

Economics in the News

A publication by the Economic Society of Singapore

Inflation and Its Discontents

- Inflation has risen of late, across almost all different measures, due to a combination of tightening labour markets, disruptions in supply chains due to COVID-19, elevated commodity prices, and gradually rising inflation expectations. Read Dr Jamus Lim's analysis on Pg 3 as he outlines the trends and implications of inflation in recent times.

Can Fintech Help SMEs Drive Singapore's Productivity?

- What does the rise of fintech mean for SMEs and Singapore's productivity? Read Dr Tan Swee Liang's opinion on this issue on Pg 9.

Overconfidence in Financial Decision Making

- We are always taught to be confident. But what happens if we are overconfident? Follow Dr Bao Te on Pg 15 as he analyses the impacts of overconfidence in financial decision making.

Bitcoin, NFT and Metaverse

- Will we see a convergence of the physical and virtual economy? How will the future economy be like? Join Dr David Lee on Pg 6 as he brings us on a journey into the future.

Are Half the Studies You Read in the News Really Wrong? How Can We Interpret Findings and Make Better Decisions?

- On Pg 12, using COVID-19 as a case study, Dr Walter Theseira discusses the challenge of identifying cause-and-effect in a social science context, and the importance of thinking about the counterfactual when assessing the quality and reliability of any fact or finding.

Should Singapore Follow the EU's Lead To Regulate Big Tech?

-The EU member states have recently agreed to introduce the Digital Markets Act (DMA) to 'ensure fair and open digital markets' in the EU. Should Singapore follow EU's lead? Mr Poh Lip Hang shares his view with us on Pg 18.

Contents

1 **About ESS**
Editors

2 **Foreword**
Professor Euston QUAH

3 **Inflation and Its Discontents**
Dr Jamus Jerome LIM

6 **Bitcoin, NFT and Metaverse**
Dr David LEE Kuo Chuen

9 **Can Fintech Help SMEs Drive Singapore's Productivity?**
Dr TAN Swee Liang

12 **Are Half the Studies You Read in the News Really Wrong? How Can We Interpret Findings and Make Better Decisions?**
Dr Walter THESEIRA

15 **Overconfidence in Financial Decision Making**
Dr BAO Te

18 **Should Singapore Follow the EU's Lead To Regulate Big Tech?**
Mr POH Lip Hang



About ESS



Economic Society of Singapore (ESS), formerly Malayan Economic Society, was established on 28 July 1956. It is a result of an initiative by graduates and staff from the Department of Economics from the then University of Malaya in Singapore.

On 28 March 1969, the Society changed its name from the Malayan Economic Society to the Economic Society of Singapore, in response to the new independent and sovereign status of the Republic.

Since 1976, the Society has been one of the founding members of the Federation of ASEAN Economic Association (FAEA). The Society published a journal, the Malayan Economic Review (MER), which was later renamed the Singapore Economic Review (SER) in 1969. The SER is now regarded as the leading journal in the Asia Pacific and it is in the Social Sciences Citation Index (SSCI) indexed journal.

Today, ESS has expanded to include members from the academic, government and business sectors. The Society organises conferences and networking sessions to foster discussions of current economic issues relating to Singapore and the region.

About 'Economics in the News'

Economics in the News is a brand new annual event introduced by Economics Society of Singapore and ESSEC Business School in 2022. The host invites guest speakers to share their insights on chosen topics that matter to society, and attendees are given opportunities to discuss among themselves and with the speakers. In this year's series, we are honoured to invite six distinguished guests speakers. They are:

1. **Dr Jamus Jerome LIM**

- Associate Professor of Economics, ESSEC Business School
- Member, 14th Parliament of Singapore
- Council Member, ESS

2. **Dr David LEE Kuo Chuen**

- Chairman, Global Fintech Institute
- Professor, Singapore University of Social Sciences
- Vice President, ESS

3. **Dr TAN Swee Liang**

- Associate Professor of Economics (Practice), Singapore Management University
- Council Member, ESS

4. **Dr Walter THESEIRA**

- Associate Professor of Economics, Singapore University of Social Sciences
- Adjunct Senior Research Fellow, Asia Competitiveness Institute, Lee Kuan Yew School of Public Policy
- Council Member, ESS

5. **Dr BAO Te**

- Associate Professor of Economics, Nanyang Technological University

6. **Mr POH Lip Hang**

- Competition Economist, Baker McKenzie Wong & Leow

Editors

Dr Tan Swee Liang

Mr Eugene Or

Speakers and Contributing Writers

Dr Jamus Jerome Lim

Dr David Lee Kuo Chuen

Dr Tan Swee Liang

Dr Walter Theseira

Dr Bao Te

Mr Poh Lip Hang

Special Thanks to

Professor Euston Quah Ewe Tong

Ms Vivian Tan

Mr Lee Jian Lin Zach

Ms Jasmine Lim Li Hua

Foreword



Professor Euston Quah

The Economic Society of Singapore has been in existence since 1956. It has been one of our major missions that the Society raises a keen awareness for all things economics including understanding and analysing economic policies, economic happenings in the world, and promoting the study of economics. Central to this mission is the objective of fostering good economic discussions and rigorous analyses in national policies, firm and household behaviour. As such, the Economic Society of Singapore has a long and established tradition in contributing to government policies through invited submissions and public discourse.

The Society has published an annual series on contemporary economic issues with a focus on Singapore and the region. The series, called the Economic Bulletin, is distributed to members each year at the annual Society dinner. This is in addition to the Society's academic journal, the Singapore Economic Review, the Social Sciences Citation indexed (SSCI) journal.

Economics is not just about money and banking, investment, finance, exchange rate and the stock market. Economics is much more than that. Recall that the definition of economics is on the allocation of scarce resources among competing wants. Thus, because resources are scarce whether it be budget/money, time, effort or energies, they have to be allocated efficiently so that society's welfare can be maximised. Economics can be applied to diverse areas such as environmental issues, transport, health, education, elements of poverty reduction, social security, and more.

I am delighted that the Society has now embarked on a new workshop series in bringing to the public greater accessibility to economic ideas, and elucidating how economics bears on certain issues and problems confronting society. This economic approach will be very relevant, enriching the public's understanding of societal issues. The series, called Economics in the News, will hopefully excite our workshop participants as well as readers, transforming their intellectual knowledge into one that encompasses an economic mind.

Euston Quah

Albert Winsemius Chair Professor of Economics

President, Economic Society of Singapore



Dr Jamus Jerome Lim

About The Author

Dr Jamus Jerome Lim is an Associate Professor of Economics at ESSEC Business School, and a member of the 14th Parliament of Singapore, representing Sengkang. Previously, he was the chief economist of the ThirdRock Group, an investment management and wealth advisory, a lead economist at the Abu Dhabi Investment Authority and before that, a senior economist with the World Bank. His research expertise and interests lie at the intersection of international macro-finance, political economy, and development economics, and his work has appeared in leading academic journals such as the *Journal of Monetary Economics* and *Journal of Money, Credit, and Banking*, along with policy flagships such as the World Bank's *Global Economic Prospects* and the joint IMF-World Bank *Global Monitoring Report*. A seasoned communicator, his ideas have been featured in print media such as *The Financial Times* and *The Straits Times*, and he also regularly shares his views on radio and television outlets such as CNA.

Synopsis

Inflation has risen of late, across almost all different measures. While much of this inflation has afflicted advanced economies—indeed, perhaps for the first time in the past few decades, median inflation among emerging markets has been exceeded by that in advanced economies—and have been the result of a combination of tightening labour markets, disruptions in supply chains due to COVID-19, elevated commodity (especially energy) prices, and gradually rising inflation expectations. This has led to higher costs of living for the average household, but also disruptions in the ability of businesses to plan ahead, and privileges borrowers over creditors. Central banks worldwide have either raised interest rates or are planning to do so, and others—such as the MAS—have sought to allow exchange rate appreciation to cushion the effects of imported price pressure. Whether these efforts will be successful is anyone's guess, although the risks are that expectations become unanchored from traditional central bank targets of around 2% (in advanced economies), spurring a wage-price spiral that becomes much harder to rein in.

Learning Outcomes

Participants are encouraged to discuss their views on the following questions:

1. What is inflation? How do we measure inflation?
2. How has inflation evolved in recent history?
3. What are the costs and consequences of inflation?
4. What gives rise to inflation?
5. How do we tackle inflation?
6. What is the inflation outlook for Singapore?

News of Concern

Title: Singapore's Core Inflation Hits 3.3% in April, Fuelled by Hikes in Electricity and Gas Tariffs ([Link](#))

Date: 24 May 2022

By: Claire Huang, The Straits Times

In April 2022, Singapore's core inflation rose to the highest level since February 2012. The record-high inflation is driven by higher inflation for electricity, gas, food and other goods. Various analysts are anticipating Monetary Authority of Singapore to tighten the country's monetary policy in October 2022.

Title: Singapore's April Core Inflation Rises to 3.3%, Fastest in More Than 10 Years ([Link](#))

Date: 23 May 2022

By: Gabrielle Andres, Channel News Asia

Singapore's core inflation in April has risen to a new 10-year high of 3.3%, driven by rising prices in food, retail and energy. Economists expect prices to keep rising as borders reopen and tourism demand picks up.

