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PAPER

Proof positive? Testing the universal basic income as a post-COVID new normal: the cases of the Baltic and Canada

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Abstract The global response to the coronavirus has highlighted gaping holes in the social security net. Resultantly, the unconditional basic income (UBI) idea has gained traction worldwide throughout 2020, both among the public and politicians looking for solutions to address poverty and stimulate economic recovery. The shift from viewing the UBI as a utopia towards recognizing it as an internationally acceptable policy requires further exploration. By comparing the pandemic-sparked interventionist policies on both sides of the Atlantic, the paper analyses the de facto introduction of the UBI in socially progressive countries, taking Canada and the Baltics as test cases. The authors conclude that the global crisis, exposing the alarming state of affairs of social security, has reopened an intense debate over the role of government interventions and the scope of the welfare state and paved the way for reforms that would embrace better state funding, with an emphasis on social solidarity.

Keywords: UBI, EU, interventionism, welfare state, pandemic, wealth, poverty.

Introduction

The coronavirus pandemic has presented the world with a colossal challenge. The globally mounted response against the coronavirus pandemic has included some critical elements of unconditional income. This idea gained significant traction throughout 2020, both as a solution for addressing a rising wealth gap and stimulating worldwide economic recovery. This paper argues that the Universal Basic Income (UBI) has been widely and rapidly adopted internationally as a policy tool thanks to the pandemic. That policy response reflects the burgeoning electorates' demand for a better social justice distribution, for greater economic equality and income security.

The rapid and massive shock of the crisis containment measure has plunged the global economy into a severe downturn. World Bank expected that in 2020 the planet's GDP would decrease by 5.2%, meaning the deepest recession since World War II when the largest part of the economies would face a decline in per capita production since 1870. OECD indicates a fall of 4,2 of global GDP % in 2020 of global GDP and its

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lift by 4,2 % in 2021 (OECD, 2020a.) The IMF made a similar forecast, expecting the global economy to grow 5.5 percent in 2021 and 4.2 percent in 2022 (IMF, 2021.) Economic activity in advanced economies in 2020 was expected to decline by 7%, as domestic supply and demand, trade and finance were seriously undermined. Per capita income was promised a 3.6% decline, plunging millions of people into extreme poverty (World Bank, 2020). According to the International Labour Organisation (ILO), labour markets around the world were disrupted in 2020 on a historically unprecedented scale. In 2020, 8.8 percent of global working hours were lost relative to the fourth quarter of 2019, equivalent to 255 million full-time jobs (assuming a 48-hour working week), and the labour market disruption in 2020 far exceeded the impact of the global financial crisis of 2009 (ILO, 2021.)

Even before the pandemic, economic disparity in the world had levelled off very slowly. Caused by a coronavirus, the recession hit the population's poor and vulnerable segments the hardest way. They primarily faced diseases, loss of jobs and income, food supply disruptions, school closures, and reduced remittances' flows because of the recession-induced drop in demand for migrant workers' services (OECD, 2020b.) Simultaneously, the crisis has opened up new opportunities for humanity and probably brought the inevitable future much closer. It also applies to business and social technologies and innovations that companies and governments have delayed, and the virus has forced them to implement. For example, a sharp jump in the transition to digitalization around the world, which, in particular, has changed forever online shopping, has given the green light to remote work and education everywhere (UNCTAD, 2020.)

It is not surprising that the problem of supporting the most vulnerable categories, coming to the fore, has particularly highlighted the imbalances in the distribution of national wealth, leading to the erosion of the middle class due to the stagnation of its income in recent decades. Significantly, the approach adopted by developed Western countries - lavish spending by governments pouring money into the economic conflagration-was different from the fiscal austerity measures that governments resorted to as the main neoliberalism-inspired recipe in the wake of the 2008 financial crisis, which measures are not entirely useful and appreciated in 2020 due to different conditions provoked by the Covid-19 crisis. A move away from the neoliberal policies and neoliberal approach is unlikely to be the only policy remedy for overcoming this crisis. The actions taken by governments since the very beginning show that some lessons have been learned from the previous crisis and its management. As a result, an austerity policy is not applied to the public sector; the public sector and institutions consider themselves the guarantors of their citizens' safety and security. (OECD, 2020b.) By comparing the pandemic-sparked interventionist policies of governments in some Western countries on both sides of the Atlantic, the paper analyses political, regulatory, and social avenues and restraints manifested themselves to date, scrutinizing anti-crisis measures of social protection enacted by Canada and Baltic states - that are among the solid performers in the top league of socially progressive countries (The Social Progress Imperative, 2020) - as a test case for the de facto introduction of

unconditional basic income introduction in societies based around a market economy. The paper argues that the UBI has been widely and rapidly adopted internationally as a counter-pandemic policy tool. That policy response reflects the burgeoning electorates' demand for a better social justice distribution, greater economic equality and income security. Some specific measures that amounted to the UBI elements will be assessed by experts' and public opinion about this policy instrument, perception and criticism reflected in the mainstream media conversation, based on the policy enactments chronicled, and the government narrative.

The UBI experiments: the lessons of history

The novel coronavirus has caused unprecedented government interventions in many Western countries, the EU Member States included. The challenges are similar to a large extent in every Member State. All governments have to mobilise resources to provide post-disaster health and financial services to communities, businesses and individuals. Strategies developed for preventing, managing and mitigating the stress and anxiety for Europeans, even with some uncertainty, can lead to socio-economic recovery. That quickly gave rise to a discussion about unconditional income for everyone as an urgent element of well-being in the modern world, which needs mechanisms to dampen social frustration, arming populists with trump cards in the political arena, as demonstrated by the success of Donald Trump in the United States, and that of his associates in other Western countries (Eisler, 2016). The idea of state interventionism's increased role in eliminating accumulated imbalances is increasingly taking hold of minds when discussing the welfare states. It is seen as a critical tool in the arsenal of post-pandemic economic recovery and a contemporary manifestation of the humanistic idea: 'My hope is that governments understand that technocratic paradigms (whether state-centred or market-driven) are not enough to address this crisis or the other great problems affecting humankind,' the head of the Catholic Church wrote. In a letter dated Easter Sunday, on 12 April 2020, Pope Francis, reflecting on 'life after the pandemic,' has urged to consider a widespread introduction of a Universal Basic Wage 'that would ensure and concretely achieve the ideal, at once so human and so Christian, of no worker without rights' (Vatican News, 2020.)

The bell sounding from the temple resonates with merchants' attitudes, too. Tesla Inc chief and billionaire entrepreneur Elon Musk, who at the start of 2021 surpassed Amazon.com Inc's top boss Jeff Bezos to become the world's richest man, with a net worth of more than $188.5 billion, has been an advocate for a UBI for years. In 2018, he envisaged that unconditional wages would be necessary for the future amid the growing robotization of jobs worldwide. Worth mentioning that Bezos, the second richest man on the planet, has also, reportedly, made a case for a universal guaranteed income (Pendleton, 2021; Space News Pod, 2019; Galloway, 2017.) Last but not least, Facebook founder and CEO Mark Zuckerberg has become just one more billionaire campaigning for what he called universal basic income as a means of 'giving everyone a cushion to try new things' in a society that measures progress not just by economic metrics (The Harvard Gazette, 2017.)

The Stanford Basic Income Lab defines the UBI as a 'distinct forms in different historical and geographic contexts. It varies based on the funding proposal, the level of payment, the frequency of payment, and the particular policies proposed around it. Each of these parameters are fundamental, even if a range of versions still technically count as UBI (a universal, unconditional, individual, regular and cash payment).'

Indeed, the idea of guaranteed income for everyone has been on the surface for decades. Nevertheless, it was the extraordinary 2020 that gave a boost to it as a policy with growing currency. The notion is seeing a rapid and widespread shift from viewing the universal basic wage concept as a dreamland towards recognizing it as a workable choice in the after-Trump era, which saw the rich being made richer, partly thanks to the tax cuts introduced by the evidently most controversial president in the US history, while deepening overall income divisions (US Department of the Treasury, n.d.; Drucker and Tankersley, 2019.)

That said, the practical realisation of the programmes rooting in the unconditional state welfare in the context of the international answer to the COVID-19 requires further exploration. The debates, both scholar and political ones, regarding the UBI's relevance as a policy response are heated, indeed. A new backdrop for it is provided with the growing automation of jobs, putting pressure on wages and working hours, with low-skilled people and youth, are among those most at risk (OECD, 2018; World Bank, 2019). This technological revolution makes a goal of full employment even less attainable, pushing more politicians, policy advisors and business leaders to advocate for unconditional income as a natural development of a welfare state. Furthermore, according to recent opinion, a re-orientation of welfare distribution would mitigate the effects of changes in the nature of the labour and labour market, "it might facilitate a break away from neoliberal capitalism and towards a post-work condition" (Mathers, 2019). It can be seen that the notion of the UBI invites a strong moral and political critique that generally revolves around two main lines of argument: first, when given money for nothing, people turn deprived of stimuli for a job and even lose the meaning that work provides in life while the overall situation is harmful to economy; second, the supposedly exorbitant cost of such policy (Matthews, 2017.)

However, further knowledge related to socio-economic consequences of the UBI is planned to be gained and analysed by the Basic Income Pilot Project started in spring 2021 by scientists at the German Institute for Economic Research in Berlin, the non-profit association Mein Grundeinkommen e.V., the University of Cologne and the Max Planck Institute for Research on Collective Goods. The project suggests studying whether unconditionally guaranteed income leads to fundamental changes in the context of health, work, digital revolution, cohesion, politics and consumption and to estimate possible social consequences of an unconditional basic income as well as to derive bases for the calculation of models for the realistic financing of a basic income for everyone. Such models could be developed when jobs would be slashed due to ongoing digitalization and automation. The assumption is "people get more creative and become freer and happier if they do not constantly face the pressure to earn enough money to get by" (Deutsche Welle, 2020.)

The UBI concept gained popularity on the global stage as a theoretical remedy for fighting inequality and poverty. According to the UN, 'the feasibility of financing a UBI that would substitute for other public transfers and the trade-offs it would entail dependent on the country context, even in countries of the OECD, current spending on social protection would not be enough to cover a UBI at or even close to the poverty line- estimated at 50 percent of the median disposable income' (UNDESA, 2020.) In the context of ongoing debates on changes in the world of work, the interest in a universal and unconditional cash transfer as a potential to compensate workers for increasingly insecure employment and to avoid overly bureaucratic social protection systems is growing. Moreover, this trend is associated with income inequality and poverty, which governments across the world tackle in different ways and use various universal and targeted social protection schemes. These include income tax regulation, social benefit programs and minimum wage regulation. Even before the pandemic, economic inequality in the world levelled off very slowly (UNDESA, 2020a) that stimulates debate on the UBI, which provides a safety net for every individual without any precondition (Van Parijs, 2013.) The concept of UBI implies a lump sum payment by the government to all members of the community, regardless of their age, employment or social status.

Several nations have experimented with the introduction of guaranteed income so far. The most famous case has been offered by Finland, which conducted the world's first statutory, nationwide and randomized basic income trial that has produced somewhat encouraging preliminary results: a perception of improved well-being. In the experiment, which lasted from 1 January 2017 to 31 December 2018, 2,000 randomly selected unemployed persons aged 25-58 were paid a monthly tax-exempt basic income of 560 euros regardless of any other income they may have had or whether they were actively looking for work. The experiment was launched by Finland's Prime Minister Juha Sipila center-right government, mulling over the possibility to reform the Finnish social security system so that it better meets the challenges for the future of jobs, amid slow recovery from a three-year recession that ended in Finland in 2015 (Forsell, 2016.) The funding recipients consequently experienced less financial insecurity, having fewer stress symptoms, fewer difficulties concentrating, and fewer health problems. Respondents who received a guaranteed basic income had more trust in other people and societal institutions – political leaders, parties, police and the courts. The researchers found that confidence in fellow citizens and institutions is essential to individual well-being and society's functioning at large. What is crucial, receiving a basic income did not decrease the recipients' willingness to look for employment (Kansaneläkelaitos - The Social Insurance Institution of Finland, n.d.) However, the government found the trial a useful source of data and evidence for the future reform of the Finnish social security system (Yle, 2020.)

Apart from Finland, offered arguably the most comprehensive pilot, several nations have tried basic income experiments, albeit mostly short-lived and small-scale ones: the United States, Brazil, Germany, Spain, The Netherlands, Iran, Kenya, Namibia, India, China (Hong Kong and Macao), and Japan (Samuel, 2020.)

In an EU-wide survey from 2016, 64% of respondents supported the idea of 'A basic income is an income unconditionally paid by the government to every individual regardless of whether they work and irrespective of any other sources of income. It replaces other social security payments and is high enough to cover all basic needs (food, housing, et cetera) according to the survey results in April 2016 (Jaspers, 2016.) A new European Citizens Initiative (ECI), "Start Unconditional Basic Incomes (UBI) throughout the EU" (ECI 2020), registered at the beginning of the crisis on the 15 May 2020, with the collection dates from 25 September 2020 to 25 December 2021. The aim is to introduce unconditional basic income throughout the EU, which ensures every person's material existence and opportunity to participate in society as part of its economic policy. This shall be reached while remaining within the competencies conferred to the EU by the Treaties. The prime objective is to reduce regional disparities to strengthen the economic, social and territorial cohesion in the EU and to the joint statement by the European Council, the European Parliament and the European Commission, stated in 2017, in its response to the 2030 Agenda for Sustainable Development that "the EU and its MS will also support efficient, sustainable and equitable social protection systems to guarantee basic income" to combat inequality and to help to shape the EU by calling on the European Commission to propose new laws (Official Journal of the European Union, 2017.)

Interest in UBI has fuelled as a possible answer to social challenges resulting from the Covid-19 crisis, which accelerated discussions about the governments' role in an economic and social situation. Due to the adverse socio-economic effects caused by the crisis, governments across the world have implemented different ways to tackle already existing trends related to income inequality, poverty and rising fears of job losses due to automation and structural changes in labour markets; the so-called new deprived social class while facing insecurity and unemployment, could trigger a severe threat to political stability and democratic values.

The Baltic States: a re-orientation of welfare distribution?

The region's economic development path is not socially cohesive. According to the European Commission, Lithuania is taking progressive steps to reduce poverty and inequality, but the tax and benefit system's effectiveness is limited (European Commission, 2020b.) In Latvia's case, recent reforms to the taxing and redistributive policies have shown little progress in addressing income poverty and inequality issues, which calls for alternative remedies (European Commission, 2020c). In Estonia, the income tax reform would have an insignificant effect on reducing income inequality. However, the preliminary estimates suggest that the reform somewhat reduced the previously relatively high tax wedge for low and middle-income earners (European Commission, 2020d.) All three countries have exceptionally high rates of relative poverty risk and income inequality. According to the latest statistics, in 2019, at risk of income poverty (more than 1 in 5 persons) in Latvia (22.9%) - the second-highest among the EU members, fourth-highest Estonia (21.7%) and the sixth highest in Lithuania (20.6%). Furthermore, as confirmed by Eurostat, these data refire to the

year before EU MS introduced the measures against the spread of COVID-19. It will serve as one of the benchmarks for analysing the economic and social impact of the COVID-19 pandemic in the next period (Eurostat, 2020.)

EU cooperation is essential in supporting the Baltic States' economies and population as the small states with small institutions and limited administrative capacity are vulnerable to external shocks. The UBI could be an instrument to the list of remedies to overcome the current multidimensional crisis. Furthermore, the Unconditional Basic Income suggested by the European Citizens Initiative has attracted public attention in times of the ongoing unique, global and multidimensional crisis. The Baltic States citizens support the Initiative and the share of their countries' thresholds on collected signatories by 25 January 2021 in Lithuanian accounted 2.59%; however, Latvia and Estonia made 49.22% and 40.24%, respectively. The numbers are increasing daily, showing citizens' support of changes in the social protection system inclined by the Covid-19 emergency (European Union, 2020.)

The analysis by experts in the Baltic States considers the UBI's implementation from the perspective of improving the well-being of people at risk of poverty, social inclusion, and the efficiency of existing social security systems in critical situations of 2020 and 2021. However, the UBI implementation needs further considerations as it could negatively affect an existing income inequality because the state budget and social insurance resources are not sufficient to provide both UBI and social benefits. Furthermore, a small amount of the UBI would not balance the existing benefits, and according to studies, the UBI implementation could even lead to deteriorating effects on income equality and the risk of poverty (Laurinavičius and Laurinavičius, 2016).

However, there are arguments in favour of the UBI related to inefficiencies of the existing social support systems. The UBI, in turn, is aimed to provide greater income security and even more, it would also have a positive effect on the labour market by reducing the unemployment trap and the low-income trap, people could more actively engage in activities, such as starting a business, re-training, and engaging in education – a very important trend when digitisation and automation are rapidly changing the requirements for workers' skill sets. The existing social protection systems are not always meeting the demands of the modern labour market, as evidenced by the growing popularity of "gig jobs" and self-employment. Some basic income model elements could simplify and improve the existing social security systems (The Friedrich-Ebert-Stiftung, 2018.) However, the experts of the Swedbank suggested considering the feasible size of the UBI in case of its implementation in the Baltics, 'if all government social protection spending were distributed equally across the population, this would yield monthly UBI payments of only EUR 117-166, around 48-55% of the at-risk-of-poverty threshold. If only non-elderly spending were to be distributed in equal amounts to those below the retirement age, then the monthly UBI payments would be below EUR 100. Paying only half of UBI to children increases the UBI paid to those older than 16 only marginally - in the range of 9-12% for both alternatives - but UBI remains significantly below the poverty line' (Swedbank, 2017.) These estimates confirm that the UBI model is not fully convincing from the economic and social perspectives.

Additionally, social insurance programmes are based on contributions and expected benefits, which could conflict with the UBI concept. Furthermore, at a political level, a decision-making process should be based on a consensus between social partners based on an institutional setting as a tripartite social dialogue.

At the beginning of the Covid-19 crisis, the Baltic governments applied different emergency measures to deal with the crisis's impact on society and most vulnerable groups. During the first wave of the crisis, the governments have been taken the following steps:

Box 1

Estonia launched a 2-billion-euro support programme to provide different economic stimulus. The Estonian Unemployment Insurance Fund compensated employees' wages in March-May 2020. The offering was 70% of the average monthly salary of the employee but no more than 1000 euro. The employer must pay a wage of at least 150 euro to the employee.

Lithuania launched a 5-billion-euro support plan. The government also foresees subsidies totaling 500 million euros to ensure laid-off workers or workers with reduced working time (+salaries) still receive the minimum wage. It includes the 500 million euros for workers' fixed payments to the self-employed who have previously contributed to the social security system.

Latvia announced coverage of 75% of the costs of outbreak-induced sick leaves or workers' downtime, or up to 700 euros per month. There is also support for "employee downtime" whereby the government made monthly payments of 75% of their salaries, capped at 700 euros (not subject to payroll taxes) if the employer cannot secure work for the employee because of COVID-19

Source: The Baltic Sea Parliamentary Conference, 2020.

Overall, the Bank of Latvia's estimates, Latvia spent less money than its neighbors in the first wave of the Covid-19 crisis for aid measures in general and much less to maintain the population's income. Latvia had paid money to keep household income at 0.3% of GDP, Estonia – 0.8%, Lithuania – 0.9% (Latvia's national public broadcaster LSM, 2020.) The crisis has shown that the Baltic States governments are ready to intervene to mitigate social and economic consequences in the emergency to ensure economically critical support to citizens; however, the states' fiscal ability is relatively small. Consequently, the UBI would not replace the current social security systems based on the constrained security budgets with a flat basic income.

Whatever the outcome of the debate on a UBI and state intervention in the economy as well as in the social security system is, it opens up a platform for rethinking the fundamental role of the welfare state.

UBI past experiments and Canada

Several nations have experimented with the introduction of guaranteed income so far.

The most famous case has been offered by Finland, which conducted the world's first statutory, nationwide and randomized basic income trial that has produced somewhat encouraging preliminary results: a perception of improved well-being.

In the experiment, which lasted from 1 January 2017 to 31 December 2018, 2,000 randomly selected unemployed persons aged 25-58 were paid a monthly tax-exempt basic income of 560 euros (US$ 676; C$863) regardless of any other income they may have had or whether they were actively looking for work. The experiment was launched by Finland's Prime Minister Juha Sipila center-right government, mulling over the possibility to reform the Finnish social security system so that it better meets the challenges for the future of jobs, amid slow recovery from a three-year recession that ended in Finland in 2015 (Forsell, 2016).

The funding recipients consequently experienced less financial insecurity, having fewer stress symptoms, fewer difficulties concentrating, and fewer health problems. Respondents who received a guaranteed basic income had more trust in other people and societal institutions – political leaders, parties, police and the courts. The researchers found that confidence in fellow citizens and institutions is essential to individual well-being and society's functioning at large. What is crucial, the receiving a basic income did not decrease the recipients' willingness to look for employment (Kansaneläkelaitos - The Social Insurance Institution of Finland, n.d.)

Apart from Finland, offered arguably the most comprehensive pilot, several nations have tried basic income experiments, albeit mostly short-lived and small-scale ones: the United States, Brazil, Germany, Spain, The Netherlands, Iran, Kenya, Namibia, India, China (Hong Kong and Macao), and Japan (Samuel, 2020.)

Canada has not been a stranger to this sort of experiment, too. In 1974-1979, one of three Canadian Prairies provinces, Manitoba, with the support of the federal government, has launched a pilot project named The Manitoba Basic Annual Income Experiment (MINCOME) in an attempt to assess the impact of a guaranteed annual income (GAI) on the work behaviour of recipients, through an application of so-called a negative income tax (NIT). The experiment's goal, targeting low-income households, was to understand whether an unconditional annual wage helped the working poor or reduced employment motivation. However, the $17-million pilot was terminated by Ottawa, discontinuing its political support to the initiative and expressing concerns about the cost and ethical considerations; meanwhile, the analysis of the impacts of the GAI has been considered inadequate (University of Toronto Libraries, 1988; CBC News, 2010; Simpson, Mason and Godwin, 2017.)

Some four decades later, the basic income trial is back in Canada. Ontario, the country's most populous province and the industrial heartland, generating 37% of the national GDP, in March 2016 announced the creation of a Basic Income Pilot Project, acknowledging the domestically and internationally mounting interest in the UBI as a sustainable way to reduce poverty. The province has enrolled over 4,000 people in the pilot, and, besides, over 2,000 people will be participating in the comparison group without being paid. Participants are persons aged 18 to 64 years, living in selected areas on a low income, under C$34,000 (US$26,673) per year if single or under C$48,000

(US$ 37,000) per year if a couple. Following a tax credit model, the Ontario Basic Income Pilot will ensure that participants receive up to $16,989 per year for a single person, less than 50% of any earned income; and $24,027 per year for a couple, less 50% of any earned income. People with a disability will also receive up to $500 per month. The provincial government states a goal to measure how a basic income might help people living on low incomes better meet their basic needs while improving their food security, reducing stress and anxiety, providing housing stability and encouraging labour market participation (Government of Ontario, 2017.) However, after the Ontario Liberal Party lost June 2018 general election to the Progressive Conservative Party of Ontario, the incoming government of the 14.6-million province led by the party leader Doug Ford has terminated the project, scolding it as costly and insufficient in helping two million Ontarians who were 'trapped in the cycle of poverty' (Government of Ontario, 2018.)

Nevertheless, it took only two years for Canada to give the universal basic income idea one more try amid an extraordinary crisis. The measures, satisfying most (except for the unconditionality) of the Stanford Basic Income Lab criteria for the UBI, have been applied and rolled out on an unprecedented, country-wide scale, overshadowing all previous domestic and international experiments, Finnish one included.

