (2019) also don't see why HM wouldn't be done by retaining traditionally separate roles – fiscal authorities could transfer funds to private accounts or undertake an expansion, while the CB would buy government bonds through open market operations. They argue CB does not have to give up its ultimate goal of price stability, and that such a policy can be consistent with stable prices – HM and fiscal policies can be complementary.

Regarding the question "who decides and when" in a sharp demand plunges like the 2020 COVID-19 crisis, Yashiv (2020) gives two solutions for implementation: the first one involves legislatures approval of emergency funds that the CB

[13] Actually, every monetary policy action results in redistribution.

[14] For a more detailed discussion and literature review regarding connection between CBI and inflation see Baumann et al. (2021) and Ryan Collins (2015) and the papers cited therein.

[15] For an evaluation of this strategy and its critics, see Dowd (2018).

could transfer to households for 90 days and that can be rolled over until certain results are achieved (inflation or output growth scores) or the CB agrees to end it if e. g. inflation expectations spiked. In this emergency period, laws forbidding such actions would be suspended. The second option involves forming a committee that consists of the treasury and CB staff (other prominent economic experts can be added). This committee sets the amounts to be transferred to government/individuals, having a mandate of 90 days that can be rolled over, just like in the previous option.

Turner (2015) emphasizes the central issue with HM is of political nature, as technical knowledge and capacities already exist, arguing that the core problem is finding a set of rules and responsibilities that prevent its abuse. Institutional and political constraints by countries can be seen in Saravelos et al. (2016) and Bartsch et al. (2019). ECB prohibits direct government funding from the primary issue in Article 123 of the Lisbon Treaty. Writing off part of government debt and issuance of perpetual bonds is not explicitly prohibited, but it is not clear whether it is legal. Neither is a direct transfer of money to the population explicitly prohibited. However, if one of these measures were to be implemented, there would certainly be legal disagreements. A limited application of HM can be done in such a way that it respects current EU laws (De Grauwe and Diesner, 2020; Kapoor and Buiter, 2020)[16].

6. CONCLUSION

The modern economic policy still doesn't consider outright permanent monetary financing a viable option. The core issue with helicopter money is finding a set of political and economic rules, responsibilities, and interrelations that enable its successful implementation and functioning while minimizing the risk that things will go wrong. Constraints can be addressed in several ways – by designing new and independent institutions, passing laws, demystifying values that something is impossible just because it is hard to imagine it works, and not because it is technically impossible. The latter is closely related to the idea of science development, that according to Kuhn (1970) is not a mere accumulation of knowledge, but a change of paradigms (worldviews) that define the research traditions of individual scientific communities. Therefore, Kuhn's idea of changing paradigms is essential to understanding why new economic policy measures like helicopter money have not been

[16] Bateman (2021) analyses legal frameworks concerning monetary financing within the Federal reserve (FED), ECB and Bank of England.

implemented so far. People tend to linger and act within the same paradigm long after they realize it does not result in states of the world they had hoped it would.

History tells us such examples, e. g. while the gold standard was alive, people did believe the "real" money was metallic and that paper money was worthless if it's not backed by gold or silver. This rigid monetary system severely constrained growth leaving millions of people unemployed and in poverty. Leaving the gold standard and adopting a new Bretton Woods system came with a belief that central bank independence and price stability are sacred. Before the global financial crisis of 2008, there was a belief fiscal policy was less effective in managing aggregate demand, while today most economists agree it is essential in controlling output and inflation (Turner, 2015). Later on, many were afraid of the government debt sustainability, but as OECD chief economist Boone recently said: "Your debt is sustainable when people have trust in your institutions and that policymakers will deliver on what they have promised" (Giles, 2021). Each historical period has its paradigms, and in retrospect, we can see they had broken down since they couldn't provide satisfying answers.

Anyhow, the recent pandemic has led to both aggregate demand and aggregate supply shock. Economists believe the world is now facing a transitory increase in inflation and that things might get to where they were. If secular stagnation, low growth, and unemployment are not acceptable, while admitting the fact unconventional monetary policy tools haven't been successful enough, then new economic policies are needed in order to improve economic outcomes. Every day the economy operates below full employment is a waste of resources, leading to lower social welfare and inevitable suffering of the unemployed. There are reasons to believe money financed fiscal stimulus and a transfer of money financed from primary emission to households (directly from the central bank or indirectly through government) can be one of those instruments that might help kickstart the depressed economy suffering from unemployment and liquidity trap.

