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A Monetary Instrument To Fight Inflation In A Digital World

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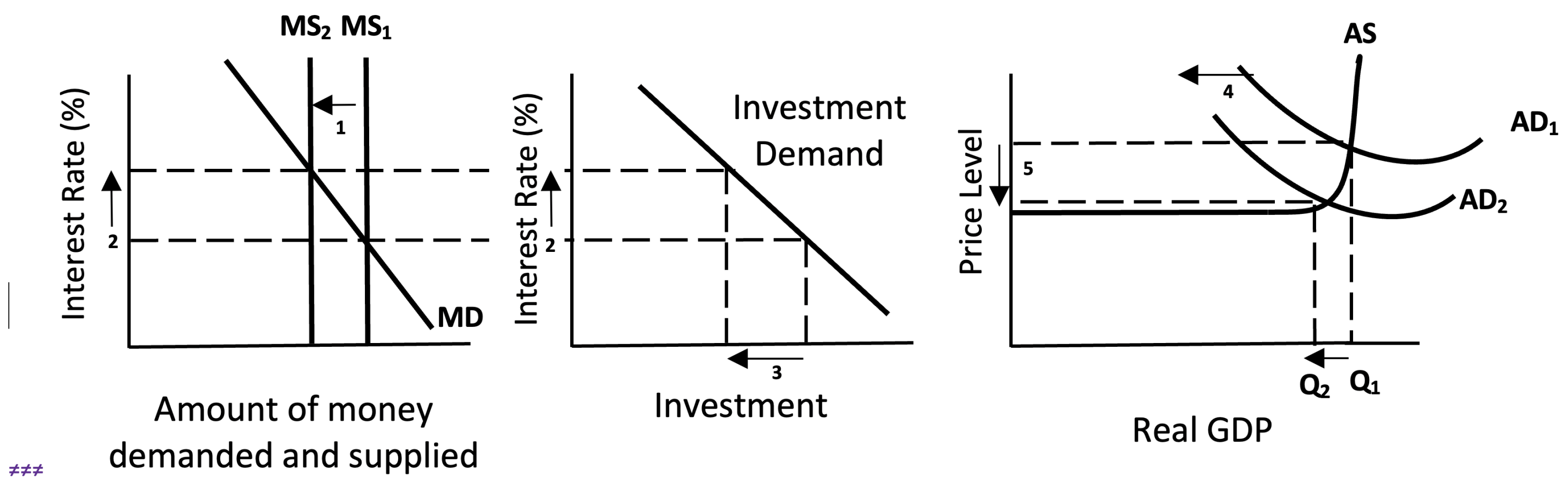


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New Tools to Fight Inflation

Central banks across the world have been struggling to adapt to inflationary issues – present since early 2021 – as the globe is dealt shortages in labor, raw materials, and finished goods, due to multiple local and international factors. For example, in the United States, energy prices have increased as a result of the global boycott of Russian carbon-based energy¹; cars and electronics increased in price as a result of semi-conductor shortages caused by shutdowns in Asian foundries and complications from the COVID-19 pandemic²; while housing prices increased precipitously because of undersupply of built homes and generational transition³. In today’s day and age, inflationary causes across modern economies are better known and, as such, remedies to price pressures need to be accurate, precise, and timely in order to combat root-triggers of price increases.

Unfortunately, to fix and repair the myriad specific microeconomic issues causing price increases across different sectors, central banks have only one tool available to fight inflation: interest rates. As pictured below, central banks increase interest rates to decrease aggregate demand and reduce price pressures, even if that means decreased economic growth. As currently deployed, this obtuse tool works well when the causes of inflationary economies are recognized to be broad-based and macroeconomic in nature. However, when root-causes are recognized to be varied and specific, this instrument risks plunging otherwise vibrant and strong economies into a recessionary spiral⁴.