For Canada, the pandemic resulted in a recession in the first quarter of 2020, with national GDP falling unprecedentedly, by 11.6% in April of that year. Thirty percent of the workforce or 5.5 million Canadians either lost their jobs or saw their working hours significantly reduced over March and April, with an expected economic contraction of 6.8 percent in 2020, its sharpest drop since the Great Depression, before rebounding by 5.5 percent in 2021, according to the official forecast (Gordon and Johnson, 2020; Government of Canada, 2020.)

Prime minister Justin Trudeau's Liberal Party only won a narrow victory to form a minority government in the 2019 federal election in October, just months before the pandemic hit. The government came up with a comprehensive Canada's Economic Response Plan, emergency support measures, and spending levels not seen since World War II. The federal government expected the deficit to hit C$343 billion (US$257 billion) in 2020 due to pandemic-related support programs. The government rejected the subsequent criticism, stressing the primary goal of the anti-crisis expenditures: the protection of the health and economic well-being of the nation, with policymakers' inaction fraught with the risk of loss of millions of jobs while 'putting the burden of debt onto families and jeopardizing Canada's resilience' (John Paul Tasker, 2020) Notably, Canada's economic response plan, representing nearly 14 percent of GDP, included more than $230 billion in 107 government measures to protect the health and safety of Canadians and provide direct support to citizens and employers, and up to $85 billion in tax and customs duty payment deferrals to meet the liquidity needs of households and entrepreneurs. However, upon recovery from COVID-19, Canada was expected to maintain its low debt advantage among the G7 countries. As a result of the government's handling of the pandemic, the popularity of governing parties across Canada skyrocketed, including Trudeau's federal Liberals, which enjoyed a boost in

support; the biggest seen for a minority government since the 1950s (Grenier, 2020.) By the end of the year, the federal government and provinces spent at least C$382 billion through more than 100 various anti-crisis measures and programs. Overall direct payouts to individuals totalled C$105.66 billion, which was $9.5 billion higher than all significant federal transfers to individuals in 2018–19 combined. The government called this extraordinary spending affordable against the backdrop of historically low borrowing costs (Vieira and Mackrael, 2020; CBC, 2020a.)

The pandemic-fighting funding has targeted individuals differentially but covered a wide range of households. The highest expenditures were administered via the Canadian Emergency Response Benefit (CERB), which offered monthly payments of $2,000 to Canadians who lost their jobs due to the pandemic. These payments were received by some 8.9 million people or a third of all Canadian adults.

In addition to it, the federal government has implemented the following measures:

Box 2

- increased employment insurance payments; doubled the federal Goods and Services Tax (GST) credit payments for eligible 2019 tax filers;
- launched the Canada Emergency Student Benefit (CESB) targeting post-secondary students who did not qualify for the CERB program, with more than 700,000 people receiving at least $1,250 payouts for four weeks, with a maximum of 16 weeks;
- introduced the Canada Recovery Benefit (CRB), replacing CERB and providing income support for employed and self-employed individuals and those not eligible for employment insurance benefits. As of 15 November, this program has received more than 2,7 million applications for C$500 per week, for up to 2 weeks, for workers who are unable to work because they are sick or must self-isolate due to COVID-19;
- begun payments under the new Canada Recovery Caregiver Benefit, providing C$500 per week, for up to 26 weeks per household to eligible Canadians;
- transferred a one-time $300 bonus payment from Old Age Security, a universal retirement pension, to more than 6.6 million individuals.

Source: Employment and Social Development Canada, 2020.

With more than C$118 billion allotted to businesses, non-profits and charitable organizations, and C$16 billion went to government departments/agencies, the payouts estimated at C$6,320 per Canadian between mid-March and the end of November 2020 (CBC, 2020b.) While those ‘individuals, regular and cash payments’ have still been conditional, thereby not meeting all criteria for UBI, the unprecedented rollout of the helicopter money strategy has sparked a national discussion on whether this extraordinary generosity should be extended indefinitely and morph into the permanent, unconditional basic income for everyone in the G7 country. According to a poll released in late June 2020 by the Angus Reid Institute, most Canadians would back

the extension of a universal basic income beyond the current pandemic, at proposed levels of C$10,000, C$20,000 or C$30,000 annually if the related burden of taxation is shifted onto wealthier. As to political constituencies, three-quarters of those who supported the Liberal Party in the last federal election, and more than four-in-five New Democrat voters supported the UBI as a permanent solution. Those who had voted for Conservative Party were against the UBI (Angus Reid Institute, 2020). A year earlier, before the pandemic, most Canadians also favoured the UBI idea as a cushion for those workers displaced by artificial intelligence adoption, according to a survey by Gallup and Northeastern University (Inc, 2019.)

The idea has been gaining popularity provincially, too. At the unicameral legislature of Newfoundland and Labrador, the UBI implementation idea has met support, with all parties supporting the plan to weigh the costs and benefits of running a pilot program in the province governed by liberals (Mullin, 2020.) Even before the pandemic, the government of British Columbia commissioned a comprehensive study of the basic income approach as a means to reduce poverty, defining the 'basic income' as income payments provided to eligible people unconditionally by the government, delivered through direct payments or the personal income tax system (The Government of British Columbia, 2019.) The experience acquired thanks to the COVID-19 crisis has given a new context to the research, said the province's social development minister Shane Simpson: 'I think it is pretty timely to be doing this now,' he said, adding that British Columbia would welcome consultations with the federal government on the issue of basic income for the post-pandemic world (Meyer, 2020; Shaw, 2020.)

A parliament member from the New Democratic Party, Leah Gazan, has tabled a motion in the House of Commons to convert CERB into a permanent guaranteed liveable basic income, having consulted with local and national lobby groups advocating for the implementation of the unconditional wage. She stressed that it was the COVID-19 that 'has demonstrated that we do have the resources' to ensure 'all individuals in Canada can thrive in dignity' (McGuckin, 2020.) Almost half the Senate of Canada, 50 members (from the left, right and centre), including the former mayor of the country's biggest city, Toronto, have urged the government to draft a basic income plan, pointing at the Canada Emergency Relief Benefit (CERB) as a government-instituted program that comes close to being a permanent basic income as 'the new normal' for the post-pandemic world (Eggleton and Segal, 2020).

On a federal level, the minor parties represented in the parliament have been advocating for the UBI. The New Democratic Party leader Jagmeet Singh has been calling for the CERB to be made a universal benefit. Annamie Paul, chosen to lead the Green Party amid the pandemic crisis, has come with a solution to create a comprehensive benefit: Guaranteed Livable Income. She cited international experience, pointing out to Spain that became the first in Europe to announce a plan to introduce a UBI to help families during the pandemic, with the intention that UBI becomes a permanent instrument. The main electoral rival of Trudeau's liberals, the leader of the Conservative Party Erin O'Toole, soon after his victory in the leadership race amidst the pandemic, has styled himself as a strong backer of wage subsidies as well as

income support for 'everyone,' while scolding liberals for what he called insufficient income assistance through the CERB (Global News, 2020). The conception of UBI as an instrument of eliminating poverty and improving the economy had been occupied the attention of the party top brass years before the pandemic crisis (Archer, 2020).
For his part, the prime minister has been extremely cautious when grilled by the questions on whether the UBI was considered a permanent social security mechanism and made it clear that he did not feel this transformation as an immediate need. 'In the short-term, our focus must be on ensuring the CERB is available for all who need it,' the prime minister was quoted by news media as saying in English in April. He elaborated, responding to the same question in French, reflecting on the UBI after being further pressed by reporters. 'It's not as easy as saying we're going to send out a cheque to every Canadian regardless of their age or region; it's more complex than that,' Trudeau was quoted as saying in translation from French to English by Canadian newspapers. - 'Our measures from the beginning recognized that some people lost their jobs because of COVID-19, not through any fault of their own, but they require revenue to pay for their groceries, their rent. That's why we chose to go ahead in a targeted, rapid fashion to put in place what was necessary to help these people in dire need' (Wright, 2020.)

In turn, Canada's employment minister Carla Qualtrough, when asked if the government was considering an introduction of any guaranteed livable income, said that while there were 'more pressing issues that we need to address as a government and as a country,' the pandemic crisis lent itself the opportunity to have the UBI as part of the future conversation about the reconceiving the 'Canadian social safety net' (UBI Works, 2020.) Meanwhile, his government has been proceeding with the 'helicopter drop' of money policy for the whole year, budgeting money for more' cheques to every Canadian' as the situation required. Later on, in the summer, the federal parliamentary budget office made calculations in response to senators and MPs asking about the UBI concept's relevance in improving Canada's patchwork of social safety net; it estimated that it could cost more than $98-billion to provide almost all Canadians with a basic income for six months beginning 2020 fall, though the total cost of the program might be higher than the budget office's approximations (The Canadian Press, 2020.)

Some of the most vocal critics say that introducing the UBI would be costly and fraught with unintended consequences such as undermined work incentives; will not do enough to fix inequality without market control to keep low costs on the public services; that Canada and that the current taxation procedures and social system require reforms before adopting basic income as a comprehensive approach (Thomson, 2020; Loreto, 2020; Cameron and Petit, 2020.)

Nonetheless, it is apparent that the pandemic crisis has reignited an intense public debate over the role of the UBI as a policy option that is seemingly favoured in the steadily being more predominant political narrative, with support being widespread and mounting, including in the federal parliament (Regehr, 2021). In December, UBI Works, a Canadian non-profit pressure group for a universal basic income, uniting a number of hi-tech entrepreneurs, economists, and other 'civic-minded Canadians,'

presented a 96-page report on the matter, noting that 'in 2020, the idea of a universal income guarantee has been thrust into the spotlight by the COVID-19 pandemic and the programs that have been created to provide economic relief to Canadians' (The Canadian Centre for Economic Analysis, 2020.) Months earlier, the Senate Committee on National Finance, in an interim report on the Federal COVID-19 response, recommended that Trudeau's cabinet, with provinces, territories and Indigenous governments, consider a basic income guarantee, noting that having a basic income in place before the pandemic could have reduced the need for the CERB (Standing Senate Committee on National Finance, 2020.) It is apparent that the pandemic has stimulated a wide-ranging discussion on the social security mechanisms' effectiveness and development tools.

Conclusions

The spread of the novel coronavirus has underscored some fundamental problems related to state vs market. One of the crucial instruments of state intervention during the pandemic time is an option as a possible answer to social, socio-economic effects caused by the crisis when governments across the world have implemented different measures to support those who have lost either their employment or business income as a result of pandemic measures. This trend is observed in similar political, social, and economic settings in the EU, the Baltic States, and Canada at the federal and provincial levels. "Whatever it takes" is the motto to preserve lives and reduce economic declines. We conclude that the UBI remains a controversial topic; however, governments' responses to losses in job markets in a time of crisis show that the UBI model could be applied as a policy choice in avoiding growing income inequality and providing greater income security.

Increased interest in the UBI model and accelerated discussions could be explained in the context of governments' role in an economic and social situation, triggered by existing trends related to fears of job losses due to automation, digitalisation and structural changes in labour markets. The existing social protection systems seem to be outdated and not meeting the modern labour market's demands. Some elements of the basic income model could be used to simplify and improve the efficiency of the existing social security systems, as shown by this paper, which delves into the practical applications of related measures taken by certain socially progressive countries in a fairly short term, within a year since the onset of the pandemic. It has been shown that the UBI as a policy option could be complementary to the existing schemes and mechanisms. The authors assume that the ongoing national debates on the UBI, the powers of governmental intervention, and the state of the social security nets open up a platform for rethinking the welfare state's fundamental role.

The pandemic has made the political environment worldwide more conducive to adopting the UBI as a policy option for greater economic equality and income security and responding to the mounting demand for a better social justice distribution. Reforms must embrace better state funding, more flexibility in the labour market and more emphasis on social solidarity.

The above-indicated aspects are subject to further research, and some fundamental questions persist: is the UBI the right way to replace the benefit system? Can it create an even more significant gap between the poor and the rich? Will the UBI promote job mobility and encourage people to acquire new skills?

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PAPER

Determinants of the Government Bond Yields of Italy, Spain, Portugal and Greece

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Abstract This article analyzes the trends in the yields of 10-year government securities of the countries of Southern Europe, in particular Greece, Italy Portugal and Spain, over the period 2005-2020. To study the factors affecting the rate of government securities yields of these countries, regression models using the least squares method and vector autoregression framework, namely the Granger test, were constructed. The models investigate the impact of various independent variables, namely government debt, government budget balance, real effective exchange rate and GDP on profitability of the national bonds. It was proved that in the conditions of the ECB's unconventional monetary policy, which continually stimulates demand for government securities, internal factors are no longer the main ones in determining the yields on national bonds and, accordingly, the cost of servicing the public debt of the euro area countries. The consequences of the ECB's monetary policy were most evident in 2020, when unprecedented financial stimulus measures were implemented in the fight against the impact of the COVID-19 pandemic, which led to a drop in government bond yields in Southern Europe to historically low levels. Such a strong dependence of the demand for government bonds and the cost of servicing public debt of Southern European countries on an external factor - the policy of the European Central Bank can lead to serious shocks for national economies in the future, especially when the ECB is forced to abandon the over-expansionary monetary policy.

Keywords: government bond yields, government debt; budget balance; European Central Bank; Southern Europe.

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1. Introduction

Since 2008, the economies of Southern Europe have been in a difficult situation. First, they were negatively affected by the global financial crisis, then they found themselves in the epicenter of the debt crisis in the euro area, and in 2020, like all countries in the world, they faced the COVID-19 pandemic.

In the article the economies of four countries of Southern Europe - Italy, Spain, Portugal and Greece will be analyzed. The problems of the studied countries are evidenced by the fact that over the past 20 years, their economic growth has been lower than in Iraq, Iran, Ukraine, Sudan and many other countries. However, Italy, Spain, Portugal and Greece did achieve some success after a severe sovereign debt crisis: they experienced certain economic growth and made significant bond sales. At the same time, the level of profitability of these bonds is of great importance for the present and future financial and economic stability of the countries, and that is why the paper will identify the main factors influencing it.

2. Literature review

The general issues of servicing the public debt of the different countries of the world including the Southern Europe states and the yield of securities have been widely explored in the literature.

M. Guirguis (2019) analyzed the debt level, gross national savings and dynamics of total investments of Italy, Spain, Portugal and Greece. The results of the analysis show that decrease in total investments, calculated as percent of GDP, together with the current account deficits had strong negative impact on the national economies of Italy, Spain, Portugal and Greece.

M. Cioffi et al. (2019) are considering transferring part of public debt to the European Repayment Fund. In exchange, each country will transfer an annual flow of resources to the Fund. The authors show that such a scheme can be designed so that it does not make any preliminary redistribution between countries, while the euro area, as a whole, would benefit as a decrease in the annual refinancing needs of member countries would improve financial stability. The share of the mutual debt will be fully repaid within a reasonable number of years. This scheme will not endanger the country's commitment to debt reduction; anyway, market discipline will become more efficient on margin.

M. Picarelli et al. (2019) analyze relation between an increase in public debt and reduction of public investments in the countries of euro area. According to the results of the authors` model a 1% increase of public debt of the EU countries leads to a 0.03% reduction of public investments. The authors have also found evidence that the relationship between public debt increase and public investments is strongest in countries with high levels of debt.

P. Della Posta et al. (2020) analyzed the problem of the stability of public debt ratio to GDP in the countries of euro area. From the authors point of view a possible solution

could be in implementation of a market-funded investment program that stimulates growth, which will be especially welcomed because of its positive influence in long-term or even short-term implications for the growth of GDP and for a stabilizing effect on interest rates. Some simulations quantify these effects. C. Andreou et al. (2018) explored the return rate that was earned from investments to the emerging markets and the impact of sovereign credit risk on it. Authors proofed that the sovereign credit ratings changes - upgrades or downgrades had strong effects on the returns received by foreign investors: lower risk leads to lower profitability from investments to the emerging markets.

W. Opie et al. (2019) consider a new method for dynamic hedging of foreign exchange risks in portfolios of international stocks and bonds. The method uses the predictability of the currency yield in time series, which follows the use of the assumed component in the global factor yield. The hedging strategy outperforms the leading alternative approaches to hedging currencies in a large set of sampled performance indicators.

T. Rodionova et al. (2019), I. Lomachynska et al. (2020), S. Yakubovskiy et al. (2020, 2019) identified the main factors influencing the return on assets in the United States, Germany, Japan as well as in the emerging market economies. The results of the study showed that the public debt growth in the United States, Germany and Japan did not have a significant impact on government bond yield. On the other hand, the level of public debt has an impact on government bond yield in the most emerging market economies.

3. Hypothesis, methodology and data

In order to determine the dependence of the yield on 10Y government bonds on the following factors: government debt, balance of government budget, real effective exchange rate, GDP of Greece, Italy, Spain and Portugal, a regression model using the least squares method (LSM) was constructed.

The annual data from 2000 to 2019 was used in this model.

Model with probable dependence is the following:

$$10Y = \alpha + \beta_1 * budget + \beta_2 * govdebt + \beta_3 * ExR + \beta_4 * GDP \quad (1)$$

where *10Y* is the yield on *10Y* government bonds (%), *budget* - balance of government budget (% of GDP), *govdebt* - government debt (% of GDP), *ExR* - real effective exchange rate, *GDP* - gross domestic product.

The second model - Granger test - helps to determine mutual causality between the yield on government bonds and the following factors: government debt, balance of government budget, real effective exchange rate, GDP of Italy, Spain, Portugal and Greece. For this test, annual data from 2000 to 2019 is used.

$$\begin{aligned} Y10_t &= a_1 + \sum_{i=1}^{p} \beta_{1i} V_{t-1} + \sum_{i=1}^{p} Y_{1i} Y_{t-1} + \varepsilon_{1t} \\ V_t &= a_2 + \sum_{i=1}^{p} \beta_{2i} Y10_{t-1} + \sum_{i=1}^{p} Y_{2i} V_{t-1} + \varepsilon_{2t} \end{aligned} \quad (2)$$

Where *Y10* is the yield on government bonds (%), and *V* is the different variables such

as: balance of government budget (% of GDP), government debt (% of GDP), real effective exchange rate, GDP. In this model: ε is error term; α is a constant term; β and Y denote the coefficients to be estimated, p is the lag order selected.

4. Results and discussion

In 2010 the Securities Market Program (SMP) was announced by the European Central Bank (ECB) for Greece. This program consisted of buying national bonds on the secondary market and actually preceded quantitative easing. During the debt crisis the yield on Greek government bonds increased from 5.49% to 12.01%, and already in 2011 reached a maximum value of 21.14% (Fig.1).

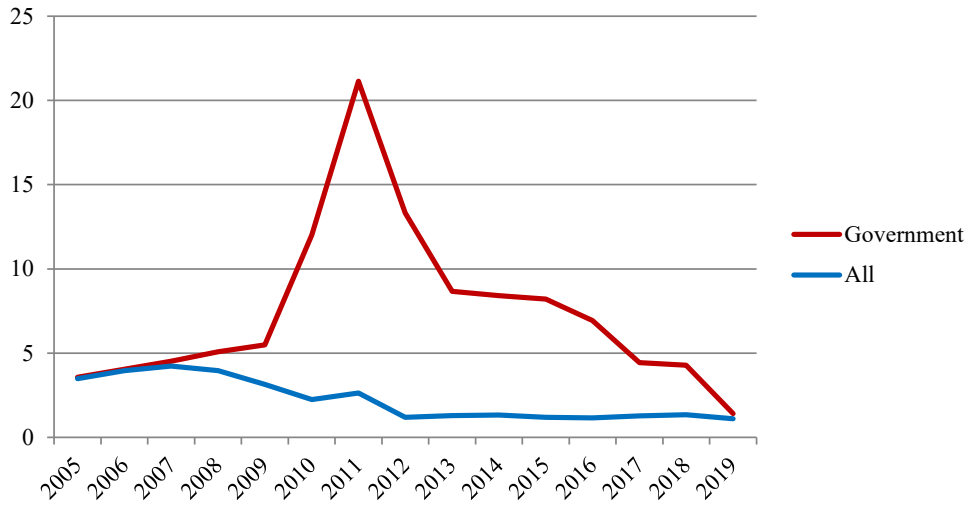

Figure 1. The yield on all types of portfolio investments and government bonds of Greece for the period 2005-2019 (%)
Source: data from ECB (2020).

Since 2012, thanks to interventions in the bond market, yields began to decline. Greece's government bond yields fell below 1% for the first time in 2020 (Trading Economics, 2020), supporting the country's efforts to ease stringent budget conditions imposed by bailout lenders. The yield fell to 0.957%, but remains one of the highest borrowing rates in the eurozone. The constant drop in Greek bond yields is already an indicator of the market's confidence in the course and prospects of the Greek economy, and in the country's economic policy. However, some investors are wary of citing illiquidity. The COVID-19 pandemic has shattered hopes of raising Greece's rating to investment grade in the near future.

As in Greece, in Portugal, in 2011 the yield reached its maximum value and amounted to 13.08%. At the same time, the profitability of all types of investments decreased (Fig. 2).

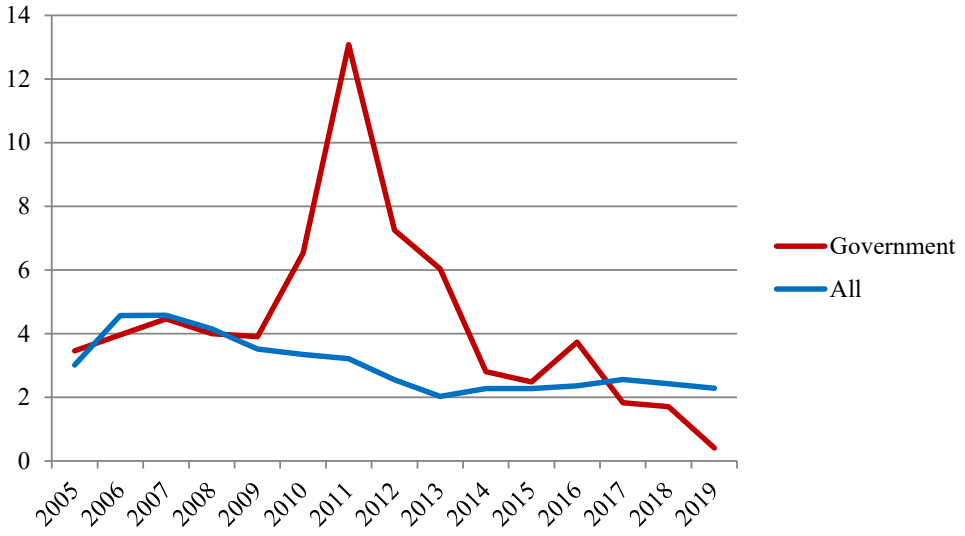

Figure 2. The yield on all types of portfolio investments and government bonds of Portugal for the period 2005-2019 (%)
Source: data from ECB (2020).

Government bond yields exceeding 13% of course for the eurozone country was super high, but the debt crisis in Portugal was not as acute as in Greece. At the same time, the decline in the yield on Portuguese government bonds to a reasonable level began only after the start of the EU Economic Adjustment Program for Portugal (EAPP). Moreover, after the EAPP realization in 2015 the European Central Bank initiated a program of large-scale purchases of government debt securities of several eurozone member countries (PSPP - Procurement Program in public sector). The total value of acquired state bonds of Portugal at the end of 2015 amounted to 11.2 billion euros. As a result of the implementation of the EU programs to support Portugal's public finances in 2015 the total trading volume of Portuguese national bonds was 2.6 times higher than the total turnover of the previous year. This increase is due to the growing demand for national government debt securities, which in particular reflected an improved investor perception of the Portuguese creditworthiness, as well as a search for yield behavior in the context of low interest rates in alternative savings.