Helicopter money has certain features that make it plausible it might help: its transmission mechanism on aggregate demand is direct (unlike unconventional monetary policy tools) and its effect on output can be delivered fast without increasing indebtedness (at least in the short run). It can reflate the economy and increase expected inflation, lower real interest rates, and therefore act even more expansively. Unlike QE it does not induce inequalities (on the contrary, it can decrease them). Its use can be measured to produce a controlled effect, although calibration problems are real. However, if anything goes wrong, there are ways to stop the damage. Its problems are numerous, but rather have conceivable solutions, as discussed. The key problem with these instruments involves politics – willingness to implement the measure and find a set of rules and responsibilities that prevent its abuse.

REFERENCES

1. Atlantic Council. Retrieved from https://www.atlanticcouncil.org/cbdctracker/
2. Auerbach, A. J., and Obstfeld, M. (2005). The case for open-market purchases in a liquidity trap. *American Economic Review*, 95(1), 110-137.
3. Ball, L. M. (2008). *Helicopter Drops and Japan's Liquidity Trap* (No. 08-E-04). Institute for Monetary and Economic Studies, Bank of Japan. Retrieved from https://www.imes.boj.or.jp/research/papers/english/me26-7.pdf
4. Barrdear, J. & Kumhof, M. (2021). The macroeconomics of central bank digital currencies. *Journal of Economic Dynamics and Control*, 104148. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S016518892100083X
5. Bartsch, E., Boivin, J., Fischer, S. & Hildebrand, P. (2019). Dealing with the next downturn: From unconventional monetary policy to unprecedented policy coordination. *Macro and Market Perspectives*. Retrieved from https://www.suerf.org/docx/f_77ae1a5da3b68dc65a9d1648242a29a7_8209_suerf.pdf
6. Bateman, W. (2021). The Law of Monetary Finance under Unconventional Monetary Policy. *Oxford Journal of Legal Studies*, 41(4), 929-964.
7. Baumann, P. F., Schomaker, M. & Rossi, E. (2021). Estimating the effect of central bank independence on inflation using longitudinal targeted maximum likelihood estimation. *Journal of Causal Inference*, *9*(1), 109-146.
8. Bayer, C., Born, B., Luetticke, R., & Müller, G. J. (2020). The Coronavirus Stimulus Package: How large is the transfer multiplier?. Retrieved from: https://www.ralphluetticke.com/files/BBLM_Covid_2020.pdf
9. Belke, A. (2018). Helicopter money: should central banks rain money from the sky?. *Intereconomics*, *53*(1), 34-40.
10. Benigno, P. & Nisticò, S. (2020). The economics of helicopter money. Retrieved from https://benigno.ch/wp-content/uploads/2020/04/BN20-230420.pdf
11. Bernanke, B. (2003). Some thoughts on monetary policy in Japan. *Board of Governors of the Federal Reserve System*. Retrieved from https://www.bis.org/review/r030606d.pdf
12. Bernanke, B. (2016). What tools does the Fed have left. *The Brookings Institution, Washington DC*. Retrieved from http://www.brookings.edu/blogs/ben-bernanke/posts/2016/03/18-negative-interest-rates
13. Bhattarai, S. & Neely, C. J. (2020). An Analysis of the Literature on International Unconventional Monetary Policy, Federal Reserve Bank of St. Louis. Retrieved from https://doi.org/10.20955/wp.2016.021