Economic Concepts

Inflation is defined as the change in prices over time. Importantly, it is not the price level, but the rate of change. Consequently, for inflation dynamics to persist, prices must continue to rise; either from one month to the next (what is known as month-on-month, or MoM, which is further annualised to reflect what this would be if the same rate were to hold for the entire year), or for the present year relative to what it was at the same time last the year before.

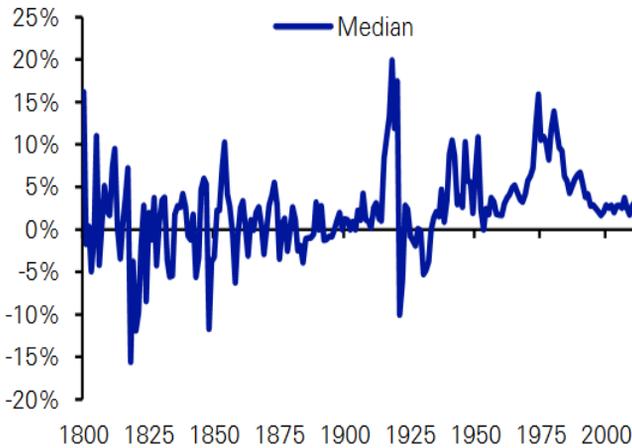
Economists (and central bankers) typically rely on a measure of inflation that excludes the most volatile components, which are often viewed as both temporary as well as out of the direct control of the monetary authority. This is known as core inflation, and in most countries, the metric excludes the prices of food and fuel. Singapore's definition of core inflation is a little different; it excludes private transport and accommodation costs.

The most general measure of prices is captured by the GDP deflator, which—as the name suggests—may be used to remove the effects of price changes on all items produced in the economy. However, most economists focus on a basket of goods and services typically purchased by consumers (the consumer price index, or CPI) or producers (the producer price index, or PPI). The components of the basket, in turn, are chosen to reflect the items most representative of the sort of price changes a consumer or producer would confront.

Economic Analysis

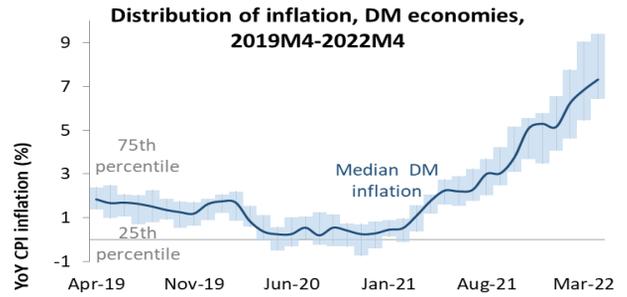
Over the long span of history, inflation has been extremely volatile (Figure 1); this has been the case since the 19th century through the early 1980s. In the four decades thereafter, however, inflation slowed significantly, during a period known as the “Great Moderation”.

Figure 1. Trend of Inflation



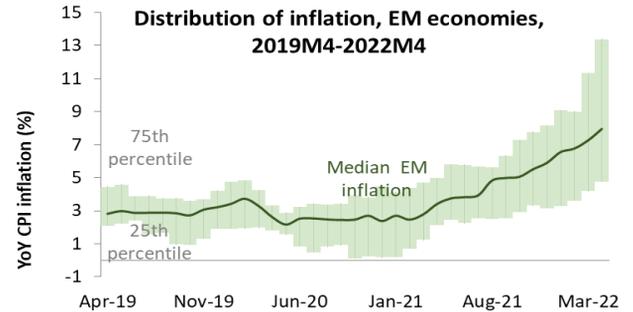
More recently, however, inflation rose substantially in both advanced (Figure 2) and emerging economies (Figure 3), and median inflation in the two groups is approximately 7.3% and 8%, respectively. This has led to concerns on many fronts about how policymakers will deal with this new phenomenon, given how removed it has been from concerns in the recent past.

Figure 2. Inflation in Advanced Economies



Source: Author's calculations, from Thomson Reuters Eikon.
Notes: Bars correspond to 25th and 75th percentile of YoY CPI inflation among DMs.

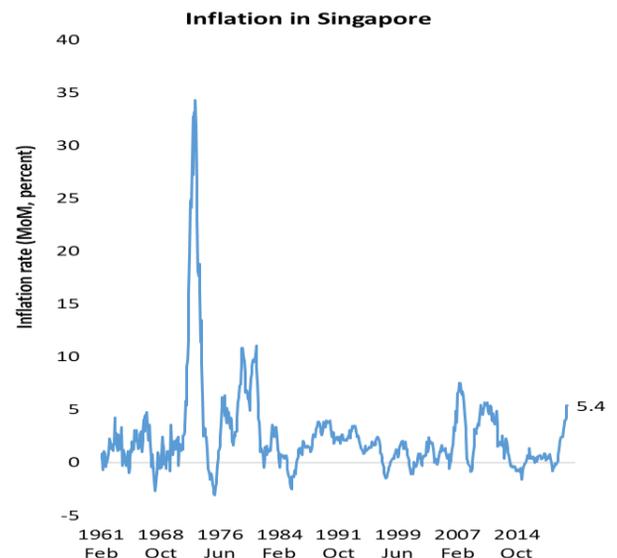
Figure 3. Inflation in Emerging Economies



Source: Author's calculations, from Thomson Reuters Eikon.
Notes: Bars correspond to 25th and 75th percentile of YoY CPI inflation among EMs.

Similar to the rest of the world, Singapore has not been exempt from inflationary pressures. Measured on a month-on-month basis (Figure 4), inflation jumped to 5.4% in April, and there is concern that this will be sustained into the rest of 2022, and possibly remain in 2023, as well.

Figure 4. Inflation in Singapore



Source: Author's compilation, from SingStat.

Why the concern? Inflation has nontrivial macroeconomic implications: For firms, production, profitability, and investment are disrupted by the uncertainty of fluctuating prices, while for households, inflation can alter expectations of prices for the future, which—if it in turn leads them to bargain for consistently higher wages—can allow inflation to become entrenched.

Inflation also has distributional implications: when there is high, unexpected inflation, creditors (lenders) will lose out relative to debtors (borrowers), since debt is typically incurred with fixed interest rates. Similarly, the poor may be affected comparatively more than the rich, since high-inflation items such as food and fuel comprise a disproportionately larger share of their incomes

Conclusion and Food for Thought

The drivers of inflation are not fully understood by economists. Nevertheless, most economists believe that inflation is affected by a mix of commodity prices (since these are inputs to production), wages and unemployment (when labour markets are tight, there is greater wage pressure, which passes through to prices charged by firms), and expectations (which may become self-fulfilling). More recently, economists have also begun to explore how inflation may be affected by more esoteric, indirect factors, such as market competition (lower competition allows firms to exercise market power and pass through cost increases into prices), globalisation (greater economic integration means lower-priced imports), and exchange rates (all else equal, a stronger exchange rate reduces the amount of imported inflation).

Policymakers have a number of tools to address inflation. Principally, central bankers rely on short-term interest rates, which they raise to combat inflation. More recently, central banks have also targeted the longer-run interest rate, through large-scale asset purchases and sales. Quantitative tightening—through the central bank's sales of longer-dated government bonds—represents a separate channel by which inflation may be contained. Open economies may also target the exchange rate (but the extent to which they are able to do so depends on, among other things, whether they also impose capital controls and whether they utilise interest rates to stimulate the economy).



Dr David Lee

About The Author

Dr David Lee Kuo Chuen is a Professor at the Singapore University of Social Sciences, Shanghai University of Finance and Economics, and an Adjunct Professor at the National University of Singapore. His other appointments are the key advisor to Artichoke Capital Web3 Fund, Chairman of Global Fintech Institute, Vice President of the Economic Society of Singapore, Co-founder of Blockchain Association of Singapore, and Council Member of British Blockchain Association. He has 30 years of experience as a fund manager, CEO and Independent Director of listed and tech companies. He has been acting as a consultant and advisor to international organisations on the food supply chain, cryptocurrency, Central Bank Digital Currency, blockchain, FinTech and digital assets.

Synopsis

In the digital age, the monetary system is dependent on new forms of money and its transmission mechanism. Digital currency and electronic system that a country designs and adopts will redefine monetary economics. This new system will give rise to a convergence of the virtual and physical economy known as the metaverse, with the digital economy growing at a much faster speed than the physical economy. In return, new monetary tools will be invented and made available by digitalisation of fiat currency.

Learning Outcomes

At the end of this session, participants will be able to explain:

1. The possible changes to the global fiat system
2. The reasons for the rise of cryptocurrency and Central Bank Digital Currency (CBDC)
3. The digital economy and how the monetary system responds

News of Concern

Title: *Bretton Woods 3 - New World Monetary Order* ([Link](#))

Date: 16 April 2022

By: Ramin Nakisa, Pensioncraft

Many people are interpreting the recent market moves in the light of Bretton Wood III. This is based on an idea about a new world monetary order created by a strategist at Credit Suisse called Zoltan Pozsar. This paper examines Zoltan's ideas and discusses four potential consequences of his theory that could have a huge impact on markets and portfolio.

Title: *Russia Considers Accepting Bitcoin for Oil and Gas* ([Link](#))

Date: 25 March 2022

By: Annabelle Liang, BBC

Amid stiffened sanctions from Western countries, Russia is considering accepting bitcoin as payment for its oil and gas exports. The flexible payment option is available to "friendly" countries like China and Turkey, which were 'not involved in the sanctions pressure'.