In 2019, the yield on Portuguese government securities reached 0.41% (Fig. 2). Portugal met a quarter of its target of € 15.4 billion in total bond sales for 2019, selling € 4 billion. The country also posted its largest budget surplus since the introduction of the euro. The yield on all investments in the country has increased since 2015. The yield on the country's 10-year bonds rose to 0.97% in April 2020. However, already in July, the figure was 0.4%, the same as in 2019. In Italy, during the debt crisis, the yield on government bonds also increased, but to a lesser extent than in Greece and Portugal, reaching 6.81% in 2011, the yield on all investments in the country also slightly increased compared to the previous year and amounted to 3% (Fig. 3). Unlike Greece

and Portugal, during the period 2015-2017, the yield gradually increased, and already in 2018 it increased to 2.98%. The Italian government's debt sold off, pushing the 10-year bond yields to their highest closing level since 2014. Also following the Italian elections, the fiscal outlook deteriorated and the new government was able to question Italy's continued involvement in the euro area, thus fueling the risk of re-denomination - that is, the risk of being redeemed in a devalued lira instead of a hard euro.

Also, the sharp rise in the yield on government bonds in Italy may be associated with budget problems. One small deficit would also not make a big difference in either government debt or bond yields. However, since public debt is already high, there is no economic growth, which exacerbates the problem. Despite this, in 2019, Italian bond yields fell by about one third to 1.37%. This also happened due to the elections, as investors welcomed a new party that is somewhat less hostile towards the eurozone.

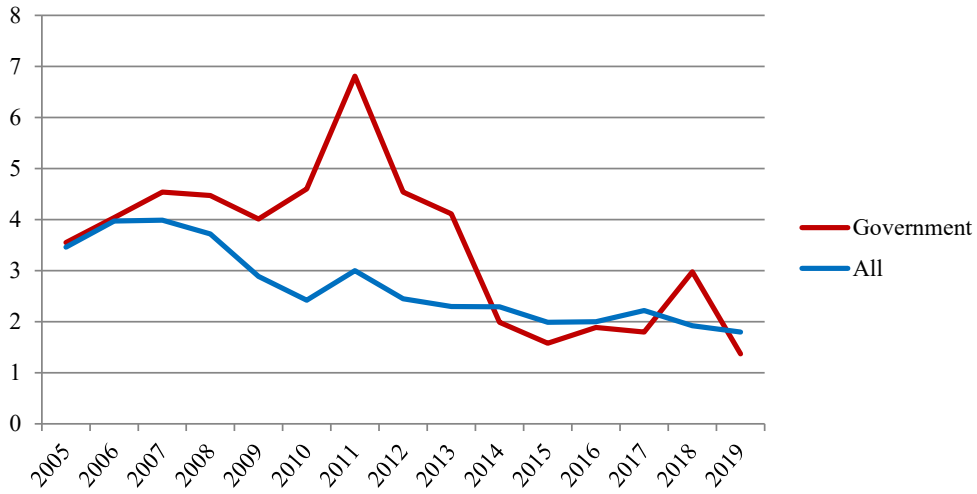

Figure 3. The yield on all types of portfolio investments and government bonds of Italy for the period 2005-2019 (%)
Source: data from ECB (2020).

With yields on Italian bonds up to a three-year maturity currently negative, Italy is on the way to regaining its status as a Eurozone issuer. It is worth noting that Greek national bonds have also benefited from the positive climate in European bond markets due to hopes that Italy will get a new government.

In 2020, Italy's government bond yields surged to around 2%, when the country became the first country in Europe to impose isolation. This created fears that the economy of Italy would be hit hard by the virus. In March 2020, amid the pandemic, the ECB launched the €750 billion Pandemic Emergency Purchase Program (PEPP). Moreover, after the PEPP, the European Commission together with the ECB approved a number of measures that led to an inflow of resources to the financial markets of the EU countries, which stimulated an increase in demand for government bonds and, accordingly, a decrease in their yield. Thanks to high yields in the spring, summer

and fall of 2020, Italian bonds remained attractive to investors despite falling GDP. As a result of increased demand, the yield on Italian 10Y bonds declined from 2.35% in March to 1.35% in June and 0.57% in November. In Spain during the debt crisis the yield on government bonds also increased, but to a lesser extent than in Greece, Portugal and Italy. Therefore, in 2011, the yield reached its maximum value for the period under review and amounted to 5.53%. The yield on all investments also increased, but later declined. Every year after 2011 the yield on Spanish government bonds decreased (Fig. 4). This drop in the yields of Spanish bonds, when the indicator was 0.44% in 2019, reflects to some extent the success of the country's economic policy after the peak of the debt crisis in the euro area. Key macroeconomic indicators remain robust in absolute and relative terms, with annual growth rates of Spain and Portugal remaining above 2%, following good progress in reducing the budget deficit, which builds investor confidence in their bonds. In Spain, the yield also increased to 0.82% in April 2020. However, in July, the indicator decreased again and amounted to 0.37%, which was less than in 2019 and in November 2020, bond yields of Spain fell to historic lows of 0.06%.

For all the studied countries, except Greece, in most periods, except for the peak of the debt crisis, the average return on all portfolio investments exceeds the yield on government bonds. This result is explained by the higher reliability of government securities in comparison with other types of portfolio assets. In Greece, due to the high level of public debt and, accordingly, with possible problems with its servicing in the future, the situation is exactly the opposite.

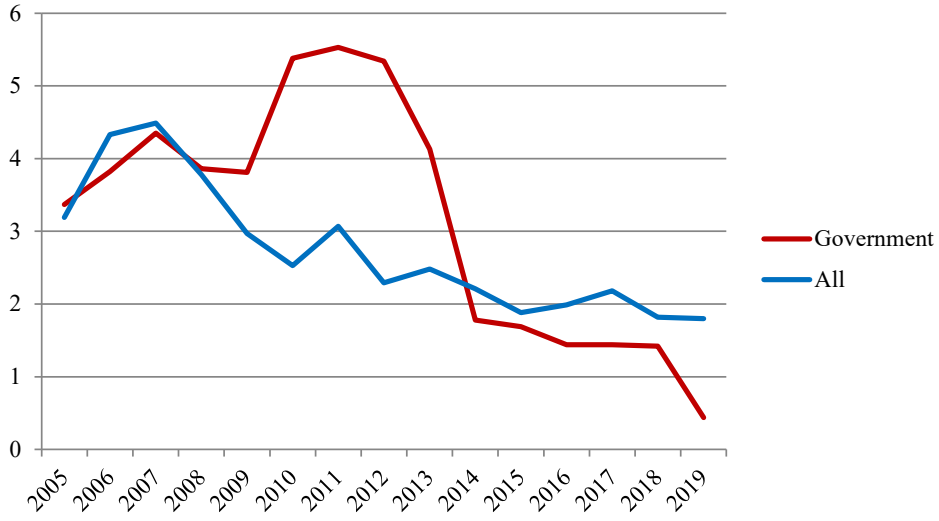

Figure 4. The yield on all types of portfolio investments and government bonds of Spain for the period 2005-2019 (%)
Source: data from ECB (2020).

It should be noted that the measures taken in the midst of the debt crisis by the countries of Southern Europe to curb the growth of public spending have led to unequivocally

positive results in the country's foreign economic activity. Thus, the trade deficit of Greece decreased from 37.5 billion dollars in 2010 to 25.6 billion in 2019; the trade deficit of Portugal decreased from 25.8 billion in 2010 to 18.7 in 2019; the trade deficit of Spain - from 63.5 billion to 29.6. And Italy showed a phenomenal result - its trade deficit in 2010 in the amount of 26.6 billion dollars turned into a surplus of 63.9 billion in 2019. A similar trend is inherent in the current accounts of the studied countries: the current account deficit of Greece decreased from 30.3 billion dollars in 2010 to 3.1 billion in 2019; the current account deficit of Portugal decreased from 24.4 billion in 2010 to 236 million in 2019. The current accounts of Spain and Italy turned from deficit to surplus: the current account deficit of Spain in 2010 in the amount of 52.3 billion dollars turned into a surplus of 29.6 billion in 2019; the current account deficit of Italy in 2010 in the amount of 70.8 billion dollars turned into a surplus of 59.5 billion in 2019.

The results of the LSM that evaluate the hypothesis of the dependence of the yield on 10Y government bonds on the following factors: government debt, balance of government budget, real effective exchange rate, GDP of Greece, Italy, Spain and Portugal are shown in the table 1.

Table 1. Influence of indicators on the yield government bonds of the Southern Europe

	Greece	**Italy**	**Spain**	**Portugal**
Gov. balance	N.S.	N.S.	0.600	0.455
			(0.001)[a]	(0.037)[b]
Gov. debt	0.459	-0.514	-0.508	0.433
	(0.042)[b]	(0.047)[b]	(0.004)[a]	(0.024)[b]
ExR	0.375	N.S.	N.S.	N.S.
	(0.089)[b]			
GDP	N.S.	N.S.	-0.631	-0.617
			(0.001)[a]	(0.032)[b]
R2	0.689	0.899	0.936	0.785
F	5.447[b]	11.454[b]	14.897[b]	6.335[b]

Note: N.S. - not significant; a, b, c represent the 1, 5, and 10 % significance levels, respectively. In parentheses, p values are given.

Source: authors` calculations, data from IMF (2020).

Based on the composite models, it can be concluded that the most influential indicator affecting the yield of government bonds of all four countries is government debt, which has a direct relationship for Greece and Portugal: with an increase of government debt by 1 item the yield of government bonds will also increase by 0.459 and 0.453 standard deviations respectively. However, in Italy and Spain there is a reverse and stronger relationship: with an increase of government debt by 1 standard deviation the yield of government bonds of Italy and Spain will decrease by 0.514 and 0.508 standard deviations respectively. The balance of government budget (direct relationship) and

GDP (reverse relationship) impacts only in Spain and Portugal. With an increase in the balance of government budget of Spain and Portugal by 1 standard deviation the yield of government bonds will also increase by 0.600 and 0.455 standard deviations respectively, and with an increase GDP by 1 standard deviation the yield of government bonds will decrease by 0.631 and 0.613 standard deviations respectively. Real effective exchange rate affects the indicator only in Greece and has a direct relationship: with an increase ExR by 1 standard deviation the yield of government bonds will also increase by 0.375 standard deviations.

The results of the Granger test that determine mutual causality between the yield on government bonds and the following factors: government debt, balance of government budget, real effective exchange rate, GDP of Greece, Italy, Spain and Portugal are shown in the table 2.

Table 2. VAR Granger Causality

Country	Indicators	Lagged variables				
		Yield	Gov. balance	Gov. debt	ExR	GDP
Greece	Yield		7.18 (0.007)[a]	8.91 (0.03)[b]	3.52 (0.06)[c]	12.7 (0.002)[a]
	Gov. balance	1.16 (0.28)				
	Gov. debt	4.07 (0.25)				
	ExR	2.24 (0.14)				
	GDP	0.14 (0.93)				
Italy		Yield	Gov. balance	Gov. debt	ExR	GDP
	Yield		1.07 (0.3)	99.6 (0.001)[a]	0.02 (0.88)	14.29 (0.01)[a]
	Gov. balance	0.54 (0.46)				
	Gov. debt	3.95 (0.56)				
	ExR	1.43 (0.23)				
	GDP	28.41 (0.01)[a]				
Spain		Yield	Gov. balance	Gov. debt	ExR	GDP
	Yield		25.2 (0.01)[a]	166.2 (0.01)[a]	43.2 (0.01)[a]	12.45 (0.03)[b]
	Gov. balance	1.98 (0.85)				
	Gov. debt	8.82 (0.12)				
	ExR	1.39 (0.93)				
	GDP	9.9 (0.078)[c]				
Portugal		Yield	Gov.balance	Gov. debt	ExR	GDP
	Yield		44.88 (0.01)[a]	26.12 (0.01)[a]	0.07 (0.79)	6.39 (0.09)[c]
	Gov. balance	0.67 (0.41)				
	Gov. debt	3.64 (0.46)				
	ExR	0.16 (0.69)				
	GDP	10.04 (0.02)[b]				

Note: a, b, c represent the 1, 5, and 10 % significance levels, respectively. In parentheses, p values are given.
Source: authors` calculations, data from IMF (2020).

Based on Table 2, for Greece there is a dependence of the yield on government securities on the balance of the government budget, GDP, government debt and real exchange rate. In Italy, there is a strong mutual relationship between government debt yields and GDP. A dependence of profitability on GDP is observed. In Spain, it is worth noting a strong dependence of profitability on the balance of the state budget, public debt and the real effective exchange rate, the dependence on GDP is less strong, in contrast to other indicators. In Portugal, there is a strong dependence of profitability on public debt and budget balance. The analysis also showed a weak dependence of the country's GDP on the yield on government securities.

5. Conclusion

The results of the analysis show that the countries of Southern Europe, thanks to the adoption of hard budget constraints to combat the causes and consequences of the debt crisis, were able to achieve a substantial increase in the international competitiveness of their national economies, as evidenced by significant improvements in their trade and current account balances.

The results of constructing regression models indicate that the yield of government bonds in Greece and Spain are influenced by the government balance, GDP, government debt and real exchange rate; in Italy – by GDP and government debt and in Portugal – by the government balance, GDP and the level of government debt. In this case, the phenomenon from the point of view of classical economic theory is the fact that in Italy and Spain there is a reverse and stronger relationship between the level of government debt and the yield of government bonds: with an increase of government debt the yield of government bonds of Italy and Spain is decreasing. This simulation result confirms with real facts: over the past 10 years the ratio of government debt to GDP of Italy increased from 119.2% to 134.7%; of Spain – from 60.5% to 95.5%. At the same time, the yield on bonds of all countries of the Southern Europe, including Spain and Italy, fell several times.

This result is explained by the fact that in the conditions of the ECB's unconventional monetary policy, which continually stimulates demand for government securities, internal factors are no longer the main ones in determining the yields on national bonds and, accordingly, the cost of servicing the public debt of the euro area countries. The consequences of the ECB's monetary policy were most evident in 2020, when unprecedented financial stimulus measures were implemented in the fight against the impact of the COVID-19 pandemic, which led to a drop in government bond yields in Southern Europe to historically low levels.

Such a strong dependence of the demand for government bonds and the cost of servicing the public debt of Southern European countries on an external factor - the policy of the European Central Bank can lead to serious shocks for national economies in the future, especially when the ECB is forced to abandon the expansionary monetary policy.

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PAPER

How do flexibility reforms reshape market behavior? A comparative study from the MENA region

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Abstract This study investigates the impact of flexibility reforms on the foreign exchange market in various countries with intermediary regimes. Using the case of three MENA countries with different flexibilization processes, we conducted a comparative study using GARCH and FIGARCH models to exhibit various market behavior changes. Our main results are that flexibilization reforms increase market volatility and sensitivity to endogenous shocks, especially in countries with challenging economic contexts during the transition. On the other hand, the flexibility reforms contribute to market development, allowing it to have more leeway in adjusting prices accordingly with the offer and demand. Finally, we presented the policy implications of this study and some propositions for future research. This study's conclusions will help monetary authorities and market participants prepare efficiently for the flexibilization process and avoid various risks linked to this transition.

Keywords: exchange rate, forex market, flexibility, volatility.

JEL Classification: F31, F37.

1. Introduction

Foreign exchange market behavior is an essential research subject as it impacts various parts of the economy, such as trade, public finance, and inflation. Therefore, its study became a significant economic subject after the gold standard collapsed in the 1970s, with most research papers focusing on floating rates due to the high availability of

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DATA and their essential role in the international economy. However, as of 2018, more than two-thirds of the world's countries are still adopting a de facto fixed regime or had transited to an intermediary one as part of their flexibilization process (IMF, 2019). The growing globalization and international trade interconnections urged those countries to introduce more flexibility in their exchange rate regimes to increase their integration in the global economy and improve competitiveness. Therefore, a road map is essential for those countries to navigate this transition and ensure its success. Unfortunately, the literature lacks such an empirical framework that can provide information about market behavior changes in the aftermath of a flexibilization process. Studies such as (Abdalla, 2012), (Selmia, Bouoiyour, & Ayachi, 2012), (Bouoiyour & Selmi, 2014), and (Azzouzi & Bousselhami, 2019) investigated the market volatility in this type of exchange regime. However, they failed to exhibit the impact of these flexibility reforms on market behavior as they used continuous periods of study. To address this problematic situation, we will conduct comparative research of three MENA Countries using subdivided study periods and GARCH/FIGARCH models to investigate how the flexibilization process reshapes forex market behavior.

Our article will start with a literature review in section 2, followed in section 3 by a brief presentation of the three MENA countries' exchange regimes. We will then expose our data and the theoretical framework in section 4 and then the empirical findings in section 5. Finally, we will end this article with a conclusion and some policy implications in section 6.

2. Literature Review

Since the 1970s, studies such as (Ishiyama, 1975) discussed the pros and cons of having fixed or flexible exchange rates. The author concluded that fixed exchange rates could be beneficial for small economies if they favored a soft peg composed of various currencies. (Flood & Hodrick, 1986) slightly diverge from this vision. They showed that fixed regimes might be useful in the short run, but introducing more flexibility is inevitable to preserve stability in the long run. (Gerlach, 1988) argued through his analysis of exchange rate behaviors in OECD countries that those flexibility reforms increased exchange rate volatility. (Rose A. K., 1996) found similar results in his study of the EMS reforms introduced in the aftermath of 1992's speculative attacks. The same vision is also shared by (Kocenda & Valachy, 2006) in their study of exchange rate volatility in Višegrad countries during the transition to flexible regimes.

However, (Hausmann, Gavin, Pages-Serra, & Stein, 2000) advocated that the results of flexibility reforms are not universal; they depend on the country's economic structure and ability to defend its currency against speculative attacks. The author also exhibited the role of central bank interventions in containing exchange rate volatility, especially in a period of crisis. Those findings are corroborated by (Rose A. K., 2011), who confirmed that flexible and fixed rates regime's success depended on the country's monetary policy. In other words, the introduction of the same flexibility reforms into countries with the same economic structure will not necessarily yield the same results.

As we can see, the literature addressing the impact of the flexibilization process on market behavior is quite limited and contain various contrasting results. Thus, our original contribution will be to investigate those fallouts empirically through a comparative study of three MENA countries (Morocco, Tunisia, and Kuwait), which have initiated significant flexibilization processes in recent years.

3. Exchange rate regime in the studied countries

3.1 Morocco

The Moroccan dirham was anchored to various major currencies through time. Starting with French Franc (FFR) right after the independence, then a multi-currency basket anchor since the 1970s, the Moroccan dirham was always in a fixed exchange regime. That said, in June 1996, the Moroccan foreign exchange market was created, and banks got the power to trade foreign currencies without the central bank acting as the middle man. Also, a narrow fluctuation band of ±0.3% was established to allow flexibility in a market characterized by strict capital control.

After the Asian crisis and the internet bubble burst, the U.S. Dollar raised sharply against the dirham forcing the Moroccan authorities to a 5% devaluation of the local currency in 2001. This devaluation took the form of a change in the peg composition (80% EUR and 20% USD). After the Euro debt crisis in 2011, the growing gap between American and European economies pushed the U.S. dollar higher against the Euro and the dirham. The Moroccan monetary authorities then changed the basket composition again to preserve local exports' competitiveness, moving ratios to 60% EUR and 40% USD. After a turbulent second semester in 2017 on the local market, the Moroccan authorities initiated a flexibilization process in 2018. The main reforms were the widening of fluctuation bands to ±2.5%, suppressing central banks' intervention on the local market, and creating a Market Maker statute for banks to auto-regulate the local market liquidity. In March 2020, as COVID19 economic fallouts started to impact the Moroccan economy, monetary authority widened the fluctuation bands to ±5% to help absorb those shocks.

3.2 Tunisia

After its independence, Tunisia adopted a rigid anchor to the FFR before switching to a basket anchor composed of major world currencies in the 1980s. The local foreign exchange market started in 1992 with a central bank massively intervening daily. After the Jasmine revolution in 2011, the country's economy presented a 1.9% contraction for the first time in Tunisia's modern history. This problematic context forced the central bank to seek loans from the IMF, who strongly advised that the central bank reduce its interventions to let the market reflect the dinar's real value. Those recommendations pushed monetary authorities to initiate a flexibilization process in 2015. The local currency lost roughly half of its value in the following years due to the challenging economic conditions and the weak foreign exchange reserves. Tunisia has a "Crawling Peg" de facto regime, even though the central bank officially declares adopting a managed floating (IMF, 2019).

3.3 Kuwait

Kuwait's exchange rate was anchored to a basket of major currencies until 2003. The country adopted a rigid anchor to the U.S. Dollar (USD 1 = KWD 0.29963), as did many Gulf Cooperation Council (GCC) efforts as part of their steps toward monetary union. After the U.S. dollar's critical depreciation in 2006, Kuwait's central bank re-established a soft peg regime with fluctuation bands of ±3.5% and initiated a flexibilization process. Even though the composition of the country's peg basket is not disclosed, studies such as (Jen & Bindelli, 2008) and (Saidi, Scacciavillani, & Ali, 2008) confirm that U.S. Dollar is predominant in the peg basket due to the importance of oil exports in the country's economy.

4. Data and methodology

4.1 Data

To ensure our data integrity, we used daily closing exchange rates against the U.S. Dollar published by the studied counties' central banks. We split our data into two samples to exhibit the impacts of flexibilization reforms on the forex market. We listed the details of the different study periods in Table 1. We adopted a discontinued study period for Kuwait as the country went through a fixed hard peg regime between 2003 and 2006.

Table 1. The details of studied Periods

Studied country	Before flexibility reforms	After flexibility reforms
	P1	P2
Morocco	04/25/2001 – 01/12/2018	01/15/2018 – 12/31/2019
Tunisia	03/08/2006 - 12/31/2014	01/01/2015 - 12/31/2019
Kuwait	01/04/2000 - 12/31/2002	01/01/2007 - 12/31/2019

To ensure the stationarity needed for GARCH and FIGARCH models, we will use the daily logarithmic yields instead of level data in our modeling. We define daily logarithmic yields as follow:

$$Y_t = \log(S_t) - \log(S_{t-1}) \tag{1}$$

With S_t, the closing exchange rate of the day *t*.

4.2 Stationarity

Using the ADF test, we test the stationarity of our series during the different study periods. The results listed in Table 2 show that all the yield series are stationary

Table 2. Results of Augmented Dickey-Fuller test for yields series

		P1	P2	Stationarity
Morocco	ADF test result	-75.78103	-65.48713	I(1)
	P-value	0.0000	0.0001	
Tunisia	ADF test result	-63.65650	-32.39048	I(1)
	P-value	0.0000	0.0000	
Kuwait	ADF test result	-18.08693	-52.74752	I(1)
	P-value	0.0000	0.0001	

Graphical analysis

The plot of the USD/MAD closing rates presented in Figure 1 shows no particular trend with a significant number of volatility clusters. This observation is confirmed by the yield's series plot on the same Figure, where volatility clusters are more critical with visible spikes during crisis periods.

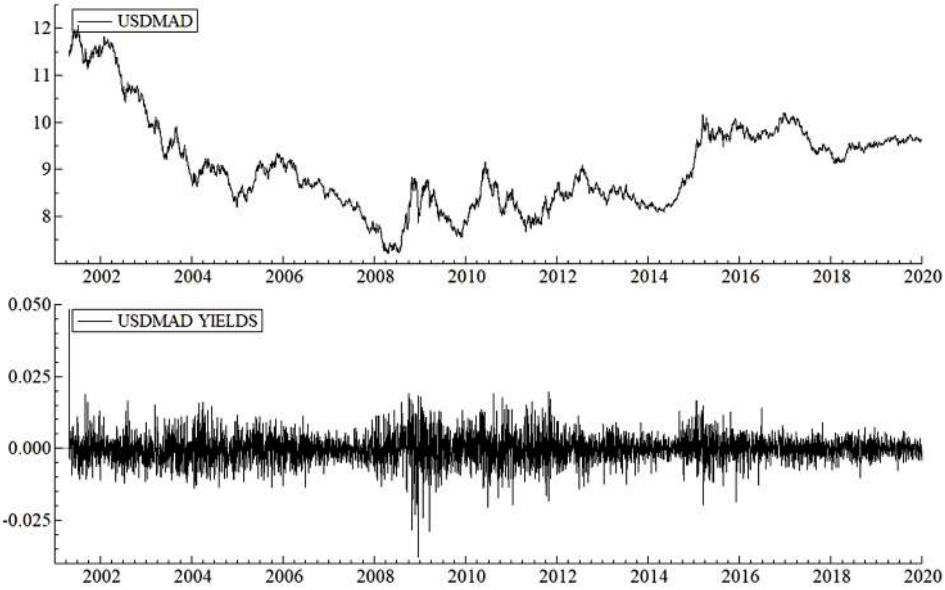

Figure 1. USD/MAD closing rates and yields series

The USD/TND closing rates plotted in Figure 2 show a relatively calm period before 2014 with moderate movements. However, after 2015 we observe a substantial depreciation of the local currency. On the yield graph, we keep significant volatility clusters during crisis periods, as was the case in 2009 and after the initiation of flexibilization reform.