14. Bilbiie, F. O. & Ragot, X. (2021). Optimal monetary policy and liquidity with heterogeneous households. *Review of Economic Dynamics*, *41*, 71-95. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S109420252030096X
15. Blyth, M. & Lonergan, E. (2014). Print less but transfer more: Why central banks should give money directly to the people. *Foreign Aff.*, 93, 98. Retrieved from https://heinonline.org/HOL/Page?collection=journalsandhandle=hein.journals/fora93andid=1097andmen_tab=srchresults
16. Bordo, M. D., & Levin, A. T. (2017). *Central bank digital currency and the future of monetary policy*. National Bureau of Economic Research. Retrieved from https://www.nber.org/papers/w23711
17. Borio C., Disyatat P. & Zabai A. (2016). Helicopter money: The illusion of a free lunch. Retrieved from https://voxeu.org/article/helicopter-money-illusion-free-lunch
18. Bossone, B. & Natarjan, H. (2020). Getting funds to those in need and enabling access to money during COVID-19, part 3: Central bank digital currencies and other instruments. Retrieved from https://voxeu.org/article/covid-19-central-bank-digital-currencies-and-other-payments-instruments
19. Buiter, W. H. (2003). Helicopter money: irredeemable fiat money and the liquidity trap. Retrieved from https://www.nber.org/papers/w10163
20. Buiter, W. H. (2014). The simple analytics of helicopter money: Why it worksalways. *Economics*, 8. Retrieved from https://www.degruyter.com/document/doi/10.5018/economics-ejournal.ja.2014-28/html
21. Caballero J., R. & Farhi, E. (2018). The safety trap. *The Review of Economic Studies*, *85*(1), 223-274.
22. Carter, T. J. & Mendes, R. R. (2020). *The power of helicopter money revisited: A new Keynesian perspective* (No. 2020-1). Bank of Canada Staff Discussion Paper. Retrieved from https://www.econstor.eu/handle/10419/227812
23. Céspedes, L. F., Chang, R. & Velasco, A. (2020). *The macroeconomics of a pandemic: a minimalist model*. National Bureau of Economic Research. Retrieved from https://www.nber.org/papers/w27228
24. Chiara, P. & Lorenza, R. (2021). *Is a Money-financed Fiscal Stimulus Desirable?* Retrieved from https://ideas.repec.org/p/bfr/banfra/818.html
25. Cloyne, J. (2013). Discretionary tax changes and the macroeconomy: new narrative evidence from the United Kingdom. *American Economic Review*, *103*(4), 1507-28. Retrieved from https://www.aeaweb.org/articles?id=10.1257/aer.103.4.1507

26. De Grauwe, P. & Diessner, S. (2020). What price to pay for monetary financing of budget deficits in the euro area. *Retrieved from https://voxeu.org/article/what-price-pay-monetary-financing-budget-deficits-euro-area*

27. DeLong, J. B., Summers, L. H., Feldstein, M. & Ramey, V. A. (2012). Fiscal policy in a depressed economy [with comments and discussion]. *Brookings Papers on Economic Activity*, 233-297. Retrieved from https://www.jstor.org/stable/pdf/23287218.pdf?casa_token=a2HF36rvsxwAAAAA:NCJ_yFPNM-7ON8um_aW1-2B9wCeZzNp8S9et8dwR58bW-GGY2KsP05ww7pR-PkD-LAlDdspBEkGGuGNcw0yXVxkj9PkDraroe8l5eSsw-BloKdqrpXc5pk

28. Di Giorgio, G. & Traficante, G. (2018). Fiscal shocks and helicopter money in open economy. *Economic Modelling*, 74, 77-87. https://www.sciencedirect.com/science/article/abs/pii/S0264999317317868

29. Djuric, B. U. & Neugart, M. (2021). Helicopter money: survey evidence on expectation formation and consumption behaviour. *Oxford Economic Papers*, 73(1), 273-294. Retrieved from https://academic.oup.com/oep/article-abstract/73/1/273/5614232

30. Domanski, D., Scatigna, M. & Zabai, A. (2016). Wealth inequality and monetary policy. *BIS Quarterly Review March*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2744862

31. Dowd, K. (2018). Against Helicopter Money. *Cato J.*, *38*, 147. Retrieved from https://heinonline.org/HOL/Page?handle=hein.journals/catoj38&div=12&g_sent=1&casa_token=1Wsm1p_xeOUAAAAA:BjWIlpL85aIgmZim5AX0qZ0vIgXyTNHRi4SbgwyOA9lSmmmDBuY4xq5Hm7H2slRMl2nz2gWqICM&collection=journals

32. Drescher, K., Fessler, P. & Lindner, P. (2020). Helicopter money in Europe: New evidence on the marginal propensity to consume across European households. *Economics Letters*, 195, 109416. Retrieved from https://www.sciencedirect.com/science/article/pii/S0165176520302603