Central banks currently do not have the toolbox to implement more precision in the transmission of monetary policy: their only available tool is blunt in nature. They also do not have the accuracy, precision, or even timeliness to address the many divergent needs of modern economies. What’s more, this solitary instrument has forced central banks to focus on just one of the two aspects of their dual mandate at a time: when inflation is high it must ignore employment at the detriment of economic growth and increase interest rates (which will inevitably decrease employment rates); while, in periods of high unemployment, price levels are ignored in order to stimulate growth⁵. Interest rate adjustment, as the solitary tool for central banks, is insufficient for their modern and evolving monetary policy needs.

We now live in a world where this constrained tool is no longer the only option available to central banks, thanks to the advent of CBDCs. Central banks can now possess a much more precise method of deployment that would allow them to help address specific issues within specific sectors in specific geographies. These instruments can and should be integrated into economies, while protecting privacy rights, enhancing financial stability, and increasing cybersecurity.

How CBDCs could help fight inflationary pressures

CBDCs can help fight inflationary pressures within economies by introducing increased accuracy, precision, and speed to central bank monetary policy. As stated by Mohammad Davoodalhosseini of the Bank of Canada, “A CBDC can allow for different interest rates on different balances or on different types of accounts – such different rates for households than of businesses or for different sectors of the economy”⁶. In effect, CBDCs will give central banks the accuracy and precision they lack today when it comes to encouraging growth or slowing down economies. On top of this differing in interest rates, CBDCs will give central banks real-time information on how spending and prices are being affected within all sectors and geographies in the economy and allow central banks to integrate specific policies to help alleviate price pressures in those sectors in a timelier manner. Take the examples introduced earlier of energy, semiconductors, and housing; within these sectors a CBDC-based monetary policy would allow central banks to make targeted interest rate declines to increase investment in order to alleviate price pressures; all while protecting the greater economy from the blunt-force trauma of aggregate interest rate increases.

Energy

A large source of inflation today within the United States comes from inflated energy costs⁷. Increased energy costs are primarily caused by three different situations: the first is the lack of natural gas supply caused by the Russian invasion of Ukraine⁸; the second is the relative infancy of green energy capacity to supplant fossil fuels⁹; and the third is the lack of refinery capacity to supplant the sudden decline of natural gas¹⁰. All three situations require increased investment to expand energy capacity in order to meet demand across the United States – and the world – for years to come. If investment is not increased, economies risk price increases becoming structural, with increases in interest rates possibly exacerbating further price increases from energy¹¹, due to the pass-through nature of energy into the greater consumer goods basket. Increased interest rates that slow investment in energy supply could, in effect, create a loop which increases prices everywhere. We are already seeing higher financing costs eating away at the planned global energy capacity spending in 2022¹², which shows that this phenomenon may already be occurring.

A CBDC-based monetary system would meet the root causes of inflation in energy at its source; allowing central banks to dedicate specific policies toward the energy sector in order to increase investment, foster competition, and decrease price pressures. Specific low interest rates could be given to the sector, in comparison to the greater economy, in order to increase investment and be changed as needs adapt.

As green energy matures, and is more able to supplant fossil fuels, interest rates for loans dedicated to fossil fuels can increase in order to make them less attractive to investors, while green energy-based loans are allowed to remain the same. These funds would be fully traced and verified, could be loaned via the existing financial system in order to ensure no disintermediation would occur, and provide real-time information to the issuing central bank in order to measure progress in much better ways than the current system, which primarily depends on lagging indicators that are typically weeks or months behind.

Semiconductors

Semiconductor shortages have created price increases on products ranging from cars, home appliances, servers, toys, and computers¹³. The primary cause being shutdowns in Asian foundries and complications from the COVID-19 pandemic¹⁴ that is now being exacerbated by geopolitical tensions, extreme weather, and structural supply chain weaknesses that have caused shortages of leading-edge, lagging-edge, and bleeding-edge wafers¹⁵. Demand is not expected to recede, even with a manufactured recession, given that demand for semiconductors will only increase by near double-digits every year from the substantial investments into wireless connectivity, electric vehicles, and data storage. The industry is on pace to reach a trillion dollars by 2030¹⁶.