Title: *A Global First: Bitcoin as National Currency* ([Link](#))

Date: 15 June 2021

By: Max Raskin, Wall Street Journal

Adopting Bitcoin as legal tender, El Salvador is the first country to allow the usage of cryptocurrency for all transactions, such as paying taxes. The development of cryptocurrencies like Bitcoin has redefined "money" and is 'transforming financial services'.

Title: *How to Explain the 'Metaverse' to Your Grandparents* ([Link](#))

Date: 09 January 2022

By: Aaron Frank, Medium

The Metaverse is 'the internet, but also a spatial (and often 3D), game engine driven collection of virtual environments...Metaverse is the internet. But spatial. And built with game engines. And probably NFTs. And who knows where that takes us...'

Economic Concepts

What Are Bitcoins, NFTs and Metaverse?

Bitcoin is a well-known cryptocurrency, which is a virtual currency introduced in 2009 to function as money and a form of payment for goods and services that is fully peer-to-peer, with no third-party involvement in financial transactions. NFTs, or non-fungible tokens, are unique digital assets addressing certifiable things, such as, digital art (music, videos, GIFs), or real world items (legal documents, concert tickets, and trading cards). They are simply a record in the blockchain that someone owns something - be it virtual or physical. The ownership of a NFT can be transferred by the owner, allowing NFTs to be sold and traded. There are a variety of marketplaces and platforms where NFTs can be created, listed, sold, and exchanged (e.g. OpenSea, Mintable). What gives the NFT value is the base of interested buyers, and rarity (i.e., the euphoric feeling of having exclusive ownership) likened to trading cards which appreciate in value through resale.

According to Polet (2022), 'metaverse is a simulated digital environment that uses augmented reality (AR), virtual reality (VR), and blockchain'. Considered as the digital version of the world we live in, recent applications of the metaverse can be seen in restaurants, retailers and financial institutions. For example, McDonald's and Nike have prepared a metaverse space for customers 'to shop, play games, meet friends, attend concerts, work and generally build a virtual life'. The metaverse-version of McDonald's will deliver food online and in person, and that of Nike will make and sell virtual branded sneakers and apparel. JPMorgan Chase for example has set up a virtual lounge in Decentraland, while American Express and Mastercard are studying digital currencies and virtual platforms. With metaverse, a new economy opens up where wealth is created, traded, and enhanced using cryptocurrencies to facilitate micropayments and secondary sales, from inside and outside metaverses.

Economic Analysis

Will the Virtual World Grow Much Faster Than the Physical Economy?

"Imagine hosting your meeting with colleagues hundreds of miles apart in the middle of the Colosseum ideating on a virtual whiteboard. Or instead of scrolling a website, walking through the aisles of a store, finding your best fit and having it delivered to your doorstep...or testing an innovative aircraft wing design without building expensive prototypes. These are just a few examples of how the metaverse may augment our capabilities, amplify our connections and enrich our interactions".

- (Bianzino, 2022)

According to the EY (Feb 2022) report, the 'convergence of physical and digital in the metaverse presents exciting opportunities

but also critical challenges' (Bianzino, 2022).

Will the virtual world be an improved version of the real one? Will crypto-based economies create jobs that pay well enough to supplement, or even replace traditional sources of employment? Facebook, renamed Meta now, expects demand for 10,000 highly-skilled jobs mainly comprising content creators and Augmented Reality / Virtual Reality (AR/VR) startups, in the EU alone. Users can expect to earn money in the metaverse as well (xrtoday, 2022). Second Life (an online multimedia platform where users create avatars for themselves to have a second life in an online virtual world) is estimated to support an annual economy roughly US\$500M in size. Fortnite, a free-to-play game, earned US\$9B in 2018 and 2019 by selling in-game contents for players to express themselves (e.g., virtual clothing, dance moves). Metaverse will challenge our understanding of how the economy will evolve and how NFTs are valued.

Why Is Bitcoin Attractive to Smaller Economies Even Though It Is Thought to Be Infeasible as a Country Reserve?

El Salvador was the first country to recognise Bitcoin as legal tender in June 2021, followed by the Central African Republic in April 2022. These countries use currencies tied to Western economies and they have minimum say in economic policy. Furthermore, since Bitcoin cannot be manipulated or controlled by a governing authority, smaller economies can make their own policies without needing consent from other world powers. Whether this move by these smaller economies is sustainable or workable is left to be seen.

Why Is There a Talk About Bretton Woods III?

In the Bretton Woods system, exchange rates are fixed against the U.S. dollar which in turn is pegged to gold. A shift to the Bretton Woods II system occurred after the U.S. abandoned the gold standard and floated its currency in 1971. The dollar replaced gold as the global reserve-currency role, as demand for it rose with expanding cross-border trade and capital flows, and enabled it to finance large domestic (both private and government) and external deficits.

Credit Suisse investment bank in a 2022 report argued that the foundations of Bretton Woods II crumbled when the G7 seized Russia's foreign exchange reserves in retaliation to Russia's invasion of Ukraine, preventing its central bank from using its own reserves. Trade sanctions and reserves seizures forced Russia to rely on alternative sources of trade and foreign currency. It is argued that as the world reorganises money and reserves (for fear that countries that do not support a U.S.-driven agenda can face similar G7-wrath), a Bretton Woods III scenario can emerge. Should the People's Bank of China purchase Russian commodities (doing its own version of quantitative easing, by printing renminbi, or selling U.S. Treasuries), the U.S. dollar is likely to weaken, and the renminbi will strengthen as backed by a basket of commodities.

Putting All These Together: Will Digital and Cryptos Be the Future of Money?

At the centre of the metaverse ecosystem is blockchain technology, which is a digitally distributed, decentralised, tamper-proof public ledger that records the ownership and sale of cryptographic assets.

Along with the rise of cryptos, NFTs and talk of BW IIII, even Central Bank-Backed Digital Currencies (CBDCs) have gained a considerable amount of traction in recent years. While CBDCs are backed by central bank issued fiat currencies, NFTs do not feature a centralised mechanism for their settlement and/or clearing, apart from their use of a blockchain ledger which serves as its core trust model.

The BIS reported that over 80% of surveyed central banks are researching, experimenting or developing CBDCs. Some central banks are working on Multiple CBDC (mCBDC) to facilitate cross-border remittances and trading of digital assets. Central banks recognised that these novel digital offerings can make daily payments and monetary transactions smoother, and international transfers significantly cheaper. In the U.S., the Federal Reserve recognised the benefits CBDC offer such as (i) safety, liquidity, and access; (ii) innovative financial products and services on new platforms; and (iii) faster and cheaper payments, even across borders. Yet, it also recognised the risks and policy implications of CBDC, such as (i) its impact on financial-sector market structure; (ii) the cost and availability of credit; (iii) financial system safety and stability; and (iv) monetary policy efficacy (Kranin & Shuman, 2022). Issuers of 'so-called "stablecoins"', which are digital currencies with values pegged to traditional currencies and often utilised to bypass banks in recent times, would face bank-like regulation and oversight under a draft bill from senior U.S. House lawmakers, according to a report by Reuters (Schroeder, 2022).

Conclusion and Food for Thought

In the digital age, the monetary system is dependent on new forms of money and its transmission mechanism. Digital currency and electronic systems that a country designs and adopts will redefine monetary economics, most likely with the help of computer codes that execute autonomously. This new system will give rise to a convergence of the virtual and physical economy known as the metaverse, with a strong likelihood that the digital economy will grow at a much faster speed than the physical economy on its own. Like all nascent technology that improves the efficiency and productivity of the real economy, the final form of the converged economy may not be the metaverse that we know today. It may slowly evolve and grow through evolution. That digital transformation itself may be a strong force for economic growth that governments are looking for and may well take advantage of.

However, as in all industrial revolutions, there are always new risks and complexities, especially in regard to the functions of money as a medium of exchange, a store of value, and a unit of measurement. In return, new monetary tools will be invented and made available by the digitalisation of fiat currency. For economists and as students of economics, this is also an opportunity for us to look into the future with the lens of economics, and an exciting time to go back to the basics to fine tune our hypotheses and theories.

References

- Bianzino, N. M. (2022, February 14). *Metaverse: 5 Questions Shaping the Next Frontier of Human Experience*. Retrieved from EY: https://www.ey.com/en_no/digital/metaverse-5-questions-shaping-the-next-frontier-of-human-experience
- Kranin, R., Shuman, J. (2022, May 5). *Financial Regulation, Monetary Policy and the Metaverse*. Retrieved from JDSupra: <https://www.jdsupra.com/legalnews/financial-regulation-monetary-policy-9059086/>
- Polet, A. (2022, April 29). *How Will Web3 Impact Fashion?*. Retrieved from Forbes: <https://www.forbes.com/sites/forbestechcouncil/2022/04/29/how-will-web3-impact-fashion/?sh=358cb9b44d1c>
- Schroeder, P. (2022, July 21). *Stablecoins to face bank-like U.S. regulation under draft House bill - source*. Retrieved from Reuters: <https://www.reuters.com/markets/us/stablecoins-face-bank-like-us-regulation-under-draft-house-bill-source-2022-07-20/>
- xrtoday. (2022, January 22). *Metaverse Meaning – What is this New World Everyone’s Talking About?*. Retrieved from Forbes: <https://www.xrtoday.com/mixed-reality/Metaverse-meaning/>



Dr Tan Swee Liang

About The Author

Dr Tan Swee Liang is an Associate Professor (Practice) at the School of Economics, Singapore Management University. Her research interest is on financial sector-economic growth nexus, and the role of technology in driving financial services inclusivity, including SMEs. Her chapter on *Financing Singapore's SMEs and the crowdfunding industry* was published in the 2021 book on 'The Singapore Economy'. She was Director at the Centre for Teaching Excellence, SMU between 2006 to 2017. She has 10 years experience working as an economist in central bank and commercial banks. She graduated with a Ph.D. degree in Economics from Monash University, Australia.