33. Dyson, B. & Hodgson, G. (2016). DIGITAL CASH. Positive money. Retrieved from https://positivemoney.org/wp-content/uploads/2016/01/Digital_Cash_WebPrintReady_20160113.pdf

34. Eggertsson, G. B., & Woodford, M. (2003). Optimal monetary policy in a liquidity trap. Retrieved from https://www.nber.org/papers/w9968

35. English, W. B., Erceg, C. J. & Lopez-Salido, D. (2017). Money-financed fiscal programs: a cautionary tale. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2979976

36. European Central Bank (ECB). Retrieved from https://www.ecb.europa.eu/mopo/two-tier/html/two-tier_qa.en.html

37. Friedman, M. (1969). The optimum quantity of money, and other essays. Retrieved from https://books.google.hr/books?hl=hrandlr=andid=DZ9OTS6LbEcCandoi=fndandpg=PA2anddq=The+Optimum+Quantity+of+Money+friedmanandots=NN-qwhE2Syandsig=Y6A5V6Bma83CLsLQBPhWXKSmmMwandredir_esc=y#v=onepageandq=The%20Optimum%20Quantity%20of%20Money%20friedmanandf=false
38. Gabor, D. (2021). Revolution Without Revolutionaries: Interrogating the Return of Monetary Financing. *Transformative Responses to the crisis, Finanzwende, Heinrich-Böll-Foundation*. Retrieved from http://tankona.free.fr/gabor121.pdf
39. Galí, J. (2020a). The effects of a money-financed fiscal stimulus. *Journal of Monetary Economics*, *115*, 1-19.
40. Galí, J. (2020b). Helicopter money: The time is now. *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever*, *31*, 31-39. Retrieved from http://itsr.ir/en/Content/upload/COVIDEconomicCrisis.pdf#page=64
41. Giles, C. (2021). OECD warns governments to rethink constraints on public spending. *Financial times*. Retrieved from https://www.ft.com/content/7c721361-37a4-4a44-9117-6043afee0f6b
42. Goodhart, C., Masciandaro, D. & Ugolini, S. (2021). Pandemic recession, helicopter money and central banking: Venice, 1630. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3783941
43. Hampl, M., & Havranek, T. (2020). Central bank equity as an instrument of monetary policy. *Comparative Economic Studies*, *62*(1), 49-68.
44. Harrison, R. & Thomas, R. (2019). Monetary financing with interest-bearing money. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3351094
45. Hayo, B. & Neuenkirch, E. (2018). The influence of media use on layperson monetary policy knowledge in Germany. *Scottish Journal of Political Economy*, *65*(1), 1-26.
46. Hayo, B. & Uhl, M. (2014). The macroeconomic effects of legislated tax changes in Germany. *Oxford Economic Papers*, *66*(2), 397-418. Retrieved from https://academic.oup.com/oep/article-abstract/66/2/397/2362257
47. Houte, P. V. (2020). Eurozone: Debt monetisation by stealth. Retrieved from https://think.ing.com/articles/eurozone-debt-monetisation-by-stealth/
48. ING (2016), *Helicopter Money 2016*, an International Survey special report. Retrieved from https://think.ing.com/reports/helicopter-money-2016/
49. Johnson, G., Kozicki, S., Priftis, R., Suchanek, L., Witmer, J., & Yang, J. (2020). *Implementation and Effectiveness of Extended Monetary Policy*

Tools: Lessons from the Literature. Bank of Canada. Retrieved from https://www.bankofcanada.ca/wp-content/uploads/2020/12/sdp2020-16.pdf