This issue also has immense national security implications for the United States: U.S. manufacturing of semiconductor chips is only 11% of global capacity, even though it accounts for nearly 50% of demand¹⁷. In comparison, China is expected to account for nearly 25% of all chip manufacturing by 2030¹⁸. The chief reason for this gap is attributed to financing costs: according to the Semiconductor Manufacturing Association, “a new fab in the U.S. costs approximately 30% more to build and operate over 10 years than one in Taiwan, South Korea, or Singapore, and 37-50% more than one in China. As much as 40-70% of that cost differential is directly attributed to government incentives¹⁹.”

Even with the CHIPS Act passed, helping to alleviate some of this gap in comparison to other countries (who have also passed their own version of the CHIPS Act), this gap in financial costs will get worse as interest rates rise, diminishing the possible impact of the CHIPS Act given that, as stated in the bill, “A loan provided under this subsection shall have an interest rate that does not exceed a level that the Secretary determines appropriate, taking into account as of the date on which the loan is made, the cost of funds to the Department of the Treasury for obligations of comparable maturity.²⁰” As interest rates increase, more capital will need to go towards paying these interest rate costs, and less dedicated towards actual brick-and-mortar investment to meet the critical national security needs the bill wishes to alleviate.

Within a CBDC-based monetary system, increases and decreases in interest rates could be targeted. The interest rate for Treasury – within the CHIPS Act – could be different, and lower, given that a CBDC can allow for different interest rates on different balances or on different types of accounts. In this case, a special interest rate could be supplanted for the semiconductor industry in order to increase investment, enhance national security, and increase the supply of one of the most pivotal components, and primary contributors to inflation²¹, for the years to come.

Housing

Inflation and price increases in the housing market have reached historical levels since the pandemic began. Prices for homes increased by nearly 20% – in both 2020 and 2021 – with most price increases coming from lack of supply rather than demand. These price increases were primarily caused by a decade’s worth of undersupply²², the biggest generation in American history entering their prime home purchasing years,²³ and an increased demand for space from remote workers²⁴. Housing supply has been an issue since prior to the pandemic. In 2019, there was a shortage of 3.8 million homes²⁵, by late 2021 that shortage had ballooned to more than 5 million homes²⁶. The consensus across all policy makers is that, in order to decrease the price of homes and shelter, more housing supply needs to be built²⁷. However, due to recent increases in interest rates by the Federal Reserve, 87% of builders have begun to slow down new construction as price pressures begin to push out qualified buyers, further exacerbating the current housing shortage²⁸.

What's more, interest rate increases have made the monthly mortgage to purchase a house higher than ever before creating even more affordability woes for would-be buyers. Since the start of 2022, when interest rate increases by the Federal Reserve began, the average mortgage payment increased from about \$1,400 USD to \$1,839 USD, an incredible 31% increase in only seven months. To compare, it took seven years for the average mortgage payment to increase by 40% from \$1,000 USD to \$1,400 between January 2015 and January 2022²⁹. In some cities in the United States, like Austin³⁰, and Miami³¹, mortgage rates have increased by nearly 50% since the beginning of 2022 as home prices remain high and mortgage rates have essentially doubled.

These interest rates are making shelter more expensive for everyone as prospective homebuyers are being pushed into the rental market. This, in turn, has caused double-digit increases in the price of rent for consumers across the United States.³² As interest rates go higher, rent is also expected to increase into 2023³³ since the root causes of shelter increases are not only not being addressed but being aggravated by the Federal Reserve³⁴. Major banks have already begun sounding the alarm on Federal Reserve tightening making matters worse for shelter-based inflation in late September 2022³⁵.