Synopsis

The Committee for the Future Economy (CFE) convened in January 2016 aimed for the Singaporean economy to expand by 2-3% per year over the next decade, exceeding the performance of most advanced economies. To achieve this target, one of the strategies is to support enterprises to scale up, and in particular boost small and medium-sized enterprises (SMEs) productivity through digital technologies adoption. The committee's strategy is about nurturing home-grown promising enterprises, and balancing it with strategies to anchor global companies in Singapore. The Committee recognised that SMEs have purpose in society, for they form 99% of total enterprises, contribute 43% of value-added, and 70% of the workforce. However, SMEs value-add contributions have declined in the last decade, leading to questions about the efficacy of SME policies and funding. In this session, I focus on the role of the financial sector, and in particular the impact of fintech lending, in supporting SMEs development.

Learning Outcomes

At the end of this session, participants will be able to:

1. Explain fintech lending and how it addresses the asymmetric information problem of adverse selection and moral hazard using AI, big-data, machine learning, and digitalisation (e.g., screening and monitoring of borrowers).
2. Explain the importance of government policies to promote alternative sources of SME financing (e.g., fintech credit and digital banks).
3. Distinguish fintech versus bank lending relationship (to complement or compete with one another, or to co-evolve together).

News of Concern

Title: *The Role of SMEs in the Economy* ([Link](#))

Date: 15 Sep 2020

By: *International Monetary Fund*

Despite its significant role in the economy (largest employer in any economy, and is contribution to GDP), many SMEs have difficulty accessing credit because of their inherent characteristics, e.g. opacity and lack of verifiable information on their operations. Banks have traditionally used relationship lending to extend finance to SMEs, although other innovative lending technologies have also shown a lot of promise in recent years.

Title: *How to Better Integrate SMEs in Global Trade* ([Link](#))

Date: 30 May 2016

By: *World Trade Organization*

WTO's Keith Rockwell discussed what can be done to support micro, small and medium-sized enterprises MSMEs in fully integrating into global trade.

Title: *How Alternative Lenders Are Helping to Plug the SME Funding Gap* ([Link](#))

Date: 30 Sep 2021

By: *Millet Enriquez, Channel News Asia*

Amid COVID-19, many SMEs suffered from cash-flow problems because of uncertain business environment'. The presence of fintech lending was a 'lifeline' for many businesses.

Economic Concepts

Transaction Costs and Information Asymmetry

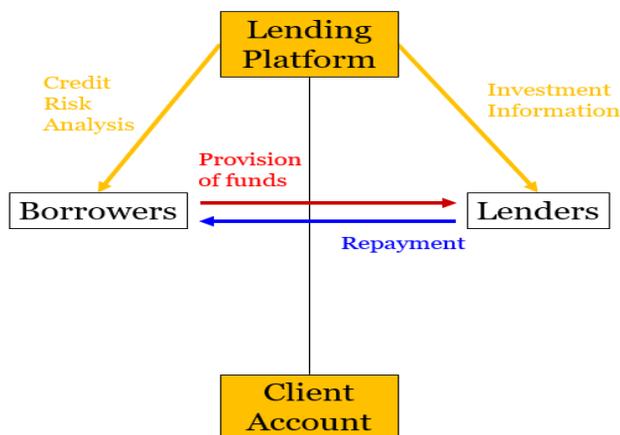
A well-developed financial sector is important to mitigate transaction costs and information asymmetry. Transaction cost is the cost in making any economic trade when participating in a market. In banking services, banks can reduce financial transaction costs through specialisation and standardisation, which in turn increases the amount of lending that occurs in an economy. Information asymmetry in the bank loan market is about the borrower having more information about the transaction than the lender. Lenders do not know how likely it is that a given loan will be repaid, but the borrower does know. Two problems can arise from asymmetric information in banking - adverse selection (about hidden attributes of borrowers, unknown before a loan is transacted) and moral hazard (about hidden actions of borrowers, unknown after a loan is transacted). Banks can mitigate these problems by implementing screening and monitoring processes of potential clients and borrowers, respectively.

What Is Fintech?

Bank lending aside, an alternative form of financing has emerged in the last decade (i.e., fintech lending). Fintech (shortened from financial technology) is about combining the latest technological developments such as artificial intelligence (AI), distributed computing, cryptography, mobile access internet with financial services and applications in areas of payment, savings, borrowing, managing risks, and seeking financial advice. An example of fintech is the use of the mobile phone for payments, lending and borrowing, which enables "unbanked" consumers to access financial services for the first time, promoting financial inclusion.

Different types of fintech credit models have emerged. One example is the peer-to-peer P2P lending platform (or, crowdfunding) which provides an online market for lenders (creditors) to trade directly with borrowers (Figure 1). What makes crowdfunding attractive for the SMEs compared to bank loans is that the loans are usually not collateralised, of a smaller quantum and of a shorter loan duration, with faster approval time. Of interest in the last two years during the pandemic is the platform's capability to mitigate asymmetric information problems of adverse selection and moral hazard using AI, big-data, machine learning, and digitalisation to screen and monitor borrowers when there is economic downturn.

Figure 1. Stylised Traditional P2P Lending Model



One crowdfunding characteristic is the use of big data and machine learning (digitalisation) that enables individuals and businesses to borrow and lend money to each other (commonly known as peer-to-peer P2P lending or crowdfunding) This has been shown to be effective in addressing funding gaps for loans of smaller quantum and shorter tenure, without sacrificing credit risk despite shorter loan approval time, when compared to traditional bank lending.

Economic Analysis

In Singapore pre-pandemic, there were 19 crowdfunding platforms as of 2018. Loans amounting to US\$191 million was raised via crowdfunding, amounting to 0.29% of banks' lending to SMEs. In other countries, crowdfunding shares to bank credit are also small. For example, in the U.K., crowdfunding was estimated to be 1.4% of the outstanding stock of bank lending to consumers and small businesses at end-2016. Globally, the total crowdfunding market is mainly dominated by consumer lending (U.S. and U.K.) but in Asia and Singapore, corporate lending tends to dominate. Fintech lending is a relatively new development and the Monetary Authority of Singapore (MAS) seeks to balance improving access to capital for businesses and mitigating the financial stability risks arising from fintech activities. MAS also adopts a proportionate approach to regulating crowdfunding, by applying risk-appropriate regulations to the specific activities that are conducted, be it lending to corporations or individuals.

Singapore's SME share of loans pre-crisis is lower by international comparison, (13.4% in 2018, below those in emerging economies 20%, and advanced economies 30%). Historically, SME Development Survey 2018 by Experian (2017) showed higher percentages of SMEs with finance-related issues (35%) in 2018, compared to 22% in 2016 and 14% in 2015 (Figure 2). In addition, the direct financing channel for SMEs has declined since 2016, in terms of trading value, volume, market capitalisation (Figure 3).

Figure 2. Percentage of Singapore SMEs with Finance-Related Issues

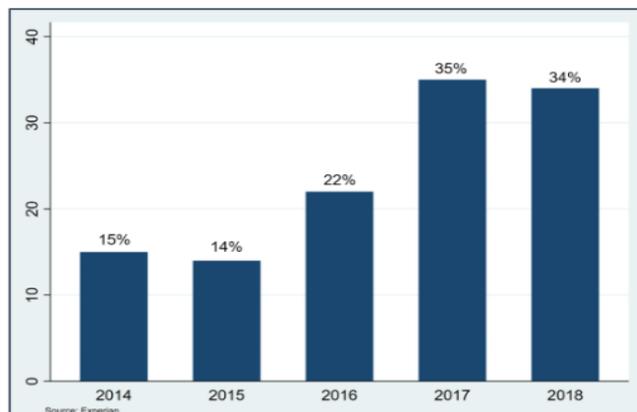
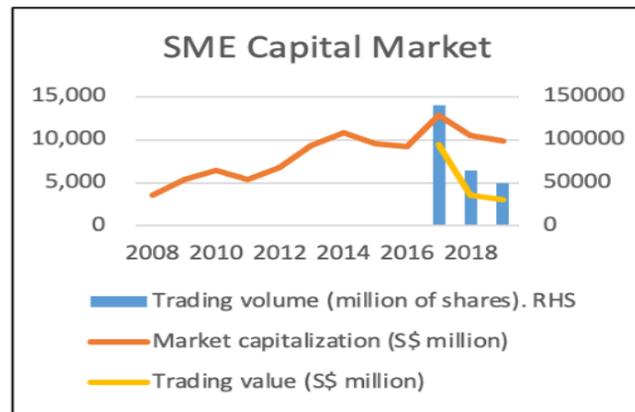


Figure 3. SME Capital Market



Faced with funding challenges, government support for SME is especially important during an economic downturn. In Singapore, MAS SGD Facility for Enterprise Singapore (ESG) Loans provides low-cost funding for banks and finance companies, which in turn will help to lower the interest rates charged to eligible corporate borrowers. As a result, bank lending to SMEs remained supportive, with lending having increased at a year-on-year growth rate of 2% in Q2-2021, similar to the overall growth of credit to businesses.