50. Jourdan, S. (2020). Helicopter Money as a Response to the Covid-19 Recession. *Positive Money*. Retrieved from https://www.positivemoney.eu/wp-content/uploads/2020/03/Helicopter_Money_Covid.pdf
51. Kapoor, S., & Buiter, W. (2020). To fight the COVID pandemic, policymakers must move fast and break taboos. *Europe in the Time of Covid-19*. Retrieved from https://gestores.pt/wp-content/uploads/2020/05/Europe_in_the_Time_of_Covid-19.pdf#page=267
52. Karakas, C. (2016). Helicopter Money: A Cure for What Ails the Euro Area. *European Parliamentary Research Service*. Retrieved from https://www.europarl.europa.eu/RegData/etudes/BRIE/2016/581970/EPRS_BRI(2016)581970_EN.pdf
53. Kashama, M. K. (2016). Helicopter money and debt-financed fiscal stimulus: one and the same thing?. *Economic Review*, (iii), 31-40. Retrieved from https://www.nbb.be/doc/oc/repec/ecrart/ecoreviii2016_h2.pdf
54. Kiff, M. J., Alwazir, J., Davidovic, S., Farias, A., Khan, M. A., Khiaonarong, T., Malaika, M., Monroe H., Sugimoto, M., Tourpe, H., & Zhou, P. (2020). A survey of research on retail central bank digital currency. Retrieved from https://books.google.com/books?hl=hr&lr=&id=ZbEaEAAAQBAJ&oi=fnd&pg=PA5&dq=A+Survey+of+Research+on+Retail+Central+Bank+Digital+Currency&ots=6AfCkLM0It&sig=xfLNeGYqLPUAmpYc1DXf7a0KxuI
55. Koo, R. C. (2018). *The other half of macroeconomics and the fate of globalization*. John Wiley & Sons. Retrieved from https://books.google.hr/books?hl=hr&lr=&id=9cBHDwAAQBAJ&oi=fnd&pg=PP9&dq=The+Other+Half+of+Macroeconomics+and+the+Fate+of+Globalization&ots=0Z4p7FP0az&sig=xIg8qNOc2Vg4gjgrLeNUlg9_2_I&redir_esc=y#v=onepage&q=The%20Other%20Half%20of%20Macroeconomics%20and%20the%20Fate%20of%20Globalization&f=false
56. Krugman, P. R., Dominquez, K. M. & Rogoff, K. (1998). It's baaack: Japan's slump and the return of the liquidity trap. *Brookings Papers on Economic Activity*, 1998(2), 137-205.
57. Kuhn, T. S. (1970). The structure of scientific revolutions. *University of Chicago press*. DOI: 10.1119/1.1969660
58. Larue, L., Fontan, C., & Sandberg, J. (2020). The promises and perils of central bank digital currencies. *Revue de la régulation. Capitalisme, institutions, pouvoirs*, (28). Retrieved from https://journals.openedition.org/regulation/18018
59. Lucas, Robert E. Jr (1972), *Expectations and the Neutrality of Money*, Journal of Economic Theory, 4, pgs. 103-124

60. Martin, P., Monnet, E. & Ragot, X. (2021). What Else Can the European Central Bank Do? French Council of Economic Analysis. Retrieved from https://www.cae-eco.fr/en/que-peut-encore-faire-la-banque-centrale-europeenne
61. McCulley, P. & Pozsar, Z. (2013). Helicopter money: or how I stopped worrying and love fiscal-monetary cooperation. *Global Society of Fellows*, 7. Retrieved from https://www.interdependence.org/wp-content/uploads/2013/01/Helicopter_Money_Final1.pdf
62. Mencinger, J. (2017). Universal Basic Income and Helicopter Money. *Basic Income Studies*, *12*(2). Retrieved from https://www.degruyter.com/document/doi/10.1515/bis-2016-0021/html
63. Michau, J. B. (2019). *Helicopter Drops of Money under Secular Stagnation*. Center for Research in Economics and Statistics. Retrieved from https://ideas.repec.org/p/crs/wpaper/2019-10.html
64. Muellbauer, J. (2014). Combatting Eurozone deflation: QE for the people. Retrieved from https://voxeu.org/article/combatting-eurozone-deflation-qe-people
65. Mumtaz, H. & Theophilopoulou, A. (2017). The impact of monetary policy on inequality in the UK. An empirical analysis. *European Economic Review*, *98*, 410-423.
66. Ngotran, D. (2021). Interest on reserves, helicopter money and new monetary policy. *Plos one*, *16*(7), e0253956. Retrieved from https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0253956
67. Nishimura, K. G. & Tamai, Y. (2017). Long-Run Welfare Implication of Helicopter Money in Aging Economies. Retrieved from http://kea.ne.kr/conference-2017/download/S4-8-3_Nishimura%20Kiyohiko.pdf
68. Okano, E. & Eguchi, M. (2021). *The Effects of Money-financed Fiscal Stimulus in a Small Open Economy*. Retrieved from https://www.dynare.org/wp-repo/dynarewp070.pdf
69. Oswald: Wird Japan Geld vom Himmel regnen lassen? Was ist mit dem Konzept "Helikoptergeld" gemeint?, Handelsblatt, 16 July 2016, Retrieved from http://www.handelsblatt.com/finanzen/vorsorge/altersvorsorge-sparen/helikoptergeld-was-ist-mit-dem-konzept-helikoptergeld-gemeint/13882640-2.html
70. Punzo, C., & Rossi, L. (2021). Is a money-financed fiscal stimulus desirable? Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3868958
71. Ragot, X. (2016). *Optimal Monetary Policy in a Liquidity Trap with Heterogeneous Agents*. Mimeo. Retrieved from https://ideas.repec.org/p/spo/wpmain/infohdl2441-46oc18254n98cbqvcekaq9f0ng.html
72. Reichlin, L., Turner, A. & Woodford, M. (2019). Helicopter Money as a Policy Option. Retrieved from https://voxeu.org/article/helicopter-money-policy-option