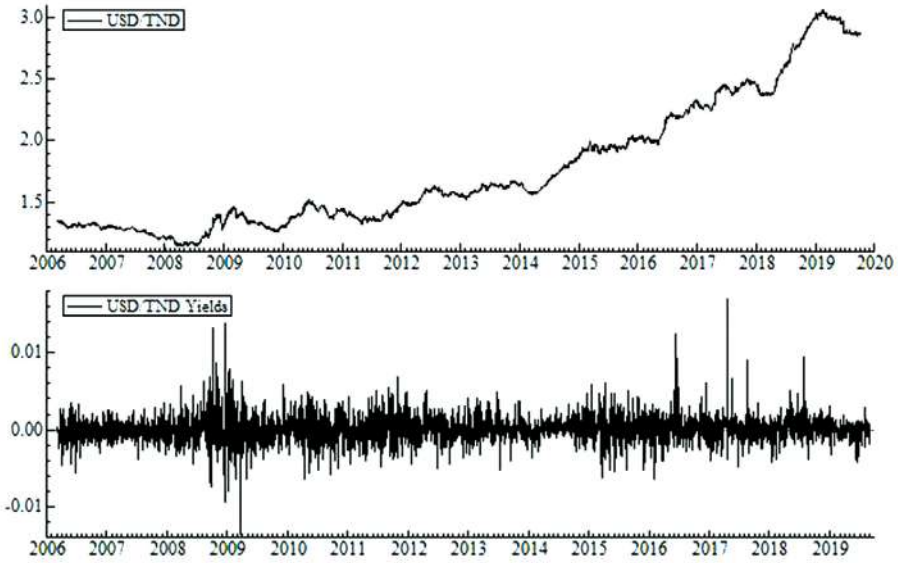

Figure 2. USD/TND closing rates and yields series

The plot of the USD/KWD closing rates in Figure 3 shows the critical difference in movement between our two study periods. We observe a significant increase in fluctuation and volatility clusters after the introduction of flexibility reforms in 2007. Finally, we notice the discontinuity of the yields' series materialized by a relatively constant value between 2003 and 2006.

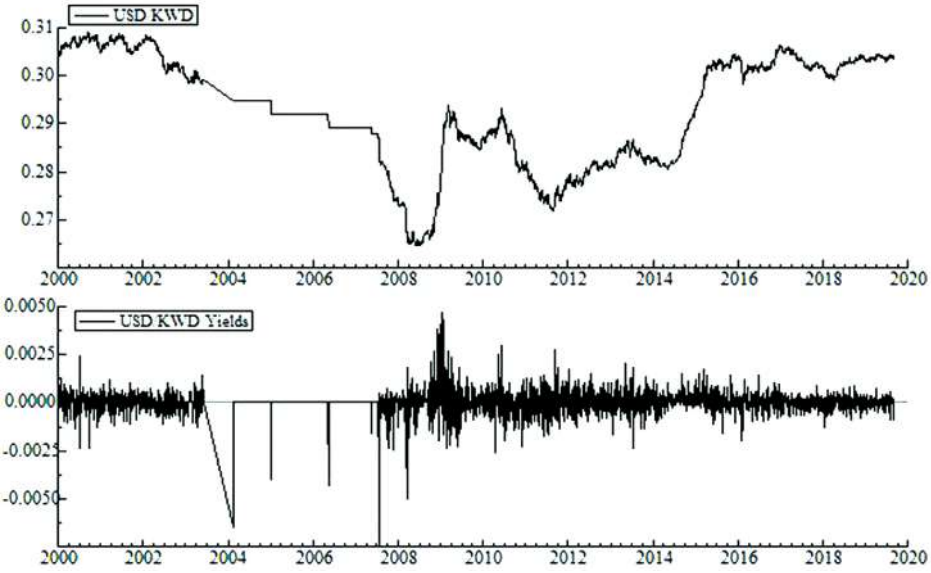

Figure 3. USD/KWD closing rates and series

4.3 Descriptive statistics

The descriptive statistics of the studied series listed in Table 3 show that the yields are leptokurtic on all the periods, which means that their movements are significantly different from those predicted by the ordinary law. We also notice that the series are negatively skewed for Morocco and Kuwait while being positively skewed for Tunisia.

Table 3. Descriptive statistics of yields series

	Morocco		**Tunisia**		**Kuwait**	
	P1	**P2**	**P1**	**P2**	**P1**	**P2**
Mean	1.01E-05	7.42E-05	6.12E-05	0.000161	-6.60E-06	7.65E-06
Median	0.000000	0.000156	0.000000	0.000141	0.000000	0.000000
Maximum	0.048537	0.007418	0.013783	0.016883	0.001281	0.004660
Minimum	-0.049676	-0.010336	-0.013627	-0.006480	-0.001356	-0.007483
Std. Dev.	0.004977	0.002553	0.001851	0.001724	0.000395	0.000559
Skewness	-0.097538	-0.187992	0.250914	1.326274	-0.294034	-0.505474
Kurtosis	8.978139	3.469956	8.290703	14.82727	3.871509	24.53023
Jarque-Bera	8405.917	7.259554	2656.054	7168.489	27.86407	53425.88
Probability	0.000000	0.026522	0.000000	0.000000	0.000001	0.000000

4.4 ARCH AND GARCH models

(Engle, 1982) introduced the ARCH model (Autoregressive conditional heteroskedasticity) as part of its analysis of the United Kingdom's variance of inflation. We can express an ARCH model of order q in the following form:

$$r_t = \mu + y_t \tag{2}$$

$$y_t = \varepsilon_t + \sigma_t \tag{3}$$

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^{q} \alpha_i y_{t-i}^2, \alpha_i > 0 \; \forall i \in \{0, \ldots, q\} \tag{4}$$

$y_t \left| \psi_{t-1} \sim N(0, \sigma_t^2) \right.$

y_t: The error terms of the mean equation
r_t: Logarithmic yields at the moment t
μ_t: An average of the logarithmic yield
ε_t: Gaussian process i.i.d such that (White noise)
σ_t: The volatility of the asset
$\psi_{(t-1)}$: Information available in t-1
α_0 is usually considered as the minimum volatility and α_i the impact of past shocks. Although the ARCH model is easy to estimate, it remains constrained due to the difficulty of determining the q order and the non-negativity constraint of the α_i parameters. To address this problem (Bollerslev, 1986) introduces GARCH (Generalized ARCH), which adopted a similar generalization to the extension of the A.R. (p) model

to ARMA (p, q) model. The introduction of an autoregressive term β_i characterizes the GARCH model. This parameter represents the impact of past volatilities.

We express the conditional volatility in the GARCH model as follows:
with p and q positive integer

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^{q} \alpha_i y_{t-i}^2 + \sum_{j=1}^{p} \beta_j \sigma_{t-j}^2$$
$$\alpha_i > 0 \ \forall i \in \{0,\ldots,q\}, \beta_j \geq 0 \ \forall i \in \{1,\ldots,p\} \quad (5)$$

4.5 FIGARCH model

The FIGARCH model (Fractionally integrated generalized autoregressive conditional heteroskedasticity) was first introduced (Baillie, Boi|erslev, & Mikkelsen, 1996) to study the presence of long memory in DEM/USD exchange rates between 1979 and 1992. This model was developed as the authors saw that the IGARCH model might be too restrictive as it may yield infinite volatility, which contradicts the observed dynamics of financial series.

The FIGARCH(1,d,1) is defined as Follow:

$$\begin{cases} r_t = \mu + \rho r_{t-1} + y_t, \ y_t \left| \psi_t \sim D(0, \sigma_t^2) \right. \\ \sigma_t^2 = \alpha_0 + \left\{ 1 - \left[1 - \beta_1 L \right]^{-1} (1 - \varphi_1 L)[1 - L]^d \right\} y_t^2 \end{cases} \quad (6)$$

Where:
μ: An average of the logarithmic yield
y_t: The error terms of the mean equation
ψ_t: Information available in t
d: The fractional integration parameter comprised between 0 and 1, which model long memory behavior and the slow decay of volatility shocks
L: The lag operator
$D(.,.)$: The conditional distribution

5. Empirical finding

Table 4. Results of GARCH (1,1) Model

	Morocco		**Tunisia**		**Kuwait**	
	P1	**P2**	**P1**	**P2**	**P1**	**P2**
$\alpha_1 10^6$	0.015919	0.018133	0.010651	0.018102	0.008524	0.005709
	[0.03540]	[0.02240]	[0.07800]	[0.07130]	[0.04500]	[0.03760]
α_1	0.030808	0.048852	0.032893	0.063559	0.021367	0.039413
	[0.00000]	[0.00000]	[0.00000]	[0.00000]	[0.21200]	[0.00330]
β_1	0.965262	0.947930	0.963969	0.931512	0.966896	0.949972
	[0.00000]	[0.00000]	[0.00000]	[0.00000]	[0.00000]	[0.00000]
$\alpha_1+\beta_1$	0.996070	0.996780	0.996860	0.995070	0.988260	0.989380

	Morocco		Tunisia		Kuwait	
	P1	P2	P1	P2	P1	P2
Log-likelihood	20337.10	29113.60	11241.10	17031.47	9241.080	17023.57
Unconditional Volatility 10^6	4.049920	5.634550	3.394000	4.672850	0.726309	1.937835

The GARCH (1,1) results presented in Table 4 exhibit surprising lower volatility in Kuwait's case than Morocco and Tunisia over both periods. The USD/KWD closing rates plotted in Figure 3, and the conditional volatility presented in Figure 6 confirm this observation as we notice relatively small changes through our study period. Those subtle movements resulted from Kuwaiti dinar's limited use in international trade, as 80% of its oil exports are settled in U.S. dollars. The low volatility also limits the Kuwaiti dinar's use in speculative trading as the profits are meager, making it a non-attractive asset for speculative trading.

The second observation is the significant climb in volatility after the flexibilization process in the three countries. This rise is exceptionally substantial in Kuwait's case, where the volatility increased almost three-time after the introduction of flexibility reforms. This finding corroborates those of (Gerlach, 1988), (Rose A. K., 1996) and (Kocenda & Valachy, 2006) concerning the increase of volatility after switching to a more flexible regime. In the case of the studied countries, this growing volatility resulted mainly from the change in the central banks' role. They limited their interventions considerably and started acting exclusively as a liquidity provider. This behavior change allowed prices to fluctuate more aggressively within the fluctuation bands to reflect offer and demand in the domestic exchange market.

The third observation is the increasing impact of shocks after introducing flexibility reforms in all the studied countries, especially in Tunisia, where this impact doubled from one period to another. Moreover, the plot of USD/TND conditional volatility presented in Figure 5 shows more frequent spikes after 2015 than those observed during the first period. (Beinea, Laurent, & Lecourt, 2003) and (Katusiime & Agbola, 2018) argued that central banks' public interventions significantly reduce shocks' impacts. Therefore, as the Tunisian central bank limited its interventions as part of the flexibilization reform, the domestic forex market became more sensitive to shocks. Those shocks are mainly endogenous and related to liquidity as capital control and flexible regime offset the impacts of external shocks as shown by (Glick & Wihlborg, 1990), (Edwardsa & Yeyati, 2005), and (Edwards & Rigobon, 2009).

Similar results are noticed in the case of Morocco with a lesser amplitude due to two main factors. The first one is that the Moroccan central bank role was always a liquidity provider and had only intervened a few times on the domestic forex market during the significant financial crisis, as was the case in 2008. The second one is the relatively stable context in which the flexibilization reform was initiated in Morocco compared to Tunisia, where the economy was struggling deeply with political instability and crushing external debt.

The last observation is the drop in past volatilities impact in the second period for all the studied countries, which implies that the growing flexibility allowed the

local market to absorb external shocks using price adjustment accordingly to offer and demand. We frequently observe this phenomenon in the Moroccan exchange market as local banks adjust their prices within fluctuation bands to absorb intraday volatility. Furthermore, the plot of USD/MAD conditional volatility presented in Figure 4 corroborates this finding as we observe a sharp decrease in volatility clusters after the introduction of flexibility reforms in 2018.

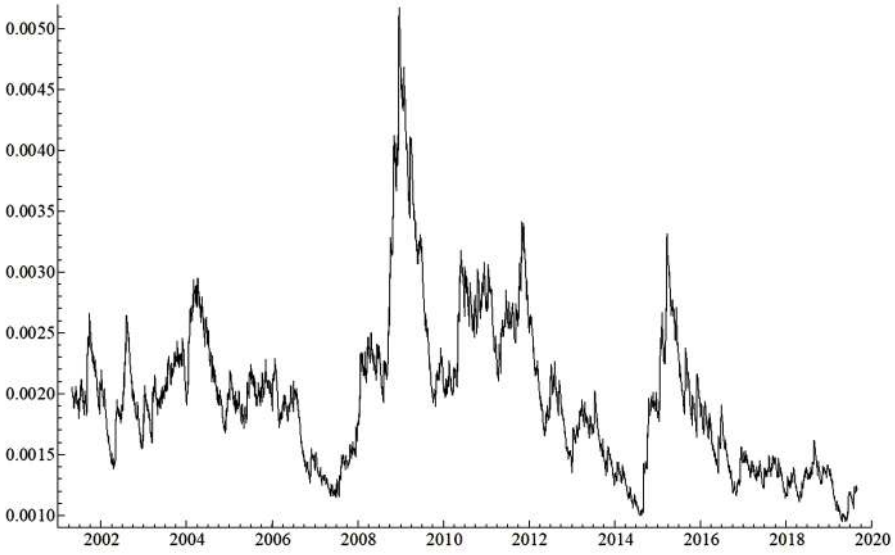

Figure 4. Conditional Volatility of USD/MAD Yields

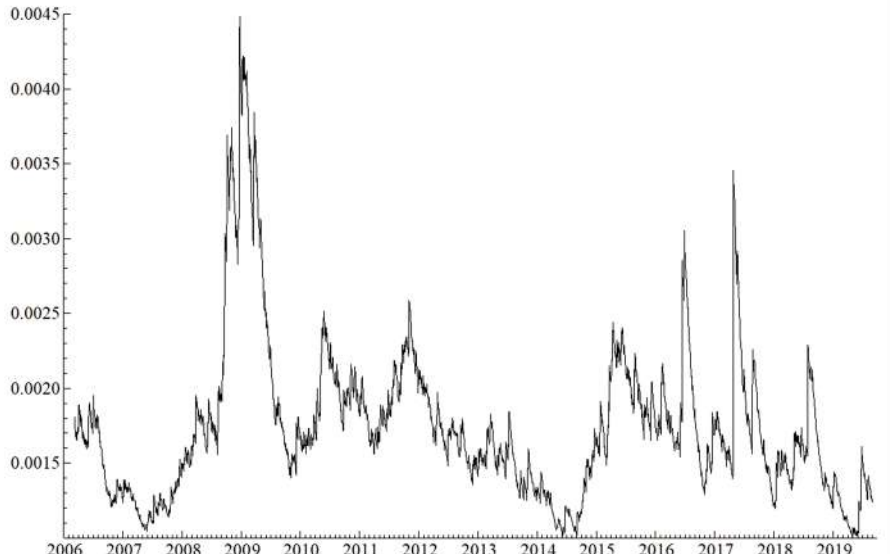

Figure 5. Conditional Volatility of USD/TND Yields

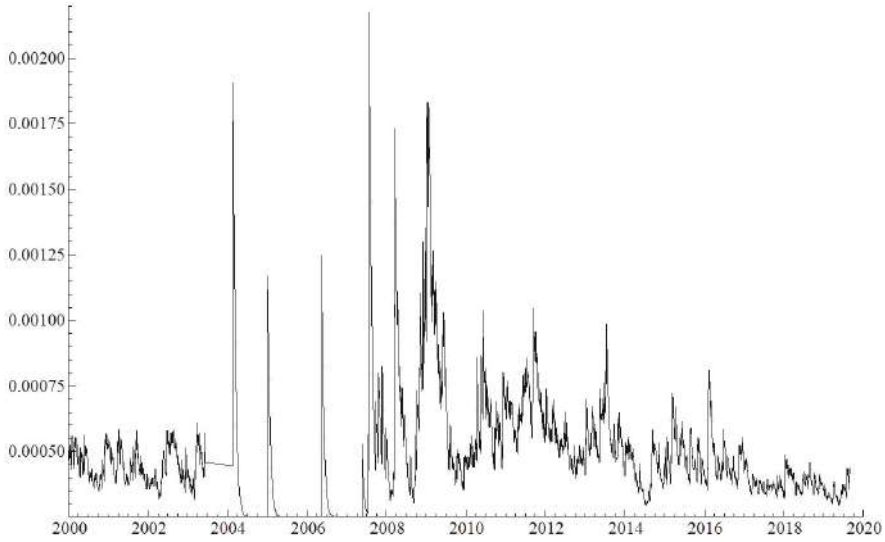

Figure 6. Conditional Volatility of USD/KWD Yields

To further scrutinize the flexibilization process's fallouts, we will investigate the evolution of long-term memory in domestic markets using the FIGARCH model. This analysis will give us more insights regarding local banks' behavior and their sensitivity to historical volatility and the domestic context.

Table 5. Results of FIGARCH (1,d,1) Model

	Morocco		**Tunisia**		**Kuwait**	
	P1	**P2**	**P1**	**P2**	**P1**	**P2**
$\alpha_t 10^6$	0.072742	0.098399	0.007391	0.081850	0.008536	0.007766
	[0.03500]	[0.54390]	[0.1193]	[0.16700]	[0.08980]	[0.03220]
α_1	0.268189	0.465882	0.119975	0.533605	-0.075135	0.033298
	[0.00000]	[0.00090]	[0.07140]	[0.00070]	[0.05490]	[0.03730]
β_1	0.729133	0.698429	0.942504	0.791065	0.858954	0.805884
	[0.00000]	[0.00000]	[0.00000]	[0.00000]	[0.00000]	[0.00000]
d	0.464771	0.258011	0.867777	0.417476	0.931501	0.801295
	[0.00000]	[0.04640]	[0.00000]	[0.03330]	[0.00000]	[0.00000]
Log-likelihood	20230.3	2758.87	10719.6	5814.07	2122.9	17050.3

The results of the FIGARCH (1,d,1) model listed in Table 5 exhibit a clear presence of long memory processes in all the studied exchange rates as suggested by various researchers such as (Cheung, 1993), (Alptekin, 2006), (Caporale & Gil-Alana, 2013)

and (Barkoulas, Barilla, & Wells, 2016). We also observe a high value of Tunisia and Kuwait fractional integration parameters before the flexibilization process initiation compared to Morocco due to different reasons.

For Kuwait, the significant long memory process results from the limited dinar movements and the country's economic stability. This explanation is further confirmed as the fractional integration parameter remained relatively high compared to the other studied countries after introducing flexibility reforms.

On the other hand, Tunisia's robust long memory process results from the central bank's frequent exchange market interventions, which maintained stability through the first period. As a result, domestic market actors always relied on the monetary authorities to absorb external and domestic shocks, explaining the fractional integration parameter's high value during this period. The 51% drop in this parameter during the second period supports our interpretation of the central bank's role in boosting the long memory process.

This decrease in the fractional integration parameter is also significant in Morocco, where the long memory process decreased by roughly 55%. This substantial decline results from market actors becoming less sensitive to historical volatility and its movements after introducing flexibility reforms. As a matter of fact, with the widening of fluctuation bands, market actors gained significant leeway to adjust prices accordingly with domestic liquidity and their anticipations of demand, making them more responsive to monetary policies and the domestic economic context rather than market volatility.

6. Conclusion and discussion

This study investigated the impact of flexibility reforms on the foreign exchange market in various countries with intermediary regimes. We used closing exchange rates from three MENA countries that introduced initiated flexibilization processes in recent years. We then conducted a comparative study using heteroscedastic models to exhibit various market behavior changes.

Our first result is relatively intuitive. The introduction of flexibility reforms amplifies volatility as prices started moving more freely within the fluctuation bands after the limitation of central banks' interventions. This finding corroborates and explains further the results of (Gerlach, 1988), (Rose A. K., 1996) and (Kocenda & Valachy, 2006). The second finding is that the flexibilization process contributes to the rise of shocks' impacts, especially in counties with challenging economic contexts during the transition. The third result is that the domestic forex market acquires a growing capacity to absorb past volatilities and external shocks after introducing flexibility reforms. Furthermore, this increasing leeway allows market actors, especially market marker banks, to adjust prices accordingly with domestic liquidity and their anticipations of demand, which increases their sensitivity to monetary policies and the domestic economic context rather than market volatility. This study's results have significant value for countries planning to initiate a flexibilization process and move toward more advanced steps. Moreover, this research's different conclusions

will help monetary authorities, domestic banks, and corporations develop detailed road maps to face challenges related to domestic market mutations and the various crisis risks linked to this type of process.

Further studies should focus on the flexibilization process steering, crisis detection, and simulation models to help different market actors prepare more efficiently for an imminent transition toward floating.

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PAPER

The Macroeconomic and Demographic Determinants of Saving Behavior in Selected Countries of Asia

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Abstract This research study examines macroeconomic and demographic factors that affect the gross domestic savings of highly youth population countries of Asia by taking data from 1990 to 2019. The countries considered in our study are Pakistan, India, China, Indonesia and Bangladesh. For this purpose, long-run coefficients are estimated using the Fully Modified Ordinary Least Square (FMOLS) estimation method to calculate the coefficients of the variables with heterogeneous standard errors. According to the estimated results, all the variables significantly impact gross domestic savings. The study results revealed that macroeconomic and demographic determinants significantly affect the gross domestic savings of sampled countries. Macroeconomic variables like GDP per capita and interest rate positively affected savings. While inflation is negatively affecting them. Especially, demographic factors like the dependency ratio negatively affect the gross domestic savings in sample countries. While infant mortality rate and urbanization are reported as the positive determinants of savings.

Keywords: savings, demographic transitions.

JEL Classification: E6, J1, O1.

1. Introduction

Income has two components, savings and consumption (Mankiw, 2012). Basically, savings are that part of income that remains after consumption (S = Y - C). For every economy, savings play a vital role because a high saving rate means more investment

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as national income equilibrium savings are equal to the investment (Keynes, 2018). So, it could be said that more will be the investment, more will be the economic growth (Riaz & Riaz, 2018), as savings and investment are equal to each other.

If we talk about the general savings function, which is also discussed in many standard textbooks, it is a function of income and interest rate (Mankiw, 2012; Keynes, 2018; Romer, 2018), an increasing function. Many recent studies confirm this relationship (Aidoo-Mensah, 2018; Alper, 2018; Bofinger & Scheuermeyer, 2019). When an individual's income increases, it leads to an increase in the saving potential of that person and vice versa (Najarzadeh et al., 2014). Similarly, the interest rate also has a positive impact on savings (Mushtaq & Siddiqui, 2017), because an increase in interest rate will bring individuals in a position to earn more in the future, giving them a motive for willing forgoing consumption today.