Despite this short-term care, a long term strategy is crucial to meet financing needs of promising, as well as established SMEs seeking new growth. The MAS have awarded digital bank licenses to four applicants to meet the needs of under-served segments in Singapore and the region, such as SMEs, startups, gig workers and millennials. Digital banks are non-bank players with strong value propositions and innovative digital business models, capable of deploying technology and data analytics to tackle financing needs that might be missed by the traditional lenders. It remains to be seen if participation of digital banks will likely fuel competition for existing enterprise segments served by traditional banking.

Conclusion and Food for Thought

Emergence of new digital technologies have enabled non-bank entities to provide financial services to parts of society that are un(der)-served. These entities (fintech) hold the potential to address barriers that SMEs face in accessing credit. Whether fintech lending plays a complementary or competitive role, or co-evolve with banks (in terms of size, frequency, efficiency) can determine the SMEs funding effectiveness. I argue that this role identification is especially important for a maturing economy such as Singapore. Complementary role only serves to address financing gaps that might be missed by the traditional lenders. Competition may lead to unnecessary risk-taking behaviours of banks and fintech lenders, leading to financial instability. Co-evolving relationships with positive feedback loops can lead to size, frequency and efficiency gains between bank and fintech lending. Policies to facilitate efficient funding of scarce capital by promoting traditional and innovative channels to co-evolve together will become critical.

References

Experian. (2017, November). *SME Development Survey 2017: Manpower concerns drop as SMEs focus on growth*. Retrieved from www.experian.com.sg: <https://www.experian.com.sg/sme-developmentsurvey-2017-manpower-concerns-drop-as-smes-focus-on-growth>

Are Half the Studies You Read in the News Really Wrong? How Can We Interpret Findings and Make Better Decisions?



Dr Walter Theseira

About The Author

Dr Walter Theseira is an Associate Professor of Economics at Singapore University of Social Sciences and an Adjunct Senior Research Fellow in the Asia Competitiveness Institute at Lee Kuan Yew School of Public Policy. He also provides his expertise in Singapore's Ministries, holding roles such as a Research Consultant at Ministry of National Development and a member of the Research Advisor Panel at Ministry of Social and Family Development. His research has been published in journals such as the Proceedings of the National Academy of Sciences, Journal of Behavioral and Experimental Economics and the Journal of Economic Behavior and Organisation.

Synopsis

During the COVID-19 crisis, Singaporeans relied on the Government, mainstream media, and social media for information to help make decisions about vaccination and health risks. However, even credible sources often provided incomplete or soon-overturned information on COVID-19 (e.g., public health benefits of wearing masks). These inadvertently increased confusion and facilitated misinformation. Ironically, while research findings are more accessible than ever through the media and internet, it also seems harder than ever to make reasonable, evidence-driven decisions in both our personal life and in policymaking. This presentation discusses the challenge of identifying cause-and-effect in a social science context, and the importance of thinking about the counterfactual when assessing the quality and reliability of any fact or finding. I also discuss heuristics, or cognitive shortcuts, that affect how we process information and form beliefs, and which make it more challenging to make optimal decisions.

Learning Outcomes

At the end of this session, participants will be able to:

1. Appreciate some of the challenges inherent to relying on scientific findings in decision making.
2. Understand how policymakers should think about and communicate scientific findings when formulating policies.
3. Understand how heuristics and biases affect individual decision making under uncertainty.

News of Concern

Title: COVID Vaccines Still Effective Against Delta Variant
[\(Link\)](#)

Date: 19 August 2021

By: Laura Foster, BBC

According to Oxford University and the Office for National Statistics, the 'best way' to protect against the Delta variant is to have two doses of COVID-19 vaccines. Against symptomatic infections, the Pfizer-BioNTech vaccine had 93% effectiveness two weeks after the second dose, but its effectiveness is expected to fall over time. Meanwhile, Oxford-AstraZeneca had 71% effectiveness two weeks after the second dose, but its effectiveness remains largely similar over time.

Title: British Study Shows COVID-19 Vaccine Efficacy Wanes Under Delta
[\(Link\)](#)

Date: 20 August 2021

By: Channel News Asia

An Oxford University study claims that following 90 days after the shot, the efficacy of the Pfizer or Astrazeneca vaccine against the COVID-19 Delta variant falls to '75 percent' and '61 percent' from '85 percent' and '68 percent' respectively. The fall was 'more pronounced' for individuals aged 35 and above.

Title: In South Africa Omicron Wave, Pfizer Vaccine Less Effective Against Hospitalisation: Study
[\(Link\)](#)

Date: 17 December 2021

By: The Straits Times

For the Omicron variant in South Africa, Discovery Health's clinical research and actuarial teams stated that two doses of Pfizer-BioNTech's COVID-19 vaccine give '70 percent' protection against hospitalisation and '33 percent' protection against infection. The numbers were lower than the vaccines' effectiveness against the Delta variant, which were '93 percent' against hospitalisation and '80 percent' against infection respectively.

Title: New Studies Raise Hopes That Vaccines Prevent Severe Disease From Omicron
[\(Link\)](#)

Date: 30 September 2018

By: Carl Zimmer & Sheryl Stolberg, Forbes

At a World Health Organization meeting on 15 December 2021, researchers claimed that T-cells in vaccines, especially booster shots, can 'improve protection against infection, severe disease, hospitalisation and death' against COVID-19 Omicron variant. The claim was made amid reports that vaccine-induced antibodies 'performed much worse' against Omicron than against other variants.

Economic Concepts

The Policy Evidence Interpretation Problem

Decision-makers often wish to base their policies on scientific evidence. The purpose of a policy is typically to cause or intervene in some behavioural or market process, to result in a desired policy outcome. For example, a policy of mask mandates is intended to produce the policy outcome of reduced Covid-19 transmission. To make good policies, we need a theory of behaviour that links the cause and effect, and policy evidence on whether our theory of behaviour is correct. The problem is that scientific evidence, by itself, rarely tells us whether our policy will produce the intended effect. In the example of mask mandates, even if scientific evidence shows that masks are effective at reducing Covid-19 transmission risk in some settings, such as the laboratory or in other countries, it may tell us little about whether a mask mandate policy in Singapore will be effective.

Scientific Method of Testing and the Problem of Application to Economic Relevant Behaviours

Scientific evidence tests a cause-and-effect relationship. The best evidence comes from carefully controlled experiments where one factor is varied one at a time to study whether that factor causes some effect on an outcome. Crucially, experiments give us a counterfactual, or a benchmark for what happens without any policy intervention. By keeping all other variables constant, such experiments ensure that we can test for a cause-and-effect accurately.

There are difficulties with applying the scientific method to studying economic behaviours. First, economic agents (i.e., individuals, firms, governments) engage in many different behaviours at the same time. Consequently, it is hard to isolate a single cause-and-effect. Second, when policies change, economic agents also change their behaviours. For example, mask mandates may make some people more confident about going out during the Covid-19 pandemic, increasing their risks, while it may make others more cautious, reducing their risks. These behavioural changes are in addition to any public health effects directly resulting from the wearing of masks.

Since existing scientific evidence rarely applies perfectly to the policy context, policymakers could consider conducting controlled experiments to understand the impact of their policy. However, in many cases this is impractical, and policymakers have to make educated guesses about the counterfactual, and hence, the policy effect.

Decision Heuristics and Biases: Saliency and Frames of Reference

Many decisions individuals make take place under uncertainty and ambiguity. To cope with uncertainty, individuals rely on decision shortcuts known as heuristics which can systematically bias our decision-making. An example of a heuristic is that people pay more attention to information that is highly salient (e.g., more alarming, emotive) and they underweight routine information and statistics.

Additionally, individuals tend to view risky decisions relative to the context, or framing, surrounding the decision. If a decision is presented as an opportunity to gain something, individuals often prefer

to seek safety - to gain something small, for sure, rather than risk gambling on a big gain which may also result in nothing at all. On the other hand, if decisions are presented as an opportunity to avoid a loss, individuals often prefer to take risks - to gamble on avoiding the loss completely, rather than taking a decision that would surely result in a small loss. This phenomenon is known as the effect of loss and gain frames of reference.

Economic Analysis

We rely on news and information to inform our decision making. Ideally, we would like to have a scientific evidence basis for making many personal and public policy decisions. Unfortunately, even credible news sources often present us with conflicting information, as seen in the short selection of news articles taken from mainstream news sources during the Covid-19 pandemic. These contradictions raise the question of how policymakers should think about scientific findings when formulating policy.

Mask Mandates: What Evidence Existed, and What Did Policymakers Want?