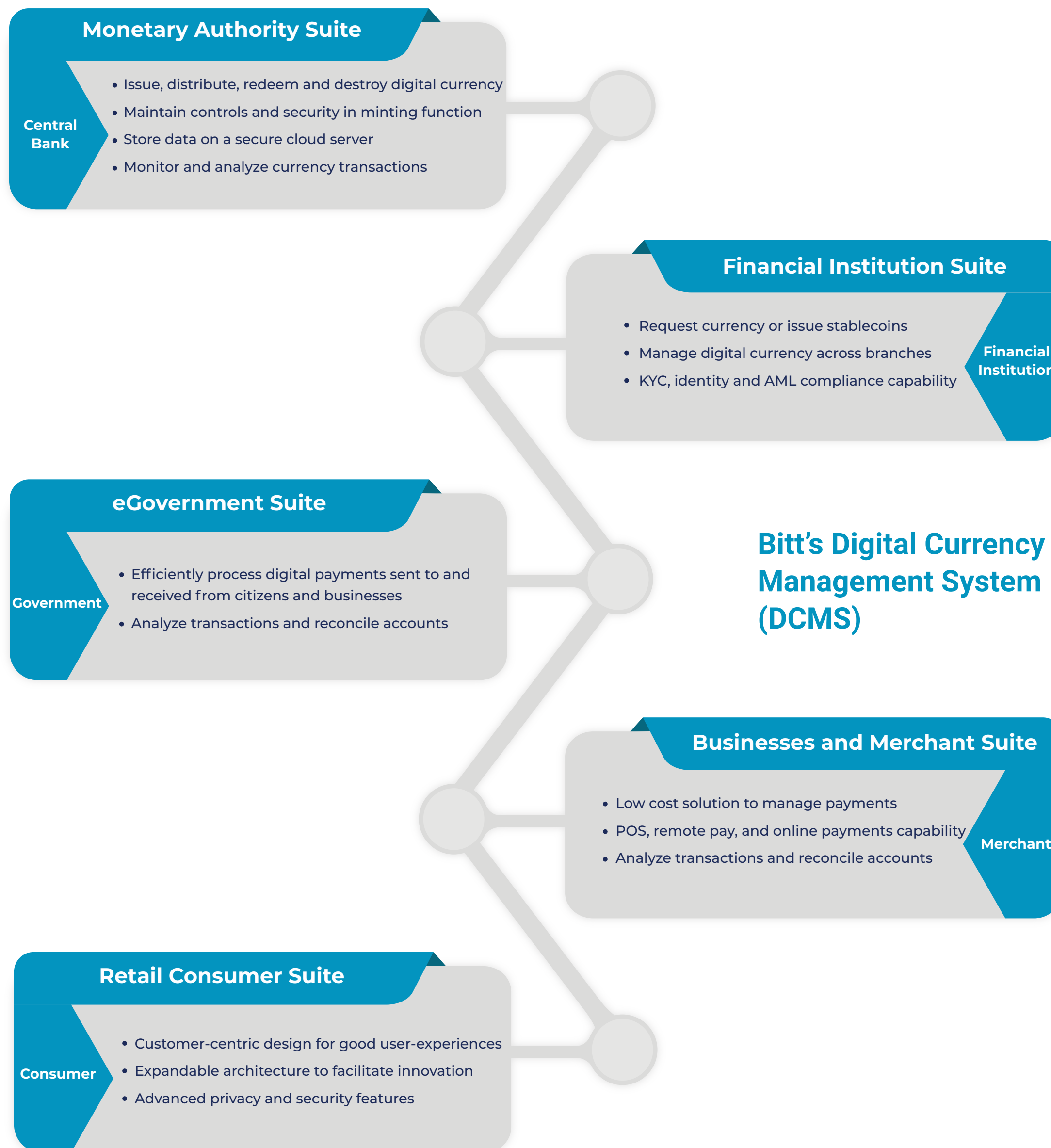
Once again, this does not have to be the case. As previously stated, within a CBDC-based monetary system, increases and decreases in interest rates could be targeted. The interest rate for home builders and the housing market could be made to be lower than the greater economy in a CBDC-based monetary system in order to incentivize the building of homes and to reduce the pressures that currently exacerbate prices. We should give central banks the tools needed to combat modern problems, not force them to create more unnecessary pain for consumers in need of relief.