Usually, by increasing life expectancy, savings can be increased (Epaphra, 2014). This is because a healthier population tend to save private medical expenses. Demographic changes are among the factors determining the saving patters (Kruger, 2004; Schultz, 2005). Demographic changes are related to the population, and it means the change in the living condition of the population regarding age, race, and sex[1]. The number of demographic changes can also be seen in society by increasing the population. Two reasons behind demographic transitions are considered, first, the increase of fertility is an important factor behind the demographic transitions (Galor, 2012), secondly, human capital (Lutz et al., 2019).

As discussed earlier, the importance of savings for an economy and demographic change impact it. For example, considering population growth, it also impacts savings due to an increase in population savings must increase proportionally (Epaphra, 2014). This disproportional increase may represent the economic imbalance in the economy. An increase in population has a dual effect on savings because if the number of independent increases, savings may increase. However, if dependents are increasing, savings may reduce (Cook, 2005). Some demographic variables[2] like dependency ratio, infant mortality rate and urbanization as demographic variables can directly affect the saving.

Similarly, people of different localities (like rural and urban areas) have different savings patterns (Hua & Erreygers, 2019). But usually increase labour force and graduates leads to an increase in the saving rate in every locality (Ceritoğlu & Eren, 2014). Different countries are affecting differently by the demography transition around the world (Martinez et al., 2012; Golley & Tyers, 2013), but the most important thing is that demographic changes affect the world. But some standard indicators of demographic change like urbanization and unemployment have a positive and negative impact, respectively on savings (Doker et al., 2016).

The role of the demographic transition in countries' youth population is prominent (Arif & Chaudhry, 2008). It is because the advantages of demographic transition concerning the rising share of youth in the total population have partially been translated by the development of their human capital and valuable improvement in the labour market domestically.

[1] https://www.investopedia.com/terms/d/demographics.asp

[2] https://www.cliffsnotes.com/study-guides/sociology/population-and-urbanization/population-and-demographic-variables

Considering the role of demography has some benefits because age distributions help to explain the contrasting saving patterns for different regions (Curtis et al., 2017).

We have considered three demographic indicators infant mortality rate, urbanization, and dependency ratio that are presented below from figure 1 to 3 to understand the time trend along with savings in a comparative way. These graphs consider highly youth populated regions of Asia. As shown in Figure 1, the dependency ratio reduces through time while savings are improving. Hence, it is representing the average trend of these countries. So, Figure 1 is reflecting the inverse relation between savings and the dependency ratio.

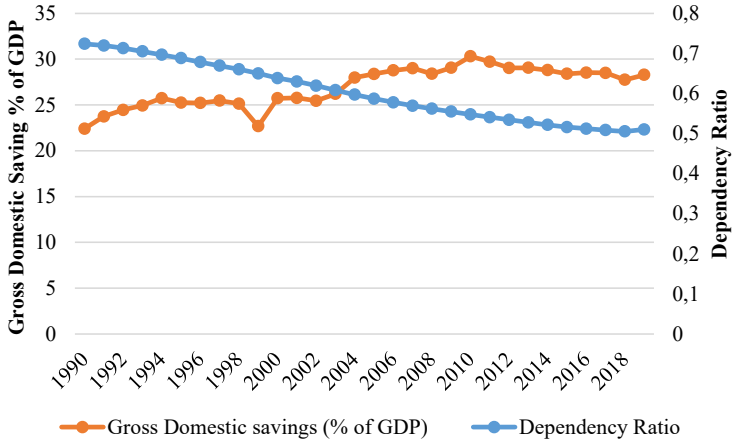

Figure 1. Savings and Dependency Ratio Trend
Source: WDI

Figure 2 shows the average time trend of savings infant mortality rate (per 1,000 live births). The noticeable thing is that the infant mortality rate has decreased very sharply, and it is a positive sign. Comparatively, savings are increasing but at a plodding pace. This increase can be seen from 2000 to 2010. However, after that there is no increase, in fact from 2010 onward it can be seen a slight decrease.

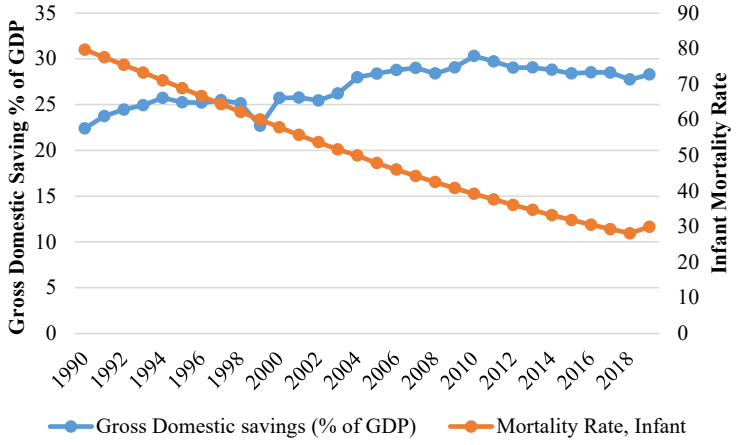

Figure 2. Savings and Mortality Rate, Infant Trend
Source: WDI

In the exact context Figure 3 contains average savings and urbanization time trend. In this graph, urbanization is very fast, straight and smooth, which means that people migrate from rural to urban areas very fast. By comparison, savings increasing till 2010 but after starts to decline slowly. Savings are not increasing smoothly as urbanization, there are fluctuations.

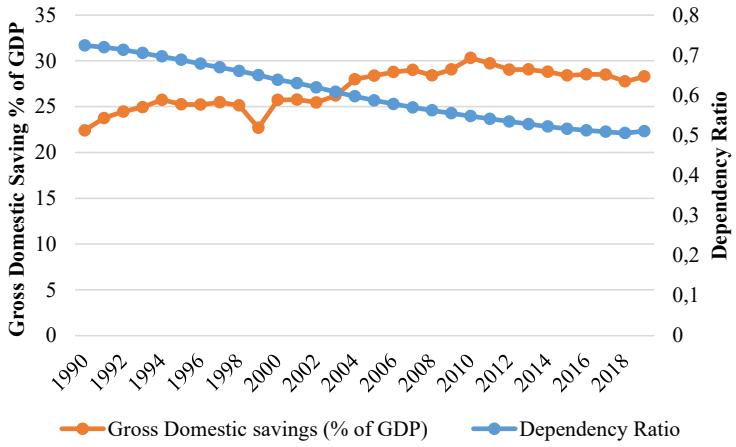

Figure 3. Savings and Urbanization Trend
Source: WDI

Three graphs were presented for the comparative outlook towards savings with dependency ratio, infant mortality rate, and urbanization. One evidence is clear; these demographic transitions are smooth and consistent with respect to time. But the savings have fluctuations; sometimes it shows an increasing trend and sometimes decreases.

This study aims to check the role of demographic changes on savings in the selected Asian countries while controlling for the standard economic indicators of savings rate. To this end, the majority of youth populated nations are selected from Asia. This study has focused on dependency ratio, infant mortality rate, and urbanization to test the role of demographic transition. This study also aims to propose a suitable policy that may become crucial overtime when the population distributions shift to an economically active population.

After a detailed introduction about demographic transitions and savings, this study has formulated a review of some related literature to strengthen the subject matter. Subsequently, the estimated results and economic reasoning are discussed after data and methodology. In the end, the conclusion and policy recommendations are discussed.

2. Literature Review

The economic literature bundle of work can be seen regarding savings, investment, and consumption, from classical economists till now (Mankiw, 2012). Later, many economists put some light on the subject matter according to their vision, like Obwona and John (1998) explored the reasons for savings in Uganda by taking the microdata. The study results reported that the savings are driven to fulfil the meagre needs of

health and education requirements. Considering some recent literature, Chowa et al. (2012) investigated the determinants of savings in low-income individuals of rural Uganda. The study suggested that savings can increase if the financial barriers to savings can be removed.

Furthermore, financial incentives and financial education have a role in determining savings. Beckmann et al. (2013) studied the drivers of savings in Central, Eastern and Southeastern European countries between 2010 and 2011. The study results revealed that the individuals' age, education, and income are the main drivers of savings in these countries. Ayalew (2013) tested domestic savings behaviour by using the data of various determinants for the period 1970 to 2010. The ARDL bounds testing approach confirmed the long-run cointegration relationship. The study results show that the inflation rate, GDP growth rate and depositing interest rates significantly affect the domestic savings in Ethiopia.

Mishi (2014) explored the reasons for savings in South Africa. The study results show that the level of income, financial development and uncertainty about inflation are the key factors impacting the savings level in South Africa. Samantaraya and Suresh (2014) applied the ARDL approach to the determinants of savings for Indian data. The study considered the various variables that are affecting savings. It was found that dependency ratio, inflation and interest rate are the significant variables affecting savings in India. Furthermore, the ARDL approach also confirmed the existence of a long-run relationship among the variables.

Finlay and Price (2015) investigated the reasons for the increase in savings in Australia from 2003-04 to 2009-10, and the results suggested that the rise in household savings was driven by changes in the saving behaviour rather than changes in the population characteristics. Ndirangu and Willy (2015) tested the effect of various factors on Kenya's savings by taking the data from 1970 to 2013. The study results depicted that gross domestic product, inflation and age dependency ratio are the key variables affecting the savings in Kenya. Ahmed (2015) used time-series data of Pakistan regarding the determinants of saving from 1972 to 2012. The study results suggested that dependency ratio, fiscal development and financial development affected the savings in Pakistan. Kolasa and Barbara (2015) compared the determinants of the savings of Poland with the Organization of Economic Cooperation and Development (OECD) countries. The financial deepening process was the main reason for deviations between Poland and OECD countries' saving determinants.

Ozioma et al. (2016) have explored the determinants of gross domestic savings for this purpose. They have applied the vector error correction model from 1980 to 2015 for Nigeria. According to the long-run results, financial development, consumption, and interest rate positively related to savings, but GDP per capita has negative. Perciun et al. (2017) studied the dynamics of savings for the Republic of Moldova's case. The study finding suggests that a trim level of savings indicates the downfall trend in economic growth. The study further specified that the estimates of the National Bank of Moldova indicate that a minimal amount of legal export of capital occurs during the process of export of capital. Patra et al. (2017) identified the causal relationship

between economic growth and the behaviour of savings in the case of India by using data from 1950-51 to 2011-12. The study has also used the structural break for analyzing the causal behaviour of savings and economic growth. The study confirmed the existence of a long-run relationship between both variables and indicates that in both pre and post-structural break period, savings are causing economic growth. However, economic growth is causing savings in the pre-break period only.

Kim et al. (2017) used the annual data of Vietnam from 1986 to 2015 to identify the effect of savings on economic growth. The study results indicate that savings and investment are positively and significantly impacting economic growth, while the dependency ratio has a negative and significant impact on economic growth in the long run. Bolarinwa and Obembe (2017) studied the causal relationship between economic growth and domestic savings for the case of 06 Sub Saharan African countries by using data from 1981 to 2014. The study results revealed that the direction of the causal relationship is mixed type as for some sample courtiers it is running from economic growth towards saving, while, for some countries, causality is running from savings towards economic growth.

Bui (2018) researched to check the impact of fiscal policy for specific variables like net tax and government expenditures on savings of 23 Asian economies by employing data from 1990 to 2015. The study results suggested that tax policy is suitable during the recession period while government spending is found to be effective during an economic slowdown. Dash and Kumar (2018) conducted a study to check the impact of inflation on variations in savings for the case of India. The study results revealed that inflation is significantly and negatively causing savings. Nwosu et al. (2019) conducted this study to find out the micro determinants of savings in the case of Nigeria. For this purpose, the analysis was conducted on the household survey of Nigeria. The study results indicated that the significant determinants of savings are land ownership, occupation, marital status, availability of infrastructure and availability of electricity.
Joshi et al. (2019) researched the relationship between the three critical variables, i.e., saving economic growth and investment for Nepal, by taking data from 1975 to 2016. The structural break was introduced in the variable of economic growth, and long-run cointegration was validated among the selected variables. The study findings suggested that investment is significantly and positively related to economic growth. While saving negatively impacts economic growth, savings are not channelized towards economic growth. Nagawa et al. (2020) conducted this study to explore the key determinants of gross savings of Uganda by taking data from 1980 to 2017. The study results revealed that economic growth, Broad money and foreign direct investment are the key significant variables that are positively related to savings.

Specifically, some demographic variables affect savings. There are many demographic variables, for example, dependency ratio, usually, when it increases, it reduces the savings some studies like Samantaraya and Suresh (2014), Ndirangu and Willy (2015) and Kim et al. (2017) have discussed in their study that dependency ratio falls the savings. If people are conscious about the future, they will focus on precautionary savings, usually an increase in the mortality rate responsible for

precautionary savings. Some studies like Hau (2001), Hsu (2013), Salm (2010), Nardi et al. (2016), Boar (2020) and Jordà (2020). In the savings literature regarding demographic transition, some studies like Matur et al. (2012), Doker et al. (2016) and Khan et al. (2016) have used urbanization and found it as a significant demographic variable with savings.

The above-discussed studies have tried to cover the subject of savings well but there are still some missing aspects which this study have tried to fulfil. This study has focused on five high youth populated countries of Asia that these studies have ignored regarding demographic transitions and savings. Undoubtedly, many studies have explored the impact of demographic transitions related to urbanization and dependency ratio on savings but how mortality is affecting savings was also a missing aspect that this study tried to fulfil.

3. Data and Methodology

This study has tried to determine some key factors of savings and some demographic determinants using secondary data. This study focused on five highly youth populated countries of Asia (Bangladesh, China, India, Indonesia and Pakistan) from 1990 to 2019. All the series are collected from world development indicators (WDI) except interest rate collected from International Financial Statistics (IFS). Moreover, table 1 contains the full description of variables and the source and definition.

Table 1. Description of the Variables

Symbol	Definition	Source
SAV	Natural log of gross domestic savings (% of GDP)	WDI
ECG	Natural log of GDP per capita (constant US$)	WDI
INF	Natural log of consumer price index	WDI
INT	Natural log of annual interest rate	IFS
DRO	Natural log of Ratio of dependent population to working population	WDI
IMR	Natural log of infant mortality rate (per 1,000 live births)	WDI
UBR	Natural log of urban to rural population ratio	WDI

This study proposed four regression models. Model 1 is the basic model that contains some traditional variables like economic growth, inflation and interest rate. But model 2 to 4 contains demographic variable like dependency ratio, infant mortality rate and urbanization. In all the models β_1, β_2 and β_3 are the coefficients of economic growth, inflation and interest rate respectively. In model 2 to 4, β_4 represents the coefficients of dependency ratio, infant mortality rate, and urbanization. While e_{it} is the normally distributed error term. These models are estimated using Fully Modified Ordinary Least Square (FMOLS). Basically, FMOLS considered those issues about endogeneity, intercept term and removes the missing variables biases and homogeneity restrictions

(Cavallo & Pedemonte, 2016; Garcia, 2019; Ertuğrul, & Gebeşoğlu, 2020).

$$SAV_{it} = \beta_0 + \beta_1 ECG_{it} + \beta_2 INF_{it} + \beta_3 INT_{it} + e_{it} \quad (1)$$

$$SAV_{it} = \beta_0 + \beta_1 ECG_{it} + \beta_2 INF_{it} + \beta_3 INT_{it} + \beta_4 DRO_{it} + e_{it} \quad (2)$$

$$SAV_{it} = \beta_0 + \beta_1 ECG_{it} + \beta_2 INF_{it} + \beta_3 INT_{it} + \beta_4 IMR_{it} + e_{it} \quad (3)$$

$$SAV_{it} = \beta_0 + \beta_1 ECG_{it} + \beta_2 INF_{it} + \beta_3 INT_{it} + \beta_4 UBR_{it} + e_{it} \quad (4)$$

3.1. Theoretical Model

In this study, gross domestic savings as a dependent variable (Abusomwan & Ezebuihe, 2016; Bolarinwa & Obembe, 2017; Ashish & Singh, 2018; Nwosu et al., 2019 Nagawa et al., 2020). Moreover, several independent variables are used in this study: GDP per capita (Ozioma et al., 2016; Kim et al., 2017; Ashish & Singh, 2018; Joshi et al., 2019; Nagawa et al., 2020). Regarding GDP per capita as economic growth, this study hypothesized that its increase could also increase gross domestic savings. Inflation has also directly related to gross domestic savings (Ndirangu & Willy, 2015; Khan et al., 2017; Kumar, 2018). Regarding inflation, this study hypothesized that its increase could reduce gross domestic savings. Interest rate also directly related to gross domestic savings (Mushtaq & Siddiqui, 2016; Ozioma et al., 2016; Aizenman et al., 2019; Nagawa et al., 2020). Regarding the interest rate, this study hypothesized that its increase can increase gross domestic savings.

This study has incorporated some demographic variables to check their impact on gross domestic savings. In this context, the dependency ratio is used as one indicator of demographic transitions (Samantaraya & Suresh, 2014; Ndirangu & Willy, 2015; Kim et al., 2017). Regarding demographic changes, this study firstly hypothesized that its increase can rise the gross domestic savings. This study has incorporated the infant mortality rate with gross domestic savings to capture the precautionary aspect of savings (Boar, 2020; Jordà, 2020). This study secondly hypothesized that an increase in infant mortality causes a decrease in gross domestic savings. This study also incorporated urbanization as a demographic indicator (Matur et al., 2012; Doker et al., 2016; Khan et al., 2016). Regarding urbanization, this study thirdly hypothesizes that an increase in urbanization leads to an increase in gross domestic savings.

3.2 Results and Discussion

In estimated results, Table 2 contains some summary statistics, which contains some descriptive analysis of the variable. This table firstly presented the mean and median of all the series, reflecting the mean point of each variable. Later minimum and maximum value demonstrating the rage of each series. The last thing is the standard deviation about the dispersion of series from the mean point. The mean value is greater than the standard deviation of all the series except the dependency ratio, which means that these all variables are under dispersed.

Table 2. Summary Statistics

	SAV	ECG	INF	INT	DRO	IMR	UBR
Mean	3.209	7.242	4.229	1.953	-0.551	3.728	-0.585
Median	3.278	7.028	4.385	2.016	-0.563	3.761	-0.682
Maximum	3.945	8.956	5.195	4.140	-0.112	4.666	0.370
Minimum	1.755	6.176	2.538	0.761	-1.008	2.002	-1.240
Std. Dev.	0.488	0.684	0.625	0.530	0.235	0.610	0.391

To strengthen the analysis, figure 4 to 9 presents the graphical association of all independent variables with the dependent variable. Figure 4 shows the positive association between GDP per capita and savings. A weak negative association is found with savings and interest rate in figure 5, and a positive association is found in price level and savings in figure 6.

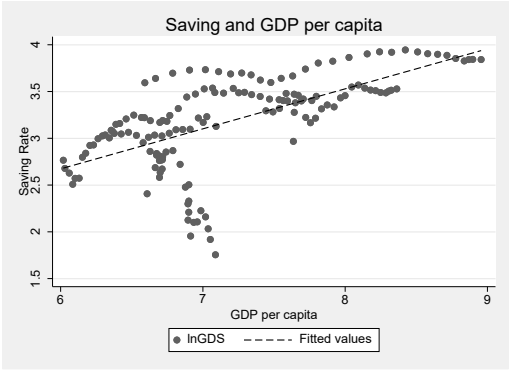

Figure 4. Linear fit of saving and GDP per capita

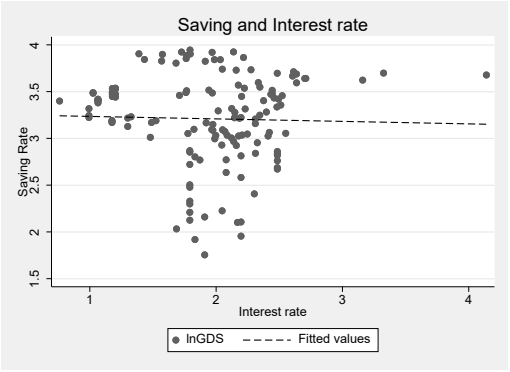

Figure 5. Linear fit of saving and interest rate

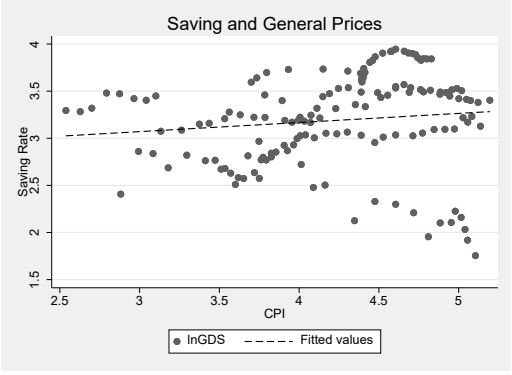

Figure 6. Linear fit of saving and general prices

Similar graphical associations are presented in graphs 7 to 9; these graphs are related to demographic transitions. In figure 7 to 8 the scatter plots sbow the association between demographic variables and saving, respectively. So, figures 7 and 8 represent the negative association of dependency ratio and infant mortality rate with savings. However, urbanization is positively associated with the savings of the sampled countries.

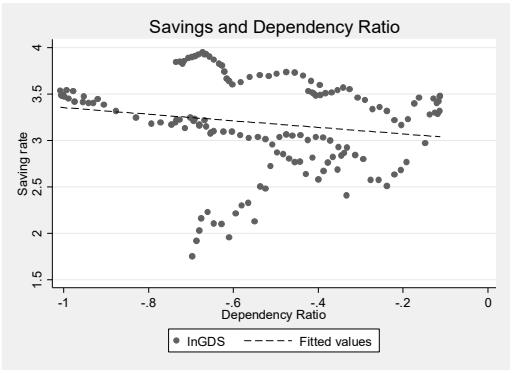

Figure 7. Linear fit of saving and dependency ratio

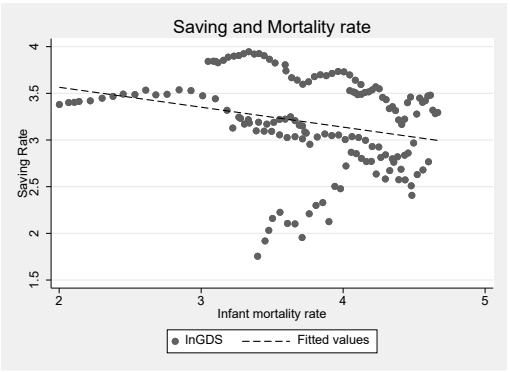

Figure 8. inear fit of saving and mortality rate

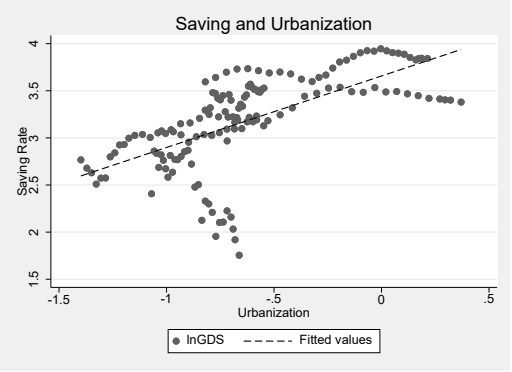

Figure 9. Linear fit of saving and urbanization

To test whether the series are having any trend or follow any specific pattern or unit root issue, two-panel unit root tests are applied, these are Levin Lin and Chu (Levin et al., 2002) and Fisher ADF, which is also known as Augmented Dickey-Fuller statistics (Maddala & Wu, 1999). Basically, ADF is a commonly used unit root test in time series and panel data, but Levin Lin and Chu (LLC) is specifically for panel unit root test, and this test incorporated lags of the dependent variable and follow the below presented equation 7. The unit root test is applied using no intercept and trend specification.

$$\Delta Y_{it} = \varphi Y_{i,t-1} + Z_{it}^{'}\gamma_i + \sum_{j=1}^{p} \theta_{ij} \Delta Y_{i,t-1} + \mu_{it}$$

Both tests have the same null hypothesis, that series has no unit root or trend. In the

light of probability values, the null hypothesis is rejected for the series like savings, economic growth and inflation because the test statistic values of LLC and ADF tests are significant at first difference. So these series are stationary at first difference. However, the interest rate is stationary at the level and first difference according to LLC and ADF, respectively. A similar case is also with dependency ratio, and it is stationary at level and at first difference according to ADF and LLC respectively. Infant mortality rate and urbanization both are stationary at level. Therefore unit root test is revealing mix order of integration. Therefore, the cointegration method of long-run estimates would be suitable.