Early in the Covid-19 pandemic, the Singapore Government promoted a policy of only wearing masks when medically necessary, and not in general settings. Mask-wearing was discouraged unless the individual was already sick. The policy was based on the theory that Covid-19 was largely spread through droplets, rather than by air, and was also designed to preserve mask supplies for medical professionals. The no-mask-mandate policy was supported by the World Health Organization, who stated that there was 'not enough evidence to say that healthy people should wear masks', although these claims were controversial both with the public and some medical professionals.

Yet, on 6 June 2020, WHO reversed its view, advising governments to 'encourage the general public to wear masks where there is widespread transmission and physical distancing is difficult' (Shukman, 2020). The Singapore Government had likewise by then also reversed its view, mandating masks in Singapore in all public settings.

Singapore's policy reversal on the mask mandate is an example of how policymakers deal with the gap between the scientific evidence that does exist, and the policy evidence they would like to have. At the outbreak of the COVID-19 pandemic, there was little high-quality research on the effectiveness of non-surgical masks in preventing transmission of viruses, and none at all on the Covid-19 virus in particular. Most existing evidence was based on surgical masks, which

Are Half the Studies You Read in the News Really Wrong? How Can We Interpret Findings and Make Better Decisions?

are worn by trained professionals and used in high-risk, rather than public, settings. Thus, no evidence existed that would prove or disprove whether the general population would benefit significantly from wearing masks in public settings. There was also considerable scientific debate on whether Covid-19 was largely transmitted via the air, or via contaminated surfaces.

Given the lack of clear evidence, and limited supplies of medical masks and protective equipment, it seems clear in hindsight why policymakers in Singapore made the decision to not implement a mask mandate early in the pandemic, and indeed, even discouraged mask-wearing by healthy members of the public. While policymakers should not be faulted for making incorrect decisions based on the best evidence available at the time, it is possible that policymakers could have done more to appreciate, or communicate to the public, the extent of scientific uncertainty underlying their policy decisions.

This may have contributed to subsequent difficulties, later in the pandemic, of convincing the public on the merits of the national vaccination strategy using messenger RNA Covid-19 vaccines. Although the scientific evidence establishing mRNA vaccines' safety and efficacy was considerably better developed than that on the effectiveness of masks (at the initial stage of the Covid-19 pandemic), a significant portion of the public held doubts about mRNA vaccination. From a certain public point of view, policymakers had already appeared to make use of faulty scientific evidence earlier in the pandemic to discourage the wearing of face masks, and so were hesitant to trust policy recommendations on mRNA vaccination lest these were also based on poor scientific evidence. In reality, ideal scientific evidence rarely exists on any major policy, or may only support part of the policy. Policymakers have a responsibility to not only base their decisions on the best available evidence, but also explain to the public the inherent uncertainty underlying the evidence, and acknowledge, if subsequently necessary, the reasons why their policy may have been incorrect.

Vaccination: Individual Decision Heuristics and Biases

As discussed earlier, when making decisions under uncertainty, individuals often rely on heuristics, or shortcuts, when thinking about complex problems. For example, when thinking about vaccinations, people may overweight alarming information about rare but serious vaccine injuries, and underweight the fact that hundreds of thousands of people get vaccinated without any harm. Vaccine injury risks thus dominate our decision-making, out of proportion with the actual statistical risk.

In addition, decision making is often subject to systematic bias, and as discussed earlier, whether the frame of reference around the decision is seen as a loss or a gain matters. In Singapore, when Covid-19 vaccines were first offered, most Singaporeans had little direct exposure to Covid-19, due to the success of Singapore's containment strategy. Thus, individuals were being asked to take a small risk of voluntary vaccination to get a gain (i.e., lower chances of contracting COVID-19), contributing to vaccine hesitancy. In contrast, individuals in countries with high Covid-19 exposure were in a loss frame of reference, where they knew it was highly likely they would be exposed to Covid-19, and could have been more willing to take the small risk of voluntary vaccination to avoid near-certain exposure to Covid-19.

Conclusion and Food for Thought

The nature of scientific discovery and the news process means that we often receive contradictory information. Are half the studies we read about in the news wrong? Modelling and predicting human behaviour is challenging, and there is rarely high-quality evidence for many public policy decisions. Public policies have to be formulated even when there is no clear scientific consensus, but policymakers should be careful not to rely excessively on claims of scientific evidence to promote their policies when the ideal evidence rarely exists. In personal life, individuals should be aware of how heuristics and biases affect their decision making, and attempt to make rational decisions with these biases in mind.

References

Shukman, D. (2020, June 23). *Coronavirus: Could Social Distancing of Less Than Two Metres Work?*. Retrieved from BBC: <https://www.bbc.com/news/science-environment-52522460>



Dr Bao Te

About The Author

Dr Bao Te is an Associate Professor of Economics at the School of Social Sciences, Nanyang Technological University (NTU). His main research interests are behavioural finance, computational economics, experimental economics, social media and economics of AI. He published more than 20 papers in journals like *Economic Journal*, *European Economic Review*, *Experimental Economics*, *Journal of Economic Dynamics and Control* and *Real Estate Economics*. He is currently an associate editor of *Singapore Economic Review*, and served as a Member of the Advisory Council of the Society for Computational Economics from 2018 to 2021.

Synopsis

Overconfidence is the tendency for one's belief in his or her ability to exceed reality. It is a ubiquitous type of behavioural bias. In financial decision making, overconfidence may lead to loss of profit in both individual and corporate decision making. We will discuss the key concepts related to overconfidence in behavioural finance, its possible consequences and suggestions on how to avoid the negative impacts of it based on the findings in the literature.

Learning Outcomes

At the end of this session, participants will be able to:

1. Understand the basic concepts related to overconfidence in behavioural finance.
2. Describe the possible positive and negative impact of overconfidence in individual and firm decisions.
3. Apply the knowledge on overconfidence in financial decision making.

News of Concern

Title: *Overconfidence May Be Getting in the Way of Your Investing Performance. Here's How to Correct That* ([Link](#))

Date: 09 September 2021

By: Lorie Konish, CNBC

People tend to assume that they know a lot. Such overconfidence gives a false sense of security, which may or may not be beneficial at times. However, Phil Fernbach, a Professor of Marketing and the Director of the Center for Research on Consumer Financial Decision Making at the University of Colorado, believes that overconfidence hurts investors' performances. "If you don't have an accurate view of the data, then you're going to have an inflated sense of your own capabilities," Fernbach said.

Title: *Overconfidence Could Be Investors' Biggest Mistake, Richard Thaler Says* ([Link](#))

Date: 04 December 2020

By: Jack Hough, Barron's

In an interview with Richard Thaler, Professor of Behavioral Science and Economics in The University of Chicago Booth School of Business. Thaler believes that overconfidence is the 'biggest mistake' people make. He claims that it was the world that 'conspired' to make individuals feel overconfident.

Title: *Why Women Are Better Investors* ([Link](#))

Date: 30 March 2021

By: Emily Guy Birken & Benjamin Curry, Forbes

Unlike what is commonly believed, researchers found that women investors 'consistently outperform' their male counterparts. They claim that the performance difference is due to 'research, risk aversion and self-control'; men tend to be less calm and are overconfident.

Title: *Overconfident CEOs Are 'Both a Threat and an Asset'* ([Link](#))

Date: 30 September 2018

By: Roger Trapp, Forbes

Due to episodes such as the collapse of Lehman Brothers, many believe that overconfident CEOs are bad for firms; they are too ambitious and create a 'toxic atmosphere within business'. However, some researchers acknowledge the benefits of having overconfident. For instance, while Barry Oliver, Associate Professor in finance at the University of Queensland Business School in Australia, found that overconfident CEOs generate higher short-term debts, he noted that overconfidence was 'not always a negative thing'; overconfident CEOs are invaluable when hard decisions need to be made. In sum, Professor Oliver believes that there needs to be a balance; boards should 'look for a CEO who is confident but willing to seek assistance'.

Economic Concepts

Overconfidence Bias

Overconfidence bias is defined as the tendency for individuals to hold excessive beliefs and faith in their own abilities or the probability of success. For instance, Svenson (1981) discovered that over 93% of Americans believe that their driving skill is above the average. There are three types of overconfidence.

1. **Overestimate:** Excessive trust in yourself; thinking that you are much better than your actual abilities (Moore & Schatz, 2017).
2. **Overprecision:** Excessive certainty that one knows the truth (Haran et al., 2010).
3. **Overplacement:** Excessive belief that you are better than others (Moore & Schatz, 2017).

Economic Analysis

Overconfidence may have contrasting results depending on the investors' environment and resources. As such, we will evaluate the impacts of overconfidence for three different groups: individuals, financial professionals and firms.

Overconfidence in Individual Investment Decision

Figure 1 shows the process of overconfidence in trading. Often, overconfident traders trade too much such that they incur higher transaction costs and consequently, lower returns. In U.S. and China, only 5%-10% retail investors are capable of performing better than the market in a long period of time (5-10 years), while 30%-40% consistently perform worse than the market. Yet, according to the Fed Survey of Consumer Finance and a similar survey by Tsinghua University, a large proportion of retail investors think that they can outperform the market (Liao et al., 2014). In addition, Barber and Odean (2001) observed that male investors are more overconfident about their excess return from trading compared to female investors. The authors added that excess trading due to overconfidence leads to an average loss of 2.65% to male investors and 1.72% to female investors.