73. Renault, T. & Savatier, B. (2021) What Impact Does Helicopter Money Have on Inflation? Retrieved from https://www.cae-eco.fr/en/quel-impact-de-la-monnaie-helicoptere-sur-linflation
74. Ryan-Collins, J. & Van Lerven, F. (2018). Bringing the helicopter to ground: a historical review of fiscal-monetary coordination to support economic growth in the 20th century. *UCL Institute for Innovation and Public Purpose Working Paper Series IIPP WP*, *8*. Retrieved from https://neweconomics.org/uploads/files/Bringing-the-helicopter-to-ground.pdf
75. Ryan-Collins, J. (2015). Is monetary financing inflationary? A case study of the Canadian economy, 1935-75. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2679090
76. Sahm, C. (2019). Direct stimulus payments to individuals. *Recession Ready: Fiscal Policies to Stabilize the American Economy*, 67-92. Retrieved from https://www.brookings.edu/wp-content/uploads/2019/05/ES_THP_Sahm_web_20190506.pdf
77. Saiki, A. & Frost, J. (2014). Does unconventional monetary policy affect inequality? Evidence from Japan. *Applied Economics*, *46*(36), 4445-4454.
78. Saravelos, G., Brehon, D. & Winkler, R. (2016). Helicopters 101: your guide to monetary financing. *Deutsche Bank Research (April 15)*. Retrieved from https://www.fundresearch.de/fundresearch-wAssets/sites/default/files/GD-PBD00000292870.pdf
79. Shirai, S. (2020). Growing central bank challenges in the World and Japan: Low inflation, monetary policy, and digital currency. Asian Development Bank. Retrieved from https://www.adb.org/sites/default/files/publication/611476/adbi-growing-central-bank-challenges-world-japan-low-inflation-monetary-policy-digital-currency.pdf
80. Shitile, T. S. & Sule, A. (2019). Welfare Effect of Monetary Financing. *Applied Economics and Finance*, *6*(5), 145-157.
81. Stanley, T. D. (1998). New wine in old bottles: a meta-analysis of Ricardian equivalence. *Southern Economic Journal*, 713-727.
82. Stella, M. P., Singh, M. M. & Bhargava, A. (2021). *Some Alternative Monetary Facts*. International Monetary Fund. Retrieved from https://www.imf.org/en/Publications/WP/Issues/2021/01/08/Some-Alternative-Monetary-Facts-49975
83. Stockman, D. (2016). Helicopter Money – the Biggest Fed Power Grab Yet. Retrieved from https://mises.org/wire/helicopter-money-biggest-fed-power-grab-yet
84. T. Rowe Price (2021). Central bank digital currencies may bring "helicopter money" closer. Retrieved from https://www.troweprice.com/institutional/ca/

en/insights/articles/2021/q3/central-bank-digital-currencies-may-bring-helicopter-money-closer-na.html