Table 3. Unit Root Test

	At Level		At First Difference	
Variables	**LLC**	**ADF**	**LLC**	**ADF**
SAV	0.825	0.910	-7.111***	76.700***
ECG	2.954	2.942	-3.009***	25.849***
INF	2.867	0.894	-3.134***	22.261**
INT	-2.097**	12.317	-8.276***	77.064***
DRO	-0.929	21.784**	-2.347***	15.060
IMR	-4.061***	31.850***	-2.848***	18.093**
UBR	-3.434***	26.046***	-2.482***	14.747

***, **, *, is showing significance level; of 1%, 5% and 10% respectively

As the unit root test confirms, the mix order of integration provides a sound base for the cointegration method. This study has applied the Pedroni cointegration test (Pedroni, 1999). This test has the null hypothesis that there is no cointegration. In the 7 test statistics provided for model 1 to 4. At most, 3 out of 7 tests showed a significant presence of cointegration.

Table 4. Co-integration test

	Model 1	**Model 2**	**Model 3**	**Model 4**
Test		**Test Statistic**		
Panel v-Statistic	0.205	-0.166	-0.161	0.577
Panel rho-Statistic	-1.785**	-1.347*	-1.012	-1.239
Panel PP-Statistic	-4.932***	-5.573***	-4.148***	-5.242***
Panel ADF-Statistic	-1.184	-1.157	-0.217	-1.352*
Group rho-Statistic	0.231	0.538	0.852	0.839
Group PP-Statistic	-2.547***	-2.910***	-1.679**	-2.879***
Group ADF-Statistic	-0.647	-0.702	0.594	-0.865

***, **, *, is showing significance level; of 1%, 5% and 10% respectively

The main findings of this paper are presented below in table 5. Economic growth, inflation and rate of interest are the groundwork variable in each model, and the noticeable thing is these variables are showing the same results in all four models. According to these results, as increases in economic growth, savings also increases (Ozioma et al., 2016; Kim et al., 2017; Ashish & Singh, 2018; Joshi et al., 2019; Nagawa et al., 2020). Its reason is very simple: an increase in economic growth also increases the people's income and keeps in view the saving function increase in income also responsible for increasing savings.

Inflation and interest rate also showing desirable results. The negative coefficient sign of inflation is showing that savings decrease because of inflation (Ndirangu & Willy, 2015; Khan et al., 2017; Kumar, 2018). It is because an increase in inflation means a rise in the price level, and when people are paying more prices, their real income will fall. This fall in income is shown as decrease in savings (Mushtaq & Siddiqui, 2016; Ozioma et al., 2016; Aizenman et al., 2019; Nagawa et al., 2020). With the increase in interest rate, people can earn more by increasing their savings. The positive coefficient of interest rate in all the models indicates its compliance to theory.
Following the control variables, the demographic variables are discussed. Model 2 contains the coefficient of dependency ratio, and it's a negative coefficient which reveals that an increase in the dependency ratio causes savings fall (Samantaraya & Suresh, 2014; Ndirangu & Willy, 2015; Kim et al., 2017). This negative coefficient is also economically justified when the dependent people increases in a family caused to increases the expenditures. By increasing the expenditures, the real income of that family falls, and the direct impact on savings fall.

Later, model 3 contains the coefficient of infant mortality rate, and this coefficient has a positive sign which means that an increase in infant mortality rate increases the savings (Boar, 2020; Jordà, 2020). This concept is related to precautionary savings. In case of an increase in infant mortality, people become more conscious about the future consequences, and that's why they start to save more for future perspective. The latest model 4 contains the coefficient of urban migration. Here the positive coefficient means that an increase in urbanization rises the savings (Matur et al., 2012; Doker et al., 2016; Khan et al., 2016). It means that after migration, people are earning more and utilizing some job opportunities. Secondly they are taking some precautions for the future, and as a result, their savings are increasing.

Table 5. Panel FMOLS Long-Run Estimates

	Model 1		**Model 2**		**Model 3**		**Model 4**	
Variables	**Coeff.**	**T-Stat**	**Coeff.**	**T-Stat**	**Coeff.**	**T-Stat**	**Coeff.**	**T-Stat**
ECG	0.273***	31.696	0.241***	27.363	0.268***	29.231	0.171***	19.528
INF	-0.156***	-29.584	-0.262***	-12.729	-0.111***	-9.909	-0.169***	-12.999
INT	0.068***	3.570	0.081***	4.164	0.093***	4.786	0.070***	3.673
DRO			-0.456***	-18.295				

	Model 1		Model 2		Model 3		Model 4	
Variables	**Coeff.**	**T-Stat**	**Coeff.**	**T-Stat**	**Coeff.**	**T-Stat**	**Coeff.**	**T-Stat**
IMR					0.035***	8.466		
UBR							0.224***	20.392
R^2	0.881		0.880		0.875		0.884	
Cross Sectional Dependence Test								
	Statistic [P-value]		Statistic [P-value]		Statistic [P-value]		Statistic [P-value]	
Pesaran CD	-1.380 [0.168]		-0.870 [0.384]		-1.161 [0.246]		-1.259 [0.208]	

***, **, *, is showing significance level; of 1%, 5% and 10% respectively

To test the dependency among selected cross-sections, table 5 also revealing the residual-based cross-sectional dependency test, which is known as the Pesaran CD test (Pesaran, 2004). This test work under the null hypothesis that there is no cross-sectional dependence. So, the test statistic has an insignificant probability value which means the selected cross-sections depend on each other.

4. Conclusions and Policy Implications

The study results revealed that economic growth, inflation, interest rate are the essential macroeconomic determinants of savings. Another important finding of the study is the inclusion of demographic variables to explain the variations in the saving behaviour of sample countries. In this regard, four different types of models are estimated. Three macro-economic variables i.e., economic growth, inflation and the interest rate are used in the first model. Economic growth and interest rate positively and significantly affect the savings, while inflation negatively affects the savings.

In the second model, the first demographic variable, i.e., the dependency ratio, reported a significant and negative relationship with savings. As the dependency ratio increases, it increases the consumption and less amount is allocated for saving. Thus the dependency ratio is reporting a negative relationship with saving behaviour. In the third model, the Infant mortality rate is introduced as another demographic variable, which reported positive and significant behaviour with savings. It indicates that the increase in infant mortality rate cautions individuals to move towards precautionary savings to protect uncertain future needs. In the fourth model, urbanization is included as the demographic variable, indicating that the increase in urbanization significantly increases the saving to cater to future needs.

As savings are the main drivers for investment and economic growth, such polices based on fiscal and monetary perspective are required to stabilize inflation and interest rates. Certainly, such policies will help stimulate economic growth, which implicitly will increase the overall level of savings. Simultaneously, the efficient management of demographic variables is also required to increase the saving level.

Efficient human resource management is essential to empower the youth and it will undoubtedly reduce the dependency ratio. The reduction in dependency ratio will increase the overall level of savings, which is the crucial pre-requisite for economic growth. Regulated urbanization is also very helpful in increasing the income and employment generation opportunities. Therefore, the properly regulated urbanization increases the people's interaction, generates more economic activity, and ultimately helps increase the overall saving level.

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PAPER

Trade balance shock and its importance on Gross National Saving Rate and Exchange Rate: A VAR analysis using time series national data for Japan

Amar Singh* **• Tanuja Gour****

Abstract This research focuses on investigating the dynamic network among trade balance (TB), the Gross national saving rate (GNSR), and the exchange rate (ER) in Japan. The study used time series data from 1981 to 2019. The research conducts a vector auto-regression (VAR) to investigate the dynamic relationship in the series. The first step started with a unit root test to check the stationarity. The data series is stationary at first difference.

Further, we employed Johansen co-integrated analysis, Granger causality, an impulse variance analysis followed by variance decomposition. The result shows the unidirectional Granger causal relationship between TB and ER. Its own shock explains that TB's contribution is 73% and GNSR & ER contributes 25.67 and 0.67 to TB, respectively. The GNSR variance decomposition describes 95.12 variations by its own innovative shock, and ER shows a 52% change in the variable from its own shock. This study establishes that trade balance is significant to exchange rate growth in Japan. This research is original work, and it will contribute the knowledge about the trade balance, gross national saving rate, and exchange rate behaviour & effect to each other.

Keywords: Trade balance, exchange rate, saving rate, VAR model.

JEL Classification: F14, F31, E21.

1. Introduction

The economy of Japan portrays several aspects to comprehend about the success story of East Asia from an economic viewpoint. One can find out a lot many things from the Japanese experience. According to an author (Li, 2017) in his book entitled *'The Japanese Economy: Success and Challenges'* suggested a right direction to uplift the Japanese economy for economic revitalisation and make Japan a crucial industrialised performer worldwide. (Ono, 2017) investigated the effectiveness of progressive monetary policy in Japan considering people's price anticipations.

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(Nemoto and Goto, 2005) examined 47 prefectures during 1981-2000 for analysing the change in the productivity of the Japanese economy. (Ko and Murase, 2013) explored the involvement of technology and non-technology shocks in the fluctuations in impulsiveness of output and growth in labour during the post-war Japanese economy. Being a moderate-sized nation, Japan has full industrial capacity, the chase of unacceptable economic strategies, and the "lost decades" assumptions have prevented the growth level significantly since the initial stage of the 1990s (Li, 2017). (Aminian et al., 2012) revelled regarding the exchange rate depreciation and noted that it is significantly parallel to an export subsidy and an import tax and analysed that the US government's burden could theoretically contribute towards inflation of the Japanese yen.

(Eichengreen and Hatase, 2007) Analysed the influence of Japan's withdrawal from its currency peg in 1971 and proposed that the worldwide circumstances were satisfactory as well as opinions about the importance of consuming fiscal policy to support internal demand as the escalation in the real ER slow down the evolution of net exports as well as investment.

(Suzuki, 1996) examined factors that delayed economic revitalisation and contemplated some of the corrective procedures employed, remarkably fundamental restructuring. The paper investigates the dynamic network among trade balance, gross national saving rate, and exchange rate in Japan using time series data from 1981 to 2019. Vector auto-regression analysis (VAR) is employed in the series to investigate the dynamic relationship. The first step started with a unit root test to check the stationarity. The data series is stationary at first difference. Further, we employed Johansen co-integrated analysis, Granger causality, impulse variance analysis followed by variance decomposition.

2. Literature Review

Various research has been published on the trade balance, the gross national saving rate, and the exchange rate of different countries. The researchers focused on the impact of variables mentioned above on countries' economy. The current paper discussed the dynamic system among the variables. Hence, we reviewed numerous articles that provided us with a glimpse of these variables.

In the post environment catastrophe, the exchange rate (ER) and the exchange rate (ER) scheme's preference hold the main platform for developing territories. (Klein and Shambaugh, 2010; Rose, 2011; Ghosh et al.,2015). (Habib et al., 2017) investigated 5-year mean data for a group of around one hundred and fifty territories in the post-Bretton Woods period and analysed the influence of changes in the real exchange rate on economic growth.

(Chen and Liu, 2018) evaluated the effect of government spending shocks on China's real exchange rate and found that for real exchange rate appreciation, both government consumption shocks and government investment shocks will help increase economic growth. However, it is not similar to the empirical evidence from few developed nations still with forecasting the conventional Mundell Fleming Model. (Du and Wei, 2015) showed that the opposition for marriage partners could modify the

steadiness of RER, i.e., Real Exchange Rate by way of altering savings and supply of labour. One of the papers of (Yin and Ma, 2018) demonstrated a prospective influence on the causality among the two markets from the financial crisis as well as the casual rapport among oil and the reciprocal exchange rates against the US dollar through a novel Bayesian, graph-based approach.

(Sonaglio et al., 2016) evaluated the effect of modification in the monetary and exchange rate procedures with the alignment of the aggregate exports over the functioning of the Brazilian economy. (Patureau and Poilly, 2019) found that to devalue the real exchange rate, the strength of competitive tax policy happens to be diminished. (Iwaisako and Nakata, 2017) studied that global demand shocks were highly influential in the 1990s and especially in the 2000s, and on the other hand, foreign currency exchange shocks were crucial in describing the changes that have taken place in exports during the 1980s. Furthermore, Oil market price shocks were also found to have enormous impacts on Japanese exports in the 2000s.

(Elahi et al., 2016) quoted on their paper that the exchange rate and its modification (one of the macroeconomic variables) and the price of foreign currency in domestic currency positively influence inflation, production, exports, imports, and Balance of Payments (BOP), etc.

(Chang et al., 2019) found that unfair distribution of national income in the direction of non-household and absence from the household sector is accountable for high savings in China. Pragmatic research on the effect of trade shocks on private savings eliminates the emerging markets because while using traditional economic elements, their execution is less responsive to any justification (Agenor and Aizenman, 2004).

(Chin and Sun, 2016) observed the correlation among the trade balance, saving rate, and the real exchange rate, and their results indicated that nations with a saving rate above the threshold limit of 14.8% could progress their trade balance, either by expanding the saving rate or by decreasing their currency value. (Evans, 2017) linked the country's external situation to the prospective trade flows along with its economic provisions in the dearth of speculative prospects as well as for the Ponzi scheme.

A linear ARDL model, as projected by (Oskooee et al., 2017), found that the shot-run symmetric effects in UK trade balance and 11 partners continued in long-term symmetric effects in only five cases. While shifting to a non-linear ARDL model, they found short-run asymmetric effects beside 14 partners that survived into long-run asymmetric consequences in 8 cases.

(Sasaki and Yoshida, 2018) anticipated the output that assists that Japan's trade is subjected to the fundamental transformation in income and exchange rate. Research conducted by (Jiang et al., 2019) discussed the causes behind the divergence of trade among China-EU and measured the amount of divergence that was impacted by the cost of transportation, re-exports, and their markups.

(Oskooee et al., 2017) found that the non-linear approach has more impacts than the linear method, which showed that the trade balance of Japan enhances in the long run after craving depreciation for three nations, and seven countries reacted when the non-linear approach was employed. This effect is asymmetric, and trade responds inversely to currency rise. (Ikeda, 2017) aimed to describe the discrepancy concerning

trade balance among developing countries and the developed countries provided under a straightforward endowment economy model. The conclusions showed that with collateral capital in a model, the variations can be justified by a tradeable share in consumption.

3. Research Methodology

3.1 Unit Root (ADF)

The ADF test is to check the stationarity of each variable. If the t-statistic value is lower than the critical value, then the series is non-stationary at level 5% and stationary if the t-statistic value is higher than the critical value. We can mention the equation as follows:

$$\Delta y_t = \alpha y_{t-1} + x_t \delta + \varepsilon_t \quad (1)$$

Where,

$\alpha = p-1$

Null and alternative hypothesises are

H_0: $\alpha = 0$
H_1: $\alpha < 0$

Evaluating this by using the conventional t-ratio for

$t_\alpha = \hat{\alpha} / (\delta\varepsilon(\hat{\alpha}))$

Where

$\hat{\alpha} = estimate\ of\ \alpha$

$\delta\varepsilon(\hat{\alpha}) = is\ the\ standard\ coefficient\ error$

3.2 Johansen Co-integration Test

In Johansen co-integration, the number of cointegration relations is to find out after the ADF test. There are two types of statistics, TS (trace statistic) and maximum (eigenvalue statistic). The Johansen test evaluates the Π matrix from the unrestricted VAR and tests whether we can reject the restriction implied by the reduced rank of Π. In the Johansen test, the first column represents the number of cointegration relations under the null hypothesis, the next one represents the ordered eigenvalue of the Π matrix, and the third one is the test statistic followed by critical values and p-value.

$$\Pi = \sum_{i=1}^{p} A_i - I, \quad \Gamma_i = -\sum_{j=i+1}^{p} A_J \quad (2)$$

The assumption formed about the trend will be conditional to determine the number of cointegration relation r, and we can continue basically from r=0 to r=k-1 until and unless we fail to reject.

In the trace test, the null hypothesis of r cointegration relations is tested in opposition to the alternative of k co-integrating relation.

Where,

k = number of endogenous variables

(For r=0, 1 …k-1).

The alternative of k co-integrating relations is defined that there is no unit root in any series. So, VAR will be stationary when the levels of all series are the same.
In the Trace statistic, the null hypothesis of r cointegration relations is formulated as:

$$\tau_{tr}\left(\frac{r}{k}\right) = -T\sum_{i=r+1}^{k}\log(1-人_i) \tag{3}$$

Where
$人_i = i^{th}$ = ith largest eigenvalue of the Π matrix in equation 2.
Further, the null hypothesis of r cointegration relations in opposition to the alternative of r+1 cointegration relations is tested by maximum eigenvalue. It is derived as follows:

$$\tau_{\max}\left(\frac{r}{r+1}\right) = -T\log(1-人_{r+1}) \tag{4}$$

For *r=0, 1…k-1*

3.3 Granger Causality

It is an important test to estimate the direction of causality among the variables. If *X* causes *Y*, it means that X can help predict *y* and adding lagged values of *X* can improve the explanation. There can be a case of two-way causation if *X* granger causes *Y* and *Y* granger causes *X*. This model allows us to predict the unidirectional, bidirectional, and no causality among the three variables such as trade balance, gross national saving rate, and exchange rate.

3.4 Vector auto-regression analysis

The vector autoregression is utilised to analyse the dynamic impact of random disturbance on the system of variables and forecast the dynamic relationships that exist among the interrelated time series. The VAR model equation is for each variable, explaining the relationship with its own lags and the lags of other variables of the system. VAR approach eludes the requirement for structural modelling by treating all the endogenous variables in the system as a function of p-lagged value.
The stationary, k-dimensional VAR (p) process as be represent as follows:

$$y_t = B_1 y_{t-1} + \cdots + B_p y_{t-p} + Cx_t + e_t \tag{5}$$

In the VAR model process, we can write our equation for trade balance (TB), gross national saving rate (GNSR), and exchange rate (ER) as follows:

$$\begin{aligned} TB_t &= \alpha_1 + \beta_{11} TB_{t-1} + \beta_{12} GNSR_{t-1} + \beta_{13} ER_{t-1} + e_{1t} \\ GNSR_t &= \alpha_1 + \beta_{21} GNSR_{t-1} + \beta_{22} TB_{t-1} + \beta_{23} ER_{t-1} + e_{2t} \\ ER_t &= \alpha_1 + \beta_{31} ER_{t-1} TB_{t-1} + \beta_{32} GNSR_{t-1} \beta_{33} TB_{t-1} + e_{3t} \end{aligned} \tag{6}$$

3.5 Impulse Response Function

The IRF detects the reaction of a single-time SD shock of the innovations on CV and FV of the endogenous variables. The overtime changes in the error terms show the

current and lagged effect on the endogenous variables. It is not only the direct effects of a shock to the i^{th} variables, but through the dynamic lag structure of the VAR model, it is going pass on to all of the other endogenous variables.

The i^{th} innovation $\epsilon_{i,t}$ is a shock to i endogenous variable $y_{i,t}$,

If ϵ_t are uncorrelated and interpretation of the impulse response is straightforward.

3.6 Variance Decomposition

The VD segregates the variation in an endogenous variable into the component shock to the VAR, whereas IRF detects the reaction of a one-time SD (standard deviation) shock to one endogenous variable on to the other variables in the VAR. It means the VD produces the information and relative importance of every random innovation in affecting the variables in the VAR system. In the framework of vector autoregression, a variance decomposition analysis is conducted to investigate how TB, GNSR, and ER variables affect other variables.

4. Result Analysis

4.1 Data Sources

The time-series data has been collected from the Census and Economic Information Center (CEIC data source). The time-series data collected from 1981 to 2019 country of Japan. The data series include trade balance, gross national saving rate, and the exchange rate of Japan. We collected yearly data series for the investigation.

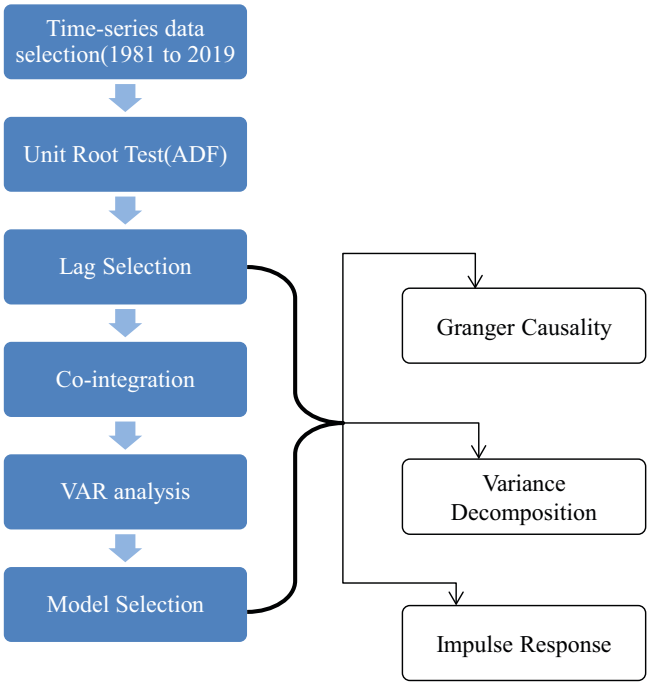

Diagram 1. Process of VAR Model analysis

4.2 Unit Root Analysis

Primarily, we check the data stationarity. ADF test applied to determine the stationarity of the time-series data. The test results are non-stationary at level and stationary at the first difference (See table 1.). After the unit root test, Johansen co-integration test is applied. Based on the Trace and Max-Eigen statistic value shown in table 2, we can say there is no cointegration among the variables. The trace statistic value is 35.33, which is lesser than the critical value of 42.91 at 5% level. In Max –Eigenvalue, the Max-Eigen Statistic is 15.00, which is lesser than the critical statistic value of 25.82. So, we get the same result of no co-integration among the variables. Co-integration results allow us to employ an unrestricted VAR model due to no co-integration among three variables trade balance, gross national saving rate, and exchange rate.

Table 1. Augmented Dickey-Fuller

	Level (5%)			**First Difference (5%)**		
	Test Statistic	**Critical Value**	**P-Value**	**Test Statistic**	**Critical Value**	**P-Value**
TB	-2.9719	-3.5366	0.1534	-5.1346	-3.5366	0.0009
GNSR	-3.2138	-3.5484	0.0987	-4.8290	-3.5403	0.0022
ER	-2.8238	-3.5366	0.1982	-5.5397	-3.5366	0.0003

4.3 Co-integration Analysis

Table 2. Unrestricted Co-integration R T (Trace)

Hypothesized No. of CE (s)	**EV**	**TS**	**0.05 CV**	**P-value**
None	0.340809	35.33435	42.91525	0.2316
At most 1	0.268686	20.33163	25.87211	0.2096
At most 2	0.222642	9.066776	12.51798	0.1763
Unrestricted Cointegration R T (Maximum EV)				
Hypothesized No. of CE (s)	**EV**	**Max-ES**	**0.05 CV**	**P-value**
None	0.340809	15.00272	25.82321	0.6342
At most 1	0.268686	11.26486	19.38704	0.4864
At most 2	0.222642	9.066776	12.51798	0.1763

4.4 Lag Selection Criteria

Table 3. Lag order Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-654.8374	NA	1.28e+13	38.69632	38.83100	38.74225
1	-575.9821	139.1564*	2.11e+11*	34.58718	35.12590*	34.77090*
2	-566.8889	14.44212	2.13e+11	34.58170*	35.52445	34.90321
3	-563.4273	4.886903	3.06e+11	34.90749	36.25428	35.36678
4	-559.9816	4.256483	4.55e+11	35.23421	36.98504	35.83129

4.5 VAR analysis and interpretation

To perform the VAR analysis, first, we determine the optimum lag (see table 3) based on the result of the SC value. Lag order selection criteria are based on LR, FPR, AIC, SC, and HQ values. These values start from 0 to 4th lag and are based on the above result, which shows the lag one is statistically significant for the VAR model. So, we applied lag one in our model for the VAR analysis.

Lag selection criteria for the study done before the VAR estimation, where we determine the optimum lag based on the results given in table 3. The results of lag selection criteria tell us that lag of one is statistically significant.

$$TB_t = -121334.4+0.683398TB_{t-1} + 4336.521GNSR_{t-1}+ 74.88208\ ER_{t-1} + e_t \quad (7)$$

$$GNSR_t =0.149646+ 4.91E\text{-}06\ TB_{t-1} + 0.993863\ GNSR_{t-1} + 0.000991\ ER_{t-1} + e_t \quad (8)$$

$$ER_t = -24.03703+ -0.000124\ TB_{t-1} + 1.704001\ GNSR_{t-1} + 0.828107\ ER_{t-1} + e_t \quad (9)$$

Table 4 represents the VAR model result, which determines that the variables are significant or not. As we can infer, the TB coefficient is significant to the ER, and others are not significant in the VAR model framework. It means that TB is significant and interactive with ER variable or is influenced by one another or TB has a significant impact on ER. Further, in the following steps, we examined the intensity and presence of interaction between the variables for which we have applied Granger causality, impulse response, and variance decomposition test analysis.

Table 4. VAR Model

TB	**Coeff.**	**Std. Error**	**t-Statistic**	**Prob.**
TB	0.683398	0.133069	5.135672	0.0000
GNSR	4336.521	2894.030	1.498437	0.1371
ER	74.88208	158.8241	0.471478	0.6383
Cons	-121334.4	68896.66	-1.761107	0.0812
GNSR	**Coeff.**	**Std. Error**	**t-Statistic**	**Prob.**
TB	-4.91E-06	4.00E-06	-1.228069	0.2223
GNSR	0.993863	0.086067	11.54757	0.0000
ER	0.000991	0.004737	0.209233	0.8347
Cons	0.149646	2.046488	0.073123	0.9419
ER	**Coeff.**	**Std. Error**	**t-Statistic**	**Prob.**
TB	-0.000124	5.74E-05	-2.160484	0.0331
GNSR	1.704001	1.247399	1.366043	0.1750
ER	0.828107	0.068457	12.09672	0.0000
Cons	-24.03703	29.69617	-0.809432	0.4202

4.6 Granger Causality Analysis

Granger causality test is conducted to determine the causality between the variables, and it's represented in table 5. The results are showing no causality among the TB, GNSR, and ER, except the unidirectional relation from ER to TB. It means ER Granger-causes TB. It is evident that the ER contributes to TB, but at the same time, TB does not contribute to the ER. It is not bidirectional causality. No causality exists from TB to GNSR, TB to ER, GNSR to TB, GNSR to ER, and ER to GNSR.

Table 5. VAR Granger Causality

	Excluded	Chi-sq	df	Prob.
TB	GNSR	2.236890	1	0.1348
TB	ER	0.185246	1	0.6669
GNSR	TB	1.508154	1	0.2194
GNSR	ER	0.043779	1	0.8343
ER	TB	4.699311	1	0.0302
ER	GNSR	1.867724	1	0.1717

4.7 Variance Decomposition Analysis

Table 6. Variance Decomposition

Period	VD of TB			VD of GNSR			VD of ER		
	TB	GNSR	ER	TB	GNSR	ER	TB	GNSR	ER
1	100.0000	0.000000	0.000000	14.08494	85.91506	0.000000	4.339237	1.114148	94.54662
2	98.96520	0.979397	0.055407	9.611132	90.37827	0.010596	11.94826	2.665062	85.38668
3	96.66060	3.179173	0.160230	6.926193	93.05028	0.023527	19.40562	3.965308	76.62907
4	93.37407	6.339454	0.286480	5.439948	94.52669	0.033366	25.67729	4.864070	69.45864
5	89.54766	10.04346	0.408875	4.708221	95.25278	0.039000	30.61833	5.404680	63.97699
6	85.62603	13.86305	0.510927	4.427198	95.53169	0.041112	34.38788	5.679088	59.93303
7	81.94331	17.47054	0.586147	4.400492	95.55864	0.040872	37.20682	5.775581	57.01760
8	78.68847	20.67604	0.635488	4.506029	95.45460	0.039368	39.27953	5.765227	54.95525
9	75.92857	23.40770	0.663733	4.670506	95.29207	0.037426	40.77625	5.700855	53.52290
10	73.65208	25.67124	0.676683	4.851628	95.11279	0.035581	41.83417	5.619308	52.54652

Table 6 represents the results of variance decomposition of the trade balance, gross national saving rate, and exchange rate. This test has examined the variance caused by a variable to itself or its variation driven by other variables or not. In the variance decomposition of TB, ER is contributing 0.67, and GNSR contributes 25.67, and more significant variation in TB is explained by its contribution by its own innovation. The GNSR variance decomposition describing the 95.12 variations by its own innovative shock, and the rest (TB=4.8 and ER=0.03) is contributing significantly less in the variation. The variance decomposition results of ER show a more significant change in the variable from its own shock. Whereas TB is contributing 41.83 and GNSR is contributing significantly less 5.61 only.

4.8 Impulse Response Analysis

To analyse the shock of one variable to the response of another variable, we employed impulse response functions analysis. We will examine the relationship between TB, GNSR, and ER. Figure 1 showing the result of the impulse response function of three variables. We can see the standard deviation shocks and the responses of other variables. The following ten-year results indicate one standard deviation shock (innovation) to the trade balance leads to an increase in the exchange rate, but the spread is negative, and it is statistically significant. It means that there is a negative impact. At the same time, the gross national saving rate response to trade balance is declining over a period.

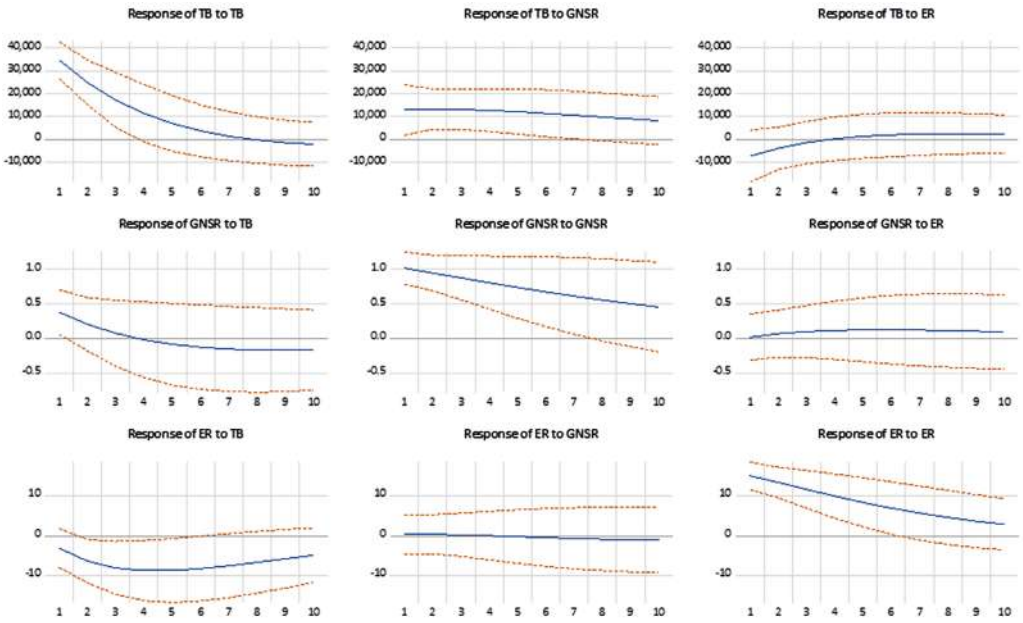

Figure 1. Impulse Response Graphs

5. Conclusion

This research article investigated the linkage between the trade balance, gross national saving rate, and exchange rate. We have used Japan data from 1981 to 2019 of 39

years. We have employed Augmented Dickey-Fuller based on the unit root test, the Johansen Co-integration test, Granger causality, impulse response function, variance decomposition under the VAR model framework to obtain the interpretation of the results and to investigate the relationship among the variables. ADF test indicates the stationarity at first difference followed by co-integration where we found no co-integration among the variables. Further used unrestricted VAR model indicates the unidirectional Granger causal relationship from exchange rate to trade balance.

In comparison, there is no causality from trade balance to gross national saving rate, gross national saving rate to exchange rate. It means that ER granger causes TB. The exchange rate is only the variable significant in the grange causality model. The result of variance decomposition reveals that TB is the vital variable in terms of explaining the ER. The rest of the figures show that the significant changes are happening from the variables' own innovation shock. Impulse variance analysis results are showing some significant empirical findings. One negative standard deviation shock of trade balance tends to increase permanently in exchange rate given period.

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PAPER

What do Former Government Officials really Bring to the Board?

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Abstract The Board of directors is the steering wheel organisations use to achieve their goals and its composition has widely been analysed. This paper will show how the number of former government officials has increased in the board of large Spanish firms over the last two decades depending on the number of former government officials in the board and how regulated the industry is. The results will also show that even though there was a period in which more former government officials joined boards, the numbers have stabilised in recent years due to, among other factors, the increasing concerns in society related to the "revolving doors" behaviours.

Keywords: corporate boards, government officials, resource dependence theory, regulatory environment.

Introduction

The number of public company firms that include former government officials (FGOs) has increased and has been analysed by many authors in different countries (Houston & Ferris, 2015; Lester, Hillman, Zardkoohi, & Cannela, 2008). These numbers cannot be ignored. Such an increase indicates that FGOs are a valuable resource firms pursue and use (Bona-Sánchez, Pérez-Alemán, & Santana-Martín, 2014; Chizema, Liu, Lu, & Gao, 2015; Goldman, Rocholl, & So, 2013). Having FGOs sit on boards allow firms to be involved in government policy. Firms can manage the political environment effectively as they may achieve favourable subsidies, reduce the threat of market entry, improve firm legitimacy, reduce the threat of product substitutes, and increase market share (Oliver & Holzinger, 2008). In other words: boards, through FGOs, get involved in strategic political management to manipulate the political environment in their own favour. The role played by FGOs can be analysed through the framework of resource dependence

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theory, which stresses the importance of providing resources as the primary function boards have (Pfeffer & Salancik, 1978). Board members bring resources to the firm, which in turn will be used to achieve specific goals. Then, by selecting directors with ties to important institutional players, firms can help create favourable environmental contexts (Kim & Cannella, 2008). Former government officials are politically connected and can help influence legislation (Houston & Ferris, 2015) or reduce the likeness of regulatory bodies enforcement actions (Correia, 2014).

Previous literature focused on boards has mainly analysed the board structure, that is, size and composition (ratio of outsiders versus insiders) and mostly within the Anglo-Saxon context, even though recently the number of studies focused on other regions, the European Union, Africa, and China, has increased. This descriptive analysis of the number of former government officials in large Spanish companies in the last two decades will help us understand if the same phenomena has taken place in Spain.

This research aims to analyse the evolution of the number of FGOs in the boards of large Spanish firms whose main activity is in highly regulated sectors. Following resource dependence theory (Pfeffer & Salancik, 1978), boards will access valuable resources, former government officials, and use them to effectively deal with highly regulated environments. This is but one of the mechanisms boards have to achieve their strategic goals.

The paper proceeds as follows: the next section reviews the theoretical background. This leads to the hypotheses and methodology next. Finally, findings, discussion, analysis, and conclusions.

Theoretical Background and Hypotheses

Resource dependence theory will emphasise the importance of providing resources as the primary function boards have (Pfeffer & Salancik, 1978). Board members provide resources to firms which in turn will be used to achieve specific goals and help reduce uncertainty (Pfeffer, 1972), increasing legitimacy (Pfeffer & Salancik, 1978), lower transaction costs (Hillman, Cannella, & Paetzold, 2000; Williamson, 1984), providing better advice (Lorsch & MacIver, 1989; Mintzberg, 1983), and providing better access to capital (Mizruchi & Stearns, 1988). “When an organisation appoints an individual to a board, it expects the individual will come to support the organisation, will concern himself with its problems, will variably present it to others, and will try to aid it” (Pfeffer & Salancik, 1978, p. 163). “Resource dependence scholars argue boards of directors are a primary method for absorbing critical elements of environmental uncertainty into the firm” (Hillman, 2005, p. 495). These board members’ support is not limited to the national level but also board members can develop relationships with institutions and people in other countries (Faccio, 2010). Resource dependence theory stresses that firms must face demands from different external actors and therefore, firms need to adapt to uncertainty in the environment by either manipulate it or try to influence it to obtain critical resources (Oliver, 1991; Pfeffer & Salancik, 1978; Singh, House, & Tucker, 1986). Overall, resources and how they are managed will lead to improve both performance and advantage over competitors (Oliver & Holzinger, 2008;

Pennings, Lee, & van Wittelloostuijn, 1998). Former government officials are here a resource since they link the firm and the political environment. Relationships with the government are no longer viewed as a cost but as an opportunity. Firms are politically connected if one of their top officers is a former government official (Faccio, 2006). Therefore, the strategy is to hire FGOs as outsiders, non-managerial members of the firm, because they bring knowledge and, most importantly, links with the political environment, which the firm can use for its own benefit. As Oliver and Holzinger (2008) posit, this is because political environments have become more complex and influential, forcing firms (large firms) to take action since the free-rider option is no longer effective enough. In particular, FGOs, firms become proactive in the political environment by using strategic political management. Corporate political activity, attempting to shape government policy to be favourable to the firm, mostly focuses on the relationship between the firm's political connections and its performance (Hillman, Zardkoohi, & Bierman, 1999; Yarbrough, Abebe, & Dadanlar, 2017). There is then evidence of the relationship between board's political connections and firm performance in high-regulation industries (Houston & Ferris, 2015; Yarbrough et al., 2017). Even though the majority of studies show a positive correlation between corporate political activity and firm performance, we still have to note there are a number of studies that contradict these findings (Hersch, Netter, & Pope, 2008; Tu, Lin, & Liu, 2013; Woon Leong, 2019).

One of the advantages of the appointment of a former government official to the board of directors is that they, based on their knowledge, can increase the firms' opportunities to invest in home markets (Fernández-Méndez, García-Canal, & Guillén, 2018). On the other hand, Political connections also have costs for the firm. For example, low-quality accounting has links that may provide access to financing with low-quality accounting information (Pascual-Fuster & Crespí-Cladera, 2018), and political connections negatively affect non-financial firms in Poland (Jackowicz, Kozłowski, & Mielcarz, 2014), making Central European economies exceptional cases.

Social capital is the people we know, contacts, through whom we receive opportunities to use our financial and human capital (Burt, 1992). But social capital is country-specific (Fernández-Méndez et al., 2018). Human capital is defined as "an individual's expertise, experience, knowledge, reputation, and skills" (Lester et al., 2008, p. 1001). Social capital refers to "the sum of actual and potential resources embedded within, available through, and derived from, the network of relationships possessed by that individual" (Nahapiet & Ghoshal, 1998, p. 243). It requires an investment of both economic and cultural resources (Portes, 1998). Furthermore, it is not the person itself but those he or she is related to the real source of his or her advantage (Portes, 1998). Likewise, when a high level of social capital is achieved there is a motivation to maintain those relationships (Kostova & Roth, 2003). Social capital has four benefits (Pfeffer & Salancik, 1978) related to resource dependence theory: (1) Advise and counselling, which are linked to the firm's performance (Westphal, 1999). Appointments to boards facing strategically similar environments enhance the directors' ability to advise management (Haynes & Hillman, 2010); (2)

the provision of firm legitimacy and reputation (Daily & Schwenk, 1996; Hambrick & D'Aveni, 1992; Yeo, Pochet, & Alcouffe, 2003); (3) social capital provides channels of communication and conduits of information between the firm and external organisations which provides the board with strategic information otherwise unavailable (Hillman & Dalziel, 2003); access to broader sources of information improves information's quality, relevance, and timelines (Kim & Cannella, 2008; Kor & Sundaramurthy, 2008; Oh, Labianca, & Chung, 2006); and (4) social capital helps to obtain resources outside the firm (Hillman & Dalziel, 2003), being financial resources one of the most important. As Adams et al., (2010) explain, when directors have links or are affiliated with banks lending to the firm, the firm's overall debt ratio is lower. The greater the uncertainty in the firm's environment, the more likely the firm will rely on managerial networking to reduce this uncertainty (Acquaah, 2007), all of which improve performance. According to Valenti and Horner (2010), board social capital encompasses two types of relationships: internal social capital, which are ties with persons within the firm; and external social capital, which are ties with persons outside the firm. Personal contacts with people outside the organisation are useful to deal with uncertainty (Granovetter, 1985; Hillman & Dalziel, 2003).

Hillman et al., (2000) classify directors in three different groups: business experts, support specialists, and community influentials. Business experts serve on other large boards. They provide skills, knowledge, and communication channels with other firms and increase the firm's legitimacy. Support specialists lack general management experience, but they provide expertise in specific areas, capital markets, law, insurance and public relations, and do not form the foundation on which the strategy is built. Community influentials have links with other firms, not including competitors or suppliers. The resources they supply do not stem from direct managerial experience but from knowledge, experience and connections to community groups and organisations. In this group, Hillman et al., (2000)include FGOs. They provide valuable non-business perspectives and they serve as vehicles of co-optation for the organisation.

Managers' social ties, contacts, and networks will, in turn, affect firms' strategic choices and performance (Peng & Luo, 2000). Resource dependence theory explains that the greater the environmental uncertainty, the more likely it is that firms will rely on managerial ties when entering exchange relationships (Pfeffer & Salancik, 1978). It follows that boards will choose future members with strong external ties with the political environment to be able to minimise the effect changes in the firm's political environment. When selecting an outsider to the board, it will choose a person with strong ties with this particular environment. Therefore, FGOs become a desirable option. Furthermore, FGOs play relevant and active roles on the board (Pascual-Fuster & Crespí-Cladera, 2018). Resource dependence theory (Pfeffer and Salancik, 1978) believes that outside directors are critical to the external environment. "...one would expect that as the potential environmental pressures confronting the organisation increased, the need for outside support would increase as well." (Pfeffer & Salancik, 1978, p. 168), which is true for larger firms since they have to face more complicated environments. Therefore, outsiders provide information and personal links to outside groups, which may help the firm to achieve its goals and to adapt, if necessary, to changes in the environment. Moreover,

related to the first hypothesis, FGOs are, due to their educational background, community influentials (links to outside groups), the second hypothesis states: Keim and Hillman (2008) list three possible responses to public policy: (1) passive reaction, where managers react by adjusting their activities and plans to new rules and legislations post-hoc, (2) positive anticipation, where managers monitor the formation of government policy to anticipate and adjust their strategic planning within the firm, and (3) proactive public policy shaping, where firms, anticipate changes as well as try to shape policy and institutions to their own advantage. This paper argues that including FGOs as board members signals that firms are involved in either positive anticipation, that is, FGOs through their external communication channels have access to better and timely information the firm can use in their own benefit; or firms are involved in proactive public policy shaping, that is, FGOs due to their links with their political parties, are in a good position to help firms to shape future public policy.

However, when do firms get involved in government policy? Previously, most firms adopted a free-rider strategy and never became politically active since firm relations with the government were viewed as a cost (Oliver & Holzinger, 2008). However, this behaviour has changed. In the U.S., the number of public company firms which include FGOs, has increased from 14% in 1973 to 53% in 1998. These numbers cannot be ignored. Such an increase indicates that FGOs are valuable resource firms pursue and use (Lester et al., 2008). As Keim and Hillman (2008) show, the main contingency factor is the importance of the issue and how it affects the firm. For issues with relatively little impact on the firm, managers may choose passive reaction. As the level of importance increases, managers may choose to anticipate political decisions. Issues that may affect operations or future plans significantly may be dealt with a proactive public policy.

Former government officials are more prevalent in firms where sales to government, exports, and lobbying are more significant (Agrawal & Knoeber, 2001). Former government officials can provide valuable advice and counsel regarding the public policy environment of a firm, aid the firm with their knowledge of government procedures and their insight in predicting government actions, improve financial performance, create communication channels to existing government officials, provide valuable non-business perspectives on specific issues, reduce transaction costs (Agrawal & Knoeber, 2001; Hillman, 2005; Hillman et al., 2000; Hillman et al., 1999; Lester et al., 2008; Peng & Luo, 2000).

Political institutions promote economic exchanges by supporting an infrastructure of intermediations that increases the transparency of economic transactions, but, at the same time, political institutions regulate economic exchanges by circumscribing and even preventing certain types of economic transactions from occurring, as happen in highly regulated sectors. Under such circumstances, political intervention constrains managerial autonomy. Firms have to face a powerful stakeholder with a political/social agenda that may hamper managerial discretion and ability to satisfy other stakeholders (Finkelstein & Boyd, 1998). Moreover, the uncertainty associated with regulation changes can reduce the firm's profitability (Kingsley, Bergh, & Bonardi, 2012). Sectors become highly regulated because they control strategic resources for countries (Kaczmarek, Kimino, & Pye, 2014). Government regulation creates uncertainty and firms create linkages with governments

through former politicians (Hillman, 2005). These constraints could come not only by government regulation but also by government involvement in the corporate governance of individual firms through ownership and board ties (Okhmatovskiy, 2010). Regulation affects firms in different ways. For example, highly regulated environments impact bank merger activities (Brewer, Jackson, & Jagtiana, 2000). Regulation or the absence of such can change the firm's focus from market competition to political competition (Helland & Sykuta, 2004). Changes in the regulatory environment will force organisations to institute new strategies (Sherman, Kashlak, 1998). That explains the vital role that board members could play. They could represent "the man of the government at firms" but, inversely, they can lobby politics and regulations according to firms' interests. Pugliese et al., (2014: 1191) state, "…Firms operating in regulated industries are subject to compliance to strict norms and rules affecting various areas of a corporation's life" and, at the same time, regulation limits the number of strategic options firms have." Highly regulated sectors have traditionally been the utilities sector, electricity, where the state regulates their pricing and even profits (Agrawal and Knoeber, 2001), banking, and financial services (Edwards, 1977; Okhmatovskiy, 2010), and chemicals (Blau et al.,2000). Regulated firms are those whose main activity are in theses sectors, event though they might be diversified.

Some studies analyse the positive and negative effects of regulation and former government officials on the board. On the one hand, some studies have suggested that regulated firms are less actively monitored by shareholders than firms in competitive markets (Helland & Sykuta, 2004)or that politically connected acquirers receive preferential treatment in China (Tu et al., 2013). On the other hand, hiring a former government official may bring scrutiny to the firm. Spiller (1990) finds that employment can be perceived as a reward for favourable regulatory treatment, and individuals are likely to abuse their political connections in China (Tu et al., 2013).

The two hypotheses we propose are related to the number of FGOs in the board. On the one hand, firms in highly regulated sectors will have many FGOs in their boards. On the other hand, larger firms, due to the increasing uncertainty in their environments, will also have a more significant number of FGOs in their boards.

H_1: The number of former government officials will increase in highly regulated sectors

H_2: The number of former government officials, due to environmental uncertainties will increase with firm size

Methodology and Sample

The paper will analyse firms in the Spanish Stock Exchange. The regulating institution for the several stock markets in Spain is called Comisión Nacional del Mercado de Valores (CNMV). Our first step was to identify the firms for the sample. CNMV produces a yearly report in which firms are classified according to their capitalisation levels (from most capitalised to least capitalised, that is, their size). This annual report was used to select the sample of firms for both years. CNMV has a classification system, sector and sub-sector. We have chosen the year 2004, first time it was compulsory for firms to provide corporate governance information, 2010 and 2015.

The result was 181 firms in 2004, 153 firms in 2010, and 137 firms in 2015. Once a list of all firms had been made, we obtained, also from CNMV, their Corporate Government Annual Report. CNMV requires publicly listed firms to submit this report yearly with specific information about their corporate governance, the composition of the board, and board members.

On the political side, the next step was to create a database with the names of all political officeholders since 1977 to 2015. Political officeholders are elected national officials, including members of parliament, members of regional parliaments, senators, and secretaries of State. The Spanish Parliament's web page provided information about members of parliament (name, education, background, political party affiliation), the Spanish Senate's web page provided the same information for senators, and we were provided with a list of former secretaries of State from Moncloa Palace communication office (official residence for the Prime Minister of Spain since 1977) in order to obtain the names of these FGOs from 1977 to 2015. By merging the two databases, we identified which board members were also FGOs.

Finally, we will use IBM SPSS statistical package for the multivariable regression analysis. The dependent variable is FGOs, the number of former government officials in the board of directors. The independent variables are Size, the size of the firm as for their capitalisation level according to the CNMV report; Sector, the main activity sector for the firm; Regulated_Sector, whether the sector is highly regulated or not. It takes the value of 1 if so and 0 if not; Board_Members, the number of board members in the board of directors as stated in the firm's Corporate Government Annual Report.

Results

The following tables show the results for the multivariable analysis for the years 2004, 2010, and 2015.

Table 1. Correlation Matrix, y

uncivilised	Variables	Mean	SD	1	2	3	4	5
1	FOGs	0,34	0,669	1,000				
2	Size	3,59	1,619	-0,339**	1,000			
3	Sector	28,56	16,641	-0,082	0,358**	1,000		
4	Regulated_ sector	0,24	0,430	0,119	-0,136*	-0,165*	1,000	
5	Board_ Members	9,65	4,382	0,425**	-0,654**	-0,147*	0,151*	1,000

Adapted from SPSS output. N = 181. * Significant at $p < 0.05$, ** Significant at $p < 0.01$

Table 2. ANOVA analysis, year 2004.

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	15,306	4	3,826	10,339	.000[b]
	Residual	65,136	176	0,370		
		organisation	180			

a. Dependent Variable: FGOs

b. Predictors: (Constant), Board_Members, Sector, Regulated_sector, Size

Adapted from SPSS output

The F-ratio tests whether the overall regression model is a good fit. Table 2 shows that the independent variables statistically significantly predict the dependent variable and therefore, the regression model is a good fit of the data.

Table 3. Model coefficients for the multivariable analysis, year 2004.

Coefficients[a]								
Model B		**Unstandardised Coefficients**		**Standardised Coefficients**	**t**	**Sig. Lower Bound**	**95.0% Confidence Interval for B**	
		B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
1	(Constant)	-0,049	0,247		-0,200	0,842	-0,537	0,438
	Size	-0,046	0,040	-0,111	-1,165	0,246	-0,124	0,032
	Regulated_ sector	0,085	0,108	0,055	0,787	0,432	-0,128	0,298
	Sector	0,001	0,003	0,018	0,		organisa-tions005	0,007
	Board_ Members	0,053	0,014	0,347	3,819	0,000	0,026	0,080

a. Dependent Variable: FGOs

Adapted from SPSS output

The unstandardised coefficients, B, indicate how much the dependent variable, FGOs, varies with an independent variable when all other independent variables are held constant. Only Board_Members, 0,000, is statistically significant. The rest of the independent variables are not statistically significant to the prediction, $p < 0,05$.

Table 4. Model Summary for the multivariable regression analysis, 2004

Model Summary				
Model	**R**	**R-Squared**	**Adjusted R Squared**	**Std. Error of the Estimate**
1	.436[a]	0,190	0,172	0,608
a. Predictors: (Constant), Board_Members, Sector, Regulated_sector, Size				
Adapted from SPSS output				

The value of R is the multiple correlation coefficient, which measures the quality of the prediction of the dependent variable. A value of 0,436 is a moderate level of prediction. R Square represents the R^2 value, which is the coefficient of determination. This value is the proportion of variance in the dependent variable that can be explained by the independent variables.

Table 5. Correlation Matrix, year 2010.

	Variables	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**
1	FOGs	0,34	0,669	1,000				
2	Size	3,59	1,619	-0,351**	1,000			
3	Sector	28,56	16,641	0,019	0,107	1,000		
4	Regulated_sector	0,24	0,430	0,114	-0,178*	-0,231**	1,000	
5	Board_Members	9,65	4,382	0,314**	-0,596**	-0,068	0,163*	1,000
Adapted from SPSS output. N = 153. * Significant at $p < 0.05$, ** Significant at $p < 0.01$								

Table 6. ANOVA analysis, year 2010.

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	18,498	4	4,624	6,363	.000b
	Residual	107,554	148	0,727		
	Total	126,052	152			
a. Dependent Variable: FGOs						
b. Predictors: (Constant), Board Members, Sector, Regulated sector, Size						
Adapted from SPSS output						

Table 6 shows that the independent variables statistically significantly predict the dependent variable and therefore, the regression model is a good fit of the data.

Table 7. Model coefficients for the multivariable analysis, year 2010.

Coefficients[a]

		Unstandardized Coefficients		Standardised Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	0,427	0,393		1,087	0,279	-0,350	1,204
	Size	-0,139	0,052	-0,253	-2,660	0,009	-0,242	-0,036
	Regulated_ sector	0,124	0,165	0,060	0,753	0,453	-0,202	0,450
	Sector	0,004	0,005	0,071	0,905	0,367	-0,005	0,014
	Board_ Members	0,037	0,022	0,158	1,667	0,098	-0,007	0,080

a. Dependent Variable: FGOs

Adapted from SPSS

The unstandardised coefficients, B, indicate how much the dependent variable, FGOs, varies with an independent variable when all other independent variables are held constant. The variable Size, with a sig. value of 0,009, is statistically significant. The rest of the independent variables are not statistically significant to the prediction, $p < 0,05$. The second hypothesis is that the number of former government officials, due to environmental uncertainties, increasing with firm size, is then validated.

Table 8. Model Summary for the multivariable regression analysis, 2010

Model Summary

Model	R	R-Squared	Adjusted R Squared	Std. Error of the Estimate
1	.383[a]	0,147	0,124	0,852

a. Predictors: (Constant), Board_Members, Sector, Regulated_sector, Size

Adapted from SPSS output

The value of R is the multiple correlation coefficient, which measures the quality of the prediction of the dependent variable. A value of 0,383 is a moderate level of prediction. R Square represents the R^2 value, which is the coefficient of determination. This value is the proportion of variance in the dependent variable that the independent variables can explain.

Table 9. Correlation Matrix, year 2015.

	Variables	Mean	SD	1	2	3	4	5
1	FOGs	0,34	0,669	1,000				
2	Size	3,59	1,619	-0,377**	1,000			
3	Sector	28,56	16,641	-0,051	0,064	1,000		
4	Regulated_sector	0,24	0,430	0,188*	-0,172*	-0,229**	1,000	
5	Board_Members	9,65	4,382	0,398**	-0,631**	0,006	0,173*	1,000

Adapted from SPSS output. N = 137. * Significant at $p < 0.05$, ** Significant at $p < 0.01$

Table 10. ANOVA analysis, year 2015.

ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17,964	4	4,491	8,068	.000b
	Residual	73,481	132	0,557		
	Total	91,445	136			

a. Dependent Variable: FGOs

b. Predictors: (Constant), Board_Members, Sector, Regulated_sector, Size

Adapted from SPSS output

The F-ratio tests whether the overall regression model is a good fit. Table 10 shows that the independent variables statistically significantly predict the dependent variable and therefore, the regression model is a good fit of the data.

Table 11. Model coefficients for the multivariable analysis, year 2015.

Coefficients[a]

		Unstandardized Coefficients		Standardised Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	0,207	0,399		0,518	0,605	-0,583	0,996
	Size	-0,128	0,066	-0,196	-1,940	0,055	-0,259	0,003
	Sector	-0,001	0,004	-0,016	-0,195	0,846	-0,009	0,008
	Regulated_ sector	0,195	0,150	0,106	1,301	0,196	-0,102	0,493
	Board_ Members	0,059	0,023	0,256	2,527	0,013	0,013	0,106

a. Dependent Variable: FGOs

Adapted from SPSS

The unstandardised coefficients, B, indicate how much the dependent variable, FGOs, varies with an independent variable when all other independent variables are held constant. Only Board_Members, 0,013, is statistically significant. The second hypotheses, The number of former government officials due to environmental uncertainties will increase with firm size, is then validated with a sig. of 0,055. The rest of the independent variables are not statistically significant to the prediction, $p < 0,05$.

Table 12. Model Summary for the multivariable regression analysis, year 2015.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimates
1	.443a	0,196	0,172	0,746

a. Predictors: (Constante), Board_Members, Sector, Regulated_sector, Size

Adapted from SPSS output

The value of R is the multiple correlation coefficient, which measures the

quality of the prediction of the dependent variable. A value of 0,443 is a moderate level of prediction. R Square represents the R^2 value, which is the coefficient of determination. This value is the proportion of variance in the dependent variable that the independent variables can explain.

Unfortunately, the results show no support for the first hypotheses, the number of former government officials will increase in highly regulated sectors, for any of the years analysed. As for the second hypotheses, the number of former government officials, due to environmental uncertainties, will increase with firm size, we find support for the years 2010 nd 2015.

Discussion and Conclusion

Firms need resources and resource dependence theory (Pfeffer & Salancik, 1978) have shown these resources include people with valuable knowledge. The theory suggests that former government officials are resource firms can use in order to coerce the environment. They provide a link between the firm and the political environment, which has become more complex (Oliver & Holzinger, 2008). The resources former government officials bring to the firm are increased legitimacy (Pfeffer & Salancik, 1978), lower transaction costs (Hillman et al., 2000; Williamson, 1984), better advice (Lorsch & MacIver, 1989; Mintzberg, 1983), provide better access to capital (Mizruchi & Stearns, 1988), lower debt ratio (Adams et al., 2010), better access to information (Ferris, Houston, & Javakhadze, 2016), and better understanding of home markets (Fernández-Méndez et al., 2018).

There is also evidence of the relationship between board's political connections and firm performance in high-regulation industries (Houston & Ferris, 2015; Yarbrough et al., 2017). Sectors become highly regulated because they control strategic resources for countries (Kaczmarek et al., 2014). Government regulation creates uncertainty and firms create linkages with governments through former politicians (Hillman, 2005). Regulation affects firms in different ways: highly regulated environments have an impact on bank merger activities (Brewer et al., 2000), it can change the focus of the firm from market competition to political competition (Helland & Sykuta, 2004), changes in the regulatory environment will force organisations to institute new strategies (Sherman et al., 1998), and regulated firms are less actively monitored by shareholders than firms in a competitive markets (Helland & Sykuta, 2004).

The results show no support for the first hypotheses. The number of former government officials will increase in highly regulated sectors, for any of the years analysed. Two of the main advantages of former government officials are their ability to interpret legislation (Luo, 2003), and they have better access to information (Ferris et al., 2016). On their own, this should be enough for firms to consider including former government officials in their board. Nevertheless, this is not the case in Spanish firms in the years analysed.

As for the second hypotheses, the number of former government officials, due to environmental uncertainties will increase with firm size. We find support for the years

2010 and 2015. Resource dependence theory stresses that firms must face demands from different external actors and therefore, firms need to adapt to uncertainty in the environment by either manipulate it or try to influence it to obtain critical resources (Oliver, 1991; Pfeffer & Salancik, 1978; Singh et al., 1986). Overall, resources and how they are managed will improve both performance and advantage over competitors (Oliver & Holzinger, 2008; Pennings et al., 1998). In this case, Spanish firms behave as expected according to the theory.

The analysis of the results allows us further insights into the relationship between the number of former government officials in highly regulated sectors and larger firms. Our research presents a number of contributions. Mainly, board behaviour and composition are different in Spanish firms. This is an example of the difference of the continental model with the Anglo-American model. The managerial implications relate to the difference between the theoretical framework used and the reality of Spanish firms. According to Resource Dependence Theory, we would expect a larger number of former government officials in both highly regulated industries and in larger firms. Further analysis is necessary to understand these differences better.

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PAPER

Current Fishing Dispute in the South China Sea: A Vietnamese Perspective

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Abstract The South China Sea is one of the world's security hotspots regarding territorial sovereignty disputes between China, Taiwan and some South-east Asian countries such as Vietnam, the Philippines, Malaysia and Brunei. Currently, the dispute situation in the South China Sea is increasingly complicated and tends to be more stressful because the region's situation is not only heated up by territorial sovereignty disputes, geostrategic competition among great powers, but also heated up by various non-traditional security issues, including fisheries security issues such as overfishing, illegal fishing activities, conflicts over fisheries activities between countries. However, at present, there are no effective cooperative and rational mechanisms for fisheries in the South China Sea. Meanwhile, ASEAN is an important mechanism for managing regional security issues, including non-traditional security in the South China Sea. However, ASEAN's role in this region is still relatively weak. Given that situation, the article analyses the current situation of fisheries security issue in the South China Sea and clarifies how ASEAN's role in this sector plays out in the current period. What actions should ASEAN take to contribute to ensuring non-traditional security in the South China Sea in general and fisheries security in particular?

Keywords: Fishing Dispute, South China Sea, Fisheries, UNCLOS, ASEAN, IUU Fishing

Introduction

The dispute on interests in the South China Sea has been brought to a rather serious level of conflict in recent years. The main reason is not only the concurrent existence of many conflicts, disputes, and overlaps of interests, a large number of objects, subjects participating or involved, but also the lack of a good feasible mechanism or solution proposed and implemented. This trend is having a profound impact on the regional security and cooperation environment, changing perceptions and strategic actions of many countries, including the arms race and the force gathering to adapt with unpredictable fluctuations. In addition to the hot spot on territorial sovereignty

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conflicts and geostrategic competition, a number of non-traditional security issues in the South China Sea are heating up and having a strong impact on regional security, as well as diplomatic relations between countries surrounding this maritime region. Therefore, the South China Sea region is a hotspot for security, because disputes are complex and interrelated between traditional and non-traditional security issues. Cooperation is one of the main solutions outlined to address security issues in the South China Sea, but this has yet to be realised. Increased stress in territorial sovereignty disputes, as well as strategic competition between powers, have undermined the ability of cooperation among countries in solving non-traditional security issues in this sea region. Challenges of traditional and non-traditional security are mixed; the picture of regional security is not bright much. Cooperation between China and South-east Asian countries on non-traditional security in the South China Sea is relatively weak; although China's interest in non-traditional regional security is on the rise, many of China's actions are more proclamation than substantive. China is unlikely to play the main role in non-traditional maritime security in Southeast Asia in the short and medium-term, mainly due to disputes in the South China Sea.

The South China Sea is considered a "hotspot" for non-traditional security issues Asia-Pacific region, especially fisheries security. Asia's marine waters generate about half of the global marine fish catch. Understanding the impact that the South China Seas fisheries have on our global marine ecosystem is vital (Teh et al. 2019; Sherman, K.,2014). The South China Sea dispute not only involves competing for sovereignty claims over small islands, rocks, reefs and semi-or fully-submerged maritime features but involves competing for broad areas of overlapping maritime claims. While largely perceived as a fight over oil resources, clashing assertions of sovereignty and competing for maritime claims, however, the heart of the South China Sea conflict is really all about fisheries. After all, the South China Sea fisheries are vital to the economies of the claimant states, especially China, Vietnam, Indonesia and the Philippines. Moreover, "for coastal countries, fish is an extremely important source of nutrition, and fisheries employ at least 3.7 million people there" (FNI. 2017, October). The aquatic product line is also one of 12 integration priority lines and sectors of ASEAN with a roadmap focusing on four main topics: food safety, research and development, human resource development and information sharing. However, this most important fishing ground in the world faces the danger of exhaustion, directly threatening fisheries security. Although ASEAN has made efforts to strengthen fisheries cooperation to protect fisheries development sustainably, it seems that the commitments remain largely at the theoretical negotiation. In practice, the overfishing and conflicts between countries regarding fishing activities tend to be more and more stressful. At the same time, ASEAN does not seem to properly recognise the new security risk from the increasing stress of the fisheries security issue in the South China Sea currently.

In addition to the introduction, the article is organised as follows. The first section discusses the current fisheries security issue. This part mainly analyses the risk of depletion of fish resources due to over-exploitation of seafood resources and the destruction of the marine environment reducing the number of fish in the South China

Sea. At the same time, in this part, the article also analyses the current situation of fishing conflicts between countries surrounding the South China Sea related to illegal fishing activities and the impact of political intention in claiming the sovereignty of the countries that increase stress in bilateral relations between countries and creates the risk of humanitarian crisis related to law enforcement of countries. The second part of the article focuses on the analysis of ASEAN's role in ensuring fisheries security in the region. Among them, the article analyses the current status of the mechanisms to promote fisheries cooperation and management that ASEAN has created as well as the direction for ASEAN to strengthen its larger role in fisheries security today. The concluding section discusses the research results of the above parts and gives some findings.

1. Fisheries as a source of tension between the littoral states of the South China Sea

As we know, "the South China Sea has historically been a very rich and important resource for seafood in the region. The countries bordering the South China Sea, such as China, Brunei, Cambodia, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam, that rank among the top fish-producing and consuming countries in the world in terms of both marine catch and aquaculture industry, with many people relying on the fishing industry for both their food security and income" (DNI. 2013, July). Security in the South China Sea is an extremely important issue in the Asia-Pacific region. In this region, the South China Sea has some of the world's largest transportation and trade routes. The South China Sea is not only famous for its important geopolitical position but also for its economic and environmental importance. In the South China Sea, coral reefs are widely distributed and form clusters of atolls. This is the most important and vulnerable ecosystem, the home of about 3,000 species of creatures in the South China Sea. In particular, the south region of the South China Sea, around the Spratly Islands group and extending into the coasts of Luzon island (Philippines), Brunei and Khanh Hoa - Ninh Thuan (Vietnam) is having the highest diversity of coral species (about 517 species), roughly equal to the coral diversity (566 species) of the International Coral Triangle, centred on the sea region of Indonesia and the Philippines. "A study by the UN Environment Programme in 2004 cited the high concentration of coral reefs in the seas of the region - 34% of the world's coral reefs, despite occupying only 2.5% of the total ocean surface. The South China Sea, as the biggest body of water connecting the marginal seas of the region, plays a critical role in sustaining this vibrant marine environment" (Louie Dane C. Merced. 2015, May). This shows that protecting the marine environment and offshore coral ecosystems will ensure environmental security and biodiversity resources throughout the South China Sea.

Therefore, the level of biodiversity and conservation potential in the South China Sea is very high. This sea is considered the sea "Amazon rainforest" and identified as one of 20 sea areas with the world's largest ability of natural fisheries exploitation and salt-brackish aquaculture (Thuysanvietnam. 2020, July). The main fishing hotspots in the region include countries embroiled in the South China Sea dispute. The South China Sea is one of the world's top five most productive fishing zones. More than half

of the fishing vessels in the world operate in these waters, which employ 3.7 million people, and likely many more engaged in illegal, unregulated, and unreported fishing (IUU) (The ASEAN Post Team. 2018, September). However, the issue of fisheries security in the South China Sea is increasing. We can consider some aspects as follows: Firstly, *the problem of overfishing in the South China Sea.* The risk of resource depletion from over-exploitation of marine resources. "While the South China Sea is a biodiversity-rich tropical sea, supporting abundant fisheries, its unique environment and invaluable marine living resources are in increasing peril. The most important fishing ground in the world is in danger of exhaustion after years of indiscriminate exploitation, fish quantity in the South China Sea is in danger of being depleted due to overfishing, directly threatening fisheries (food) security as well as marine economic development prospects of the countries bordering in this sea area. These resources have been overexploited for decades and are currently under enormous pressure. Overfishing today is exacerbated by the huge scale of IUU fishing" (FNI. 2017, October). Beyond the damage to the reef, the lack of any agreed-upon regulation has meant that each country has been doing its best to exploit the fish stock in the South China Sea to the point of destroying it altogether. Professor John McManus of Miami University stated that "When we have a present fisheries crisis and a looming fisheries catastrophe, you shouldn't go to one of the most important places for fisheries and destroy it" (Akshat Rathi. 2016, July).

Regarding overfishing and destructive fishing, especially IUU fishing. IUU fishing is a major cause of the degradation of marine fish resources in the South China Sea. In IUU fishing, destructive fishing is also used. Meanwhile, the sanctions for this activity are also too gentle, leading to almost no deterrence. Simultaneously, the fisheries' management is poor, so fishers use destructive fishing means such as close-meshed grid, electricity, high-powered lights, explosives, and cyanide. There are too many newly built and modernly equipped ships and boats, so fishing productivity is getting higher and higher, leading to depleting almost-depleted fish stocks. The issue of ocean conservation, including dealing with the degradation of fish stocks while waste increase, is an urgent need in the South China Sea today.

The situation of some country's fishing vessels illegally fishing in sea areas of other countries in the South China Sea is becoming a new hot spot in the non-traditional security field. Along with the increasingly complicated situation of sovereignty disputes in the South China Sea, fishing vessels of some countries, especially China's fishing vessels, often operate illegally in the sea areas of Vietnam, the Philippines, Indonesia and Malaysia. According to the Global Fishing Watch (GFW), China's fishing activities reach the longest in the world and are of the largest scale, even outstripping the total scale of the next ten countries combined. China's ships amassed approximately 17 million hours of fishing in 2016, most of the southern coast of their home country, including the South China Sea, and as far away as Africa and South America. Meanwhile, David Kroodsma, Global Fishing Watch's research and development director, who was the study's lead author, said in an interview, China is "the most important fishing nation," "The extent of the Chinese fleet is even bigger than

it seems." According to the report of Greenpeace, China's distant-water fishing fleet, with 2,500 vessels estimated as the world's largest, has not always been welcome in far-off waters. Those ships are not allowed to work without permission in the EEZs of other countries, which extend by United Nations convention no more than 200 nautical miles from a country's territorial sea baseline (Teng Jing Xuan. 2018, February; Chris Mooney and Brady Dennis. 2018, February; Gerry Doyle. 2018, February). According to those research organisations, it is concerned that China's fishing vessel illegally fishing in the sea areas of other countries is increasing, and those vessels' level of resistance against the competent forces of these countries is also increasingly drastic, reckless and dangerous.

However, these resources have been overexploited for decades and are currently under enormous pressure. Fish stocks have declined since the 1950s, and overfishing today is exacerbated by the huge scale of illegal, unreported and unregulated fishing (IUU). According to the Center for Strategic and International Studies (CSIS) published in September 2017, "total fish quantity in the South China Sea has decreased by 70-95% since the 1950s and catch rates have decreased by 66-75% in the past 20 years; currently, in the South China Sea there may be roughly 5% of fish quantity compared to the 1950s and the recovery process of fish stocks in the South China Sea today is very low." (Amti.CSIS. 2017, September). Data from the Seas Around Us project (sponsored by the Pew Charitable Trusts) indicates that "roughly 20% of the South China Sea's marine stocks are developing or rebuilding while about 50% are currently rated as fully exploited. And, the remaining roughly 30% of marine stocks have been overexploited or have collapsed entirely in the South China Sea." (DNI. 2013, July). Marine resources cannot recover or recover slowly, mainly due to the renovation and destruction of the ecological environment