Figure 1. Overconfident Traders and Transaction Costs



Among others, motivated belief is one key driver of overconfidence. Motivated belief refers to the tendency for individuals to 'believe what they want to believe'.

For example, when recalling past information for decision-making, individuals are more likely to recall experiences that are more pleasant or help them to maintain a positive self- and social-image. Consequently, they are likely to overestimate their past successes and

underestimate their losses. Walters and Fernbach (2021) realised that individuals recall their past returns to be 8% higher than the actual returns. Such motivated belief generated overconfidence, and individuals predicted their future returns to beat the S&P 500 by 13% on average. Additionally, the stronger the motivated belief, the larger the confidence. When informed about the past actual returns later on, these individuals became much less confident.

Overconfidence Among Financial Professionals

Known as miscalibration, financial officers may overestimate the accuracy of their forecasts. For instance, if Chief Financial Officers are good forecasters and have the right idea on their forecasting ability, their average forecast should be equal to the realised stock return, and their 80% confidence interval of the stock returns should contain the realised stock return with 80% probability. However, in reality, although financial officers generally made unbiased predictions for the return of the S&P 500 index, their confidence intervals were too narrow; their 80% confidence intervals only contain the realised stock returns for 36% of the time (Ben-David & Graham, 2013).

Overconfidence in Firm Decisions (Chief Executive Officers)

Negative: CEOs' Overconfidence and Firm Performance

There are two ways of measuring Chief Executive Officers (CEOs) overconfidence. Firstly, we can observe if the CEOs postpone exercising the stock option that is in the money. Alternatively, we can utilise the press-based measure; the CEOs' image on media and the frequency of being described with words related to charm, confidence and optimism.

Utilising the press-based measure, Malmendier and Tate (2005) observed that start CEOs (e.g., CEOs who won Business Week's 'CEO of the year' award) are more likely to publish their memoirs, serve on boards of other companies, engage in earnings management, and acquire other firms (by 65%). Yet, these CEOs under-performed by 15%-26% compared to other CEOs in the following three years. The acquiring firms' stock also fell by 0.9% on average in the three-day announcement window of the takeover.

Negative: CEOs' Overconfidence and Corporate Social Responsibility

McCarthy et al. (2017) find a negative relationship between CEO's confidence and firm's Corporate Social Responsibility (CSR). The effect is more prominent for institutional aspects of CSR like workforce diversity, as compared to technical aspects of CSR like product quality.

Negative: CEOs' Overconfidence and Dividend

Deshmukh et al. (2013) state that in firms with overconfident CEOs, dividend payout is approximately one-sixth lower. They explained that overconfident CEOs choose to lower current dividend payout in preparation for future investment needs instead of relying on external financing because they deem the latter to be costly.

Negative: CEOs' Overconfidence and Bank Lending during Crisis

According to Ho et al. (2016), there are higher chances that banks with overconfident CEOs will 'weaken lending standards and increase leverage in advance of a crisis'. These banks generally experienced

more loan defaults, larger falls in operating and stock return performance, stronger escalation in expected default probability, and higher chances of CEO turnover or failure.

Negative: CEOs' Overconfidence and Stock Price Crash Risk

Stock crash is the situation where 'firm-specific weekly returns fall more than 3.2 standard deviations below the mean firm-specific weekly returns over the entire fiscal year' (Kim et al., 2016). Kim et al. (2016) argue that overconfident managers tend to overestimate the potential of their investment projects and misjudge 'negative net present value projects as value creating'. Consequently, there are greater risks of stock price crash in firms with overconfident CEOs than in firms with non-overconfident CEOs.

Positive: CEOs' Overconfidence and Innovation

While researchers may have found many problems and risks with having overconfident CEOs, there are still some positives. For instance, Hirshleifer et al. (2012) believe that overconfident CEOs are more likely to invest in innovation and thus lead to more patents and citations.

Positive: CEO Overconfidence and Work Environment

Another potential benefit of having overconfident CEOs is that they create a conducive work environment. Phua et al. (2018) enlighten that firms with such executives are likely to have lower employee turnover. Employees in these firms also appear to allocate a larger proportion of assets in their retirement benefit plans to company stock. The researchers also convey that overconfident CEOs have a higher likelihood to not only develop, but also maintain long-term relationships with key suppliers.

Conclusion and Food for Thought

On the individual and financial professionals' level, given that it harms more than it helps, investors should refrain from being overconfident. However, the choice is less direct when we move to the CEOs' (firm) level. Just like a double-edged sword, overconfidence can stimulate or hurt a business concurrently. Similar to what Associate Professor Barry Oliver said, the ideal is to have overconfident CEOs with a reliable team to provide assistance and keep their foot on the ground.

References

- Barber, B., & Odean, T. (2001). Boys Will Be Boys: Gender, Overconfidence, And Common Stock Investment. *Quarterly Journal of Economics*, 116(1), 261-292.
- Ben-David, I., & Graham, J. (2013). Managerial Miscalibration. *Quarterly Journal of Economics*, 128(4), 1547-1584.
- Deshmukh, S., Goel, A., & Howe, K. (2013). CEO Overconfidence and Dividend Policy. *Journal of Financial Intermediation*, 22(3), 440-463.
- Haran, U., Moore, D., & Morewedge, C. (2010). A Simple Remedy for Overprecision in Judgment. *Judgement Decision Making*, 5(7), 467-476.
- Hirshleifer, D., Low, A., & Teoh, S. H. (2012). Are Overconfident CEOs Better Innovators?. *Journal of Finance*, 67(4), 1457-1498.
- Ho, P.-H., Huang, C.-W., Lin, C.-Y., & Yen, J.-F. (2016). CEO Overconfidence and Financial Crisis: Evidence from Bank Lending and Leverage. *Journal of Financial Economics*, 120(1), 194-209.
- Kim, J.-B., Wang, Z., & Zhang, L. (2016). CEO Overconfidence and Stock Price Crash Risk. *Contemporary Accounting Research*, 33(4), 1720-1749.
- Liao, L., Li, Z., Zhang, W., & Zhu, N. (2014). Exercise to Lose Money? Irrational Exercise Behavior from the Chinese Warrants Market. *Journal of Futures Market*, 34(5), 399-419.
- Malmendier, U., & Tate, G. (2005). CEO Overconfidence and Corporate Investment. *Journal of Finance*, 60(6), 2661-2700.
- McCarthy, S., Oliver, B., & Song, S. (2017). Corporate Social Responsibility and CEO Confidence. *Journal of Banking and Finance*, 75(C), 280-291.
- Moore, D., & Schatz, D. (2017). The Three Faces of Overconfidence. *Social and Personality Psychology Compass*, 11(8), 1-12.
- Phua, K., Tham, M., & Wei, C. (2018). Are Overconfident CEOs Better Leaders? Evidence from Stakeholder Commitments. *Journal of Financial Economics*, 127(3), 519-545.
- Walters, D., & Fernbach, P. (2021). Investor Memory of Past Performance is Positively Biased and Predicts Overconfidence. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, 118(36), Article e2026680118.

6 | Should Singapore Follow the EU's Lead To Regulate Big Tech?



Mr Poh Lip Hang

About The Author

Mr Poh Lip Hang is a Competition Economist at Baker Mackenzie Wong & Leow. Previously, Mr Poh was with the Competition and Consumer Commission of Singapore (CCCS), where he conducted economic analysis on topics such as merger applications. He also provided insights to government agencies on issues such as market competition. Mr Poh is experienced in a wide range of fields, including manufacturing, e-Commerce, healthcare as well as shipping and telecommunications.

Synopsis

On 24 March 2022, European Union (EU) member states agreed to introduce the Digital Markets Act (DMA) to 'ensure fair and open digital markets' in the EU. DMA will introduce the concept of a digital 'gatekeeper' and impose greater regulatory scrutiny on identified gatekeepers' conduct in digital markets. This is aimed at opening up possibilities for smaller market players to contest digital markets based on the merits of their products and services, and innovate. For example, gatekeepers will be prevented from requiring app developers to use their services (e.g., payment systems) in order to appear in the gatekeeper's app stores. The EU Commission will have powers to impose financial penalties and remedies such as divestments if gatekeepers infringe DMA. In this session, we will discuss the key features of DMA and explain EU's rationale for introducing it. Through these, we ask if a similar policy should be applied in Singapore given its Smart Nation strategy, to build a digital economy, digital government and digital society.

Learning Outcomes

At the end of this session, participants will be able to:

1. Explain the key features of the Digital Markets Act.
2. Evaluate the intended market failures that the European Union is addressing with the introduction of the Digital Markets Act.
3. Explain the key considerations to determine whether Digital Markets Act is required in Singapore.

News of Concern

Title: *New EU Law Regulating Big Tech Likely to Set Global Standard* ([Link](#))

Date: 29 March 2022

By: *The Straits Times*

On 24 March 2022, European Union (EU) member states introduced the Digital Markets Act (DMA), a law to 'ensure fair and open digital markets' in the EU. DMA will identify certain market players as 'digital gatekeepers' and impose specific 'dos' and 'don'ts' rules on their respective business conduct when operating in the EU. Enforced by the EU Commission's Department for Competition, the ex-ante regulations of the DMA will operate alongside its ex-post enforcement of EU's competition law, a first in the world.