85. Todorov, K. (2020). Quantify the quantitative easing: Impact on bonds and corporate debt issuance. *Journal of Financial Economics*, *135*(2), 340-358.
86. Tsuruga, T., & Wake, S. (2019). Money-financed fiscal stimulus: The effects of implementation lag. *Journal of Economic Dynamics and Control*, *104*, 132-151.
87. Turner, A. (2015). The case for monetary finance–An essentially political issue. I*n 16th Jacques Polak Annual Research Conference* (pp. 5-6). Retrieved from https://www.imf.org/external/np/res/seminars/2015/arc/pdf/adair.pdf
88. Turner, A. (2020). Monetary Finance is Here. Retrieved from https://www.project-syndicate.org/commentary/monetary-finance-of-covid19-fiscal-deficits-by-adair-turner-2020-04?barrier=accesspaylog
89. van der Wielen, W. (2020). The macroeconomic effects of tax changes: evidence using real-time data for the European Union. *Economic Modelling*, *90*, 302-321.
90. van Lerven, F. (2015). RECOVERY IN THE EUROZONE. *Positive money*. Retrieved from http://positivemoney.org/wp-content/uploads/2015/12/Recovery-in-the-Eurozone-FINAL-WEB-READY-2015-12-11.pdf
91. van Lerven, F. (2016). A GUIDE TO PUBLIC MONEY CREATION. *Positive money*. Retrieved from https://positivemoney.org/wp-content/uploads/2016/04/Public-Money-Creation-2.pdf
92. Van Rooij, M. & de Haan, J. (2019). Would helicopter money be spent? New evidence for the Netherlands. *Applied Economics*, *51*(58), 6171-6189. Retrieved from https://www.tandfonline.com/doi/full/10.1080/00036846.2019.1613504
93. Vuletin, G. & Zhu, L. (2011). Replacing a "disobedient" central bank governor with a "docile" one: A novel measure of central bank independence and its effect on inflation. *Journal of Money, Credit and Banking*, *43*(6), 1185-1215.
94. Wieladek, T. & Kumar, A. (2021) Central Bank Digital Currencies May Bring "Helicopter Money" Closer. Retrieved from https://www.troweprice.com/financial-intermediary/is/en/thinking/articles/2021/q3/central-bank-digital-currencies-may-bring-helicopter-money.html
95. Yashiv, E. (2020) Breaking the taboo: The political economy of COVID-motivated helicopter drops. Retrieved from https://voxeu.org/article/political-economy-covid-motivated-helicopter-drops

OSVRT NA HELIKOPTER NOVAC

Sažetak

U vremenu prije krize i pandemije iz 2020. godine, monetarno financiranje i helikopterski novac postajali su sve popularnije teme. Budući da je helikopterski novac radikalan i kontroverzan instrument ekonomske politike mnogi ga ekonomisti još uvijek odbacuju, dok drugi tvrde da bi mogao biti koristan osobito gospodarstvima sa deflacijom suočenim s manjkom agregatne potražnje. Cilj ovog rada je pružiti iscrpan pregled novije literature o helikopterskom novcu i dati najopsežniji pregled studija koje uključuju njegovu učinkovitost. Ostali ciljevi uključuju raspravu o njegovim prednostima i ograničenjima, te potencijalnim problemima i rješenjima istih koja su povezana s ovim alatom. Postoje određeni dokazi da takva politika može djelovati protuciklički u danim uvjetima bez značajnih komplikacija. Nije pronađen uvjerljiv dokaz da bi helikopterski novac u konačnici doveo do nekontrolirane inflacije. Potencijalni problemi koji se javljaju prije, tijekom i nakon implementacije helikopterskog novca imaju provediva rješenja. Kreatori politike imaju tehničko znanje za njegovu provedbu. Ono što nedostaje je širi konsenzus i politička volja da se mjera provede i pronađe skup pravila i odgovornosti koji sprječavaju njezinu zlouporabu. Potrebno je više akademske i poslovne rasprave kako bi se rasvijetlile i pozitivne i negativne posljedice koje bi se mogle pojaviti provedbom ove politike, te pronaći odgovor na pitanje je li vrijeme za krenuti drugačijim putem u gospodarskoj politici budući da helikopterski novac uključuje više suradnje između monetarnih i fiskalnih vlasti i zahtijeva određene institucionalne promjene.

Ključne riječi: Helikopter novac, novčano financiranje, novčano financiranje proračunskih deficita, izravni prijenos novca kućanstvima.