Conclusion

As currently deployed, interest rates are a tool that does not serve to alleviate the root causes of inflation. Due to this constrained toolbox, central banks cannot advance in the way they manage economies. Central banks are largely forced to make their decisions on lagging indicators like employment surveys, CPI data published a month behind, or studies that sometimes take years to finish. Once central banks read these tea leaves, they then deploy increases in interest rates to the greater economy in order to fight inflation if they deem the economy is overheating or decreases in interest rates to incentivize aggregate investment. This method does not have the accuracy, precision, or timeliness to address the many divergent needs of modern economies. The continued reliance on general deployment of interest rates to fight inflation or to incentivize production not only risks recessions, but also exacerbates the very causes of said inflation since it destroys the possibility of badly needed investments to increase supply in critical sectors. Most times, central banks are too late to fight inflation or stimulate demand as a result of these antiquated methods.

We now live in a world where the general deployment of interest rates and the reliance on old information to make decisions is no longer the only option available to central banks, thanks to the invention of CBDCs. Central banks can now possess a much more precise set of instruments that would allow them to help address specific issues, within specific sectors, in specific geographies, all with real-time macroeconomic and microeconomic data. A CBDC can allow for different interest rates, on different balances, or on different types of accounts, increasing investment where it is needed, and cooling demand when necessary; all without destroying aggregate growth and employment. It will also give central banks real-time information to inform their decisions, and not rely on months- or year-old data to manage economies. We should give central banks the tools needed to modernize and augment their abilities, not force them to create more unnecessary pain for consumers in need of relief.

Bitt is a global financial technology company that provides digital currency solutions to central banks, financial institutions, and ecosystem participants worldwide. Bitt's Digital Currency Management System (DCMS) is the secure infrastructure that monetary authorities need to deploy CBDCs, and for financial institutions to integrate digital currencies into their financial service offerings. Bitt's DCMS has been deployed in 12 countries across Africa, Central America, Europe, and the Caribbean. Bitt is a portfolio company of Medici Ventures, L.P., a blockchain-focused fund. The general partner of that fund is an entity affiliated with Pelion Venture Partners.



Bitt's DCMS Infrastructure is Fully Customizable

To enable a swift and efficient deployment, Bitt's DCMS is configured and deployed based on client requirements.

Secure and Reliable Workstreams

Numa (Bitt's digital monetary instrument engine) is the core technology behind the Bitt DCMS applications which integrates business logic into the system architecture.

Integrations with Existing Market Infrastructure

Bitt's DCMS can integrate with any underlying traditional or DLT network. In addition, Bitt's DCMS enables effective integration with existing financial system infrastructure, typically via core banking systems. The DCMS enables financial institutions to harness the power of CBDCs through a suite of applications, APIs, and SDKs.

Account or Token Based Capabilities.

Bitt's DCMS may be configured to be account- or token-based.

Account-based (digital systems)

- Smartphone apps
- Feature phone (USSD/SMS) apps

Token-based (digital systems)

- Zero-knowledge cryptography implementation

Token-based (non-digital systems)

- Smart card

Online or Offline Payments

Bitt's DCMS allows online and degraded connection transactions to be processed traditionally, via SMS/USSD and via a smart card. Offline transactions can be processed via SMS/USSD or a smart card.

References

1. Hess, T. (2022, September 7). U.S. Energy Information Administration - EIA - independent statistics and analysis. EIA. Retrieved from <https://www.eia.gov/https://www.eia.gov/pressroom/releases/press516.php/releases/press516.php>
2. J.P. Morgan Chase. (2022, August 11). How long will the chip shortage last?: J.P. Morgan Research. J.P. Morgan. Retrieved from <https://www.jpmorgan.com/insights/research/supply-chain-chip-shortage>
3. Betancourt, K., Gardner, S., & Palin, M. (n.d.). The U.S. Housing Shortage from a Local Perspective. Fannie Mae. Retrieved October 2022, from <https://www.fanniemae.com/media/45106/display>
4. Saraiva, C. (2022, September 21). Fed's Powell signals us recession may be price to pay for crushing inflation. Bloomberg.com. Retrieved from <https://www.bloomberg.com/news/articles/2022-09-21/powell-signals-recession-may-be-the-price-for-crushing-inflation>
5. The Federal Reserve Bank of Chicago. (2020, October 10). The Federal Reserve's Dual Mandate. The Federal Reserve's Dual Mandate - Federal Reserve Bank of Chicago. Retrieved from <https://www.chicagofed.org/research/dual-mandate/dual-mandate>
6. Davoodalhosseini, M. (2018, July 26). Central Bank Digital Currency and monetary policy. Bank of Canada. Retrieved from <https://www.bankofcanada.ca/2018/07/staff-working-paper-2018-36/>
7. U.S. Bureau of Labor Statistics. (n.d.). 12-month percentage change, Consumer Price Index, selected categories. U.S. Bureau of Labor Statistics. Retrieved October 2022, from <https://www.bls.gov/charts/consumer-price-index/consumer-price-index-by-category.htm>
8. Ibid 1
9. Frangoul, A. (2021, July 15). Renewable electricity generation is growing - but it's not enough to meet rising demand, IEA says. CNBC. Retrieved from <https://www.cnbc.com/2021/07/15/renewable-generation-growing-but-not-enough-to-meet-demand-iea-says.html>
10. Lindquist, J. (2022, September 20). No easy way out - changes to global refining industry fueled by pandemic, economics. RBN Energy. Retrieved from <https://rbnenergy.com/no-easy-way-out-global-refining-industry-undergoing-changes-fueled-by-pandemic-economics>
11. Guilford, G. (2022, July 30). Energy prices may keep inflation high for years. The Wall Street Journal. Retrieved from <https://www.wsj.com/articles/energy-prices-inflation-fed-11659134736>
12. IEA (2022), World Energy Investment 2022, IEA, Paris
<https://www.iea.org/reports/world-energy-investment-2022>, License: CC BY 4.0
13. Ratcliffe, C. (2021, April 30). From tablets to sex toys, the chip shortage is far-reaching. The Wall Street Journal. Retrieved from <https://www.wsj.com/articles/expanding-from-autos-to-appliances-and-sex-toys-the-chip-shortage-is-far-reaching-11619783117>
14. Ibid 2
15. Hoecker, A., Hanbury, P., Heider, H. J., & Zou, S. (2022, September 19). When will the chip shortage end? Bain & Company. Retrieved from <https://www.bain.com/insights/chip-shortage-end-tech-report-2022/>
16. Burkacky, O., Dragon, J., & Lehmann, N. (2022, May 11). The Semiconductor Decade: A Trillion-dollar industry. McKinsey & Company. Retrieved from <https://www.mckinsey.com/industries/semiconductors/our-insights/the-semiconductor-decade-a-trillion-dollar-industry>
17. Semiconductor Industry Association. (2022, November). 2022 State of the U.S. Semiconductor Industry . SIA. Retrieved from https://www.semiconductors.org/wp-content/uploads/2022/11/SIA_State-of-Industry-Report_Nov-2022.pdf
18. Varas, A., Varadarajan, R., Goodrich, J., & Yinug, F. (2020, November). Turning the tide for semiconductor manufacturing in the U.S Semiconductor Industry Association. Retrieved from <https://www.semiconductors.org/turning-the-tide-for-semiconductor-manufacturing-in-the-u-s/>
19. Ibid 18
20. H.R.4346 - 117th Congress (2021-2022): Supreme Court Security Funding Act of 2022. (2022, August 9).
<https://www.congress.gov/bill/117th-congress/house-bill/4346>
21. Werschkul, B. (2022, January 15). Inflation has 'direct correlation' with America's chip shortage: Commerce secretary. Yahoo! News. Retrieved from <https://news.yahoo.com/inflation-chip-shortage-commerce-secretary-122005269.html>
22. Badger, E., & Washington, E. (2022, July 14). The housing shortage isn't just a coastal crisis anymore. The New York Times. Retrieved from <https://www.nytimes.com/2022/07/14/upshot/housing-shortage-us.html>
23. Bove, T. (2022, July 1). Millennials have aged into the housing market at the worst possible time. Fortune. Retrieved from <https://fortune.com/2022/03/24/millennials-biggest-homebuying-demographic-while-home-prices-soar-worst-time-compete-boomers-aged/>

24. Kmetz, A., Mondragon, J., & Wieland, J. (2022, September 26). Remote work and Housing Demand. San Francisco Fed. Retrieved from <https://www.frbsf.org/economic-research/publications/economic-letter/2022/september/remote-work-and-housing-demand/>
25. Buhayar, N. (2022, July 14). Can I buy A home? shortage of housing becomes crisis across US. Bloomberg.com. Retrieved from <https://www.bloomberg.com/news/articles/2022-07-14/housing-shortage-spreads-across-us-becoming-coast-to-coast-crisis#xj4y7vzkg>
26. Olick, D. (2021, September 15). America is short more than 5 million homes, and builders can't make up the difference. CNBC. Retrieved from <https://www.cnbc.com/2021/09/14/america-is-short-more-than-5-million-homes-study-says.html>
27. Dougherty, C., & Casselman, B. (2022, July 23). We need to keep building houses, even if no one wants to buy. The New York Times. Retrieved from <https://www.nytimes.com/2022/07/23/business/housing-market-crisis-supply.html>
28. Trapasso, C. (2022, August 11). The housing shortage will worsen—don't expect builders to save the day. Realtor.com. Retrieved from <https://www.realtor.com/news/trends/builders-slowing-down-construction-amid-housing-shortage/>
29. Taylor, F. (2022, November 22). Median Payment by Conventional/Government Loans. Mortgage Bankers Association. Retrieved from https://www.mba.org/images/default-source/advocacy/papi3.png?sfvrsn=cf975af9_1
30. Weisenthal, J. (2022, September 19). Here's how much a new monthly mortgage payment has surged in 10 US metros. Bloomberg.com. Retrieved from <https://www.bloomberg.com/news/articles/2022-09-19/here-s-how-much-a-new-monthly-mortgage-payment-has-surged-in-10-us-metros?leadSource=uverify+wall>
31. Ibid 30
32. Bahney, A. (2022, August 24). US rents hit a record high for the 17th month in a row | CNN business. CNN. Retrieved from <https://www.cnn.com/2022/08/24/homes/us-rents-record-july/index.html>
33. Winters, M. (2022, September 28). Rent prices will keep going up in 2023-here's what to expect. CNBC. Retrieved from <https://www.cnbc.com/2022/09/28/how-much-higher-rent-will-go-in-2023-according-to-experts.html>
34. Dworkin, D. M. (2022, March 22). What if rising interest rates make inflation worse? National Housing Conference. Retrieved from <https://nhc.org/what-if-rising-interest-rates-make-inflation-worse/>
35. Derby, M. (2022, September 22). Jpmorgan warns fed tightening could worsen inflation for a spell. The Wall Street Journal. Retrieved from <https://www.wsj.com/livecoverage/federal-reserve-meeting-inflation-interest-rate-september-2022/card/jpmorgan-warns-fed-tightening-could-worsen-inflation-for-a-spell-NzqC3X7SKV7001fQouKU>