Title: *US Tech Giants Face Sweeping Changes as EU Approves Controversial New Law* ([Link](#))

Date: 26 March 2022

By: *The Straits Times*

The EU Commission will have powers to impose financial penalties and remedies such as divestments if gatekeepers infringe the DMA rules. "This regulation, together with strong competition law enforcement, will bring fairer conditions to consumers and businesses for many digital services across the EU," EU's Competition Chief Ms Margrethe Vestager said. However, the author noted that industry's leaders has cautioned that the DMA will 'cause problems for users and be a financial hit for companies' that are identified as gatekeepers.

Title: *5 Things About EU's Landmark Digital Act Regulating Big Tech* ([Link](#))

Date: 29 March 2022

By: *The Straits Times*

In the article, the author highlighted five DMA rules on identified gatekeepers, and their impacts.

1. Limits tech giants' power to 'save' the start-ups.
2. There will be inter-operability between messaging apps, making it more convenient for individuals to communicate with each other, regardless of the messaging service they prefer.
3. Allows 'fair shopping' on Amazon by preventing Amazon from better positioning its own products as a retailer vis-à-vis other retailers on the Amazon marketplace.
4. Requires Apple to "open up its App Store" to allow other payment systems.
5. Requires gatekeepers to be more transparent on how their ads work and their effectiveness.

6 | Should Singapore Follow the EU's Lead To Regulate Big Tech?

Economic Concepts

Market Failure

Market failure occurs when society fails to operate in an optimally efficient outcome. Market failures could arise due to anti-competitive conduct such as an abuse of market power which hampers the process of competition. Such conduct leads to inefficient static and dynamic efficiency-related outcomes (see table below for definition).

Table 1. Types of Efficiency

| Efficiency Type | Definition |
|--|---|
| Static Efficiency: Productive Efficiency | Achieved when a given level of output is produced at the lowest possible cost. |
| Static Efficiency: Allocative Efficiency | How should society allocate scarce inputs between the different goods and services they can be used to produce? This is achieved when resources are used to produce the combination of goods and services that create the most value for society. |
| Dynamic Efficiency | Rate at which society can improve future static efficiencies. |

What Is Digital Markets Act?

Digital Markets Act (DMA) establishes a set of rules to govern the behaviours of firms with 'large, systemic online platforms' (European Commission, n.d.). DMA's objective is to ensure a fairer environment for both consumers and businesses.

Who Are the Gatekeepers?

The European Commission (n.d.) lists three requirements that firms have to meet in order to qualify as a gatekeeper.

1. A Size that Affects European Union's Internal Market

The firm needs to have a strong economic position, significant impact on the internal market and is active in multiple EU countries. The firm fulfils the criterion if:

- a. It either has €7.5 billion in Annual Revenue Size across European Economic Area (in each of the last three financial years) or €75 billion of market capitalisation/fair value in the last financial year.
- b. It operates in at least three EU member states.

2. Control of an Important Gateway for Business Users Towards Final Consumers

The firm needs to have a strong intermediation position (i.e., it links a large user base to a large number of businesses). The firm fulfils the criterion if:

- a. Its core platform service has more than 45 million monthly active end users established or located in the EU in the last financial year.
- b. Its core platform service has more than 10,000 yearly active business users established in the EU in the last financial year.

3. An Entrenched and Durable Position in the Market

The firm needs to have (or is about to have) an entrenched and durable position in the market. The firm fulfils the criterion if it satisfies the two criteria above in each of the last three financial years.

In addition, there are ten core platform services that will be subjected to DMA (European Commission, 2020c). These platform services were selected based on (i) how broadly they are used by business users and end users, and, (ii) from an internal market perspective, whether there are 'apparent and pressing' weak contestability and unfair practices by gatekeepers of these platform services (European Commission, 2020a).

1. Online Intermediation Services
2. Online Search Engines
3. Online Social Networking Services
4. Video-sharing Platform Services
5. Number-independent Interpersonal Communication Services
6. Operating Systems
7. Cloud Computing Services
8. Advertising Services
9. Web Browsers
10. Virtual Assistants

Economic Analysis

What Is the Market Failure Outcome Identified by the EU?

The European Commission (2020b) believes that the nature of the strong network effects (arising from gatekeepers' platform services, high barriers to entry or exit, and lack of access to key input such as data), can impact digital platform markets 'contestability'. Lack of 'contestability' means that existing or new market operators are unable to compete effectively against gatekeepers, which is detrimental for 'prices, quality, fair competition, choice and innovation in the market'.

How Does the DMA Address the Market Failure Outcome Identified by the EU?

In establishing DMA, the European Commission seeks to ensure 'fair and open digital markets' by imposing a series of obligations on identified gatekeepers. According to European Commission (2022c), gatekeepers must:

6 | Should Singapore Follow the EU's Lead To Regulate Big Tech?

(i) Allow end users to easily remove pre-installed apps or change default settings on operating systems, virtual assistants or web browsers that steer them to the products and services of the gatekeeper, and provide choice screens for key services.

(ii) Allow end users to install third party apps or app stores that use or interoperate with the gatekeeper's operating system.

(iii) Allow end users to unsubscribe from gatekeeper's core platform services as easily as they subscribe to them.

(iv) Allow third parties to inter-operate with the gatekeeper's own services.

(v) Provide advertising companies with access to the information on gatekeeper's platform for independent verification.

(vi) Allow business users to promote their services and conclude contracts with their customers outside the gatekeeper's platform.

(vii) Provide business users with access to the data generated by their activities on the gatekeeper's platform.

According to European Commission (2022c), gatekeepers are banned from:

(i) Using the business users data when gatekeepers compete with them on their own platform.

(ii) Ranking own products or services in a more favourable manner than those of third parties.

(iii) Requiring app developers to use certain of the gatekeeper's services (such as payment systems or identity providers) in order to appear in app stores of the gatekeeper.

(iv) Tracking end users outside of the gatekeepers' core platform service for the purpose of targeted advertising, without effective consent.

Under DMA, the EU Commission will also have power to impose obligations on 'emerging gatekeepers' that are on a 'clear path to making services tip to their advantage'. These obligations are likely aimed at preventing such emerging gatekeepers from achieving entrenched and durable positions in the market by unfair means.

DMA will also operate alongside existing competition law in the EU. The EU Commission considers DMA's ex-ante objectives to be complementary to, but different from ex-post competition law enforcement which protects undistorted competition on any given market.

Conclusion and Food for Thought

When evaluating whether to apply a similar policy (i.e., DMA) in Singapore, there are three key considerations.

1. What are the policy objectives for introducing a DMA-like policy in Singapore? Such policy objectives should be undergirded by actual (or potential) market failure outcomes in the digital sector in Singapore, and are solely aimed at preventing digital market players from hampering the process of competition in their respective digital

markets.

2. Are existing regulatory tools and competition law in Singapore able to adequately resolve actual (or potential) market failure outcomes and achieve the same policy objectives?

3. How effective and useful would a similar DMA policy be in achieving the policy objectives? How would it operate alongside existing regulatory tools and competition law in Singapore?

The EU is likely to face teething issues when operationalising DMA, especially when implementing it alongside its competition law. Industry's leaders have warned that DMA will cause problems for users and financially hit companies that were identified as gatekeepers, potentially discouraging innovation. Given such uncertainties, it is advisable for Singapore to take a "wait-and-see" approach.

References

European Commission. (2020a). *Proposal For A Regulation Of The European Parliament And Of The Council On Contestable And Fair Markets In The Digital Sector (Digital Markets Act)*. Brussels: European Commission.

European Commission. (2020b). *Executive Summary of the Impact Assessment Report*. Brussels: European Commission.

European Commission. (2022c, April 23). *Questions and Answers: Digital Markets Act: Ensuring Fair and Open Digital Markets*. Retrieved from European Commission: https://ec.europa.eu/commission/presscorner/detail/en/QANDA_20_2349

European Commission. (n.d.). *The Digital Markets Act: Ensuring Fair and Open Digital Markets*. Retrieved from European Commission: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/digital-markets-act-ensuring-fair-and-open-digital-markets_en



WHY JOIN US?

- Our flagship event, ESS Annual Dinner, is well attended by key executives in the public/private sectors (See our previous keynote speakers [here](#)). We also organise 2 to 3 membership-exclusive networking events per year.
- Avail of discounts.
- Members get to enjoy 10 to 20% discount on our events.
- The Singapore Economic Review (SER) is a quarterly published journal devoted to high-quality theoretical and empirical papers on economics, with special emphasis on Asian-related economic problems.
- The publication is respected for featuring an extensive range of economic issues affecting Southeast Asia and the broader Asia-Pacific region. Initially published as the Malayan Economic Review (MER) in 1956, it was changed to its current name in 1969. The SER is included in the Social Sciences Citation Index (SSCI) and is presently the leading journal in the Asia-Pacific Region.
- ESS is a non-profit organisation. All proceeds from membership fees and corporate sponsorships fund our events and SER journals. See our annual report [here](#).

You may submit your interest via the membership registration form on our [website](#).

If you have any questions or comments regarding ESS, please forward your mail to:

Address:

ESS Secretariat

Economic Society of Singapore

c/o Department of Economics

National University of Singapore

1 Arts Link

Singapore 117570

Tel : (65) 6773 2913

Fax: (65) 6775 2646

Email: esosing@gmail.com

URL: <http://www.ess.org.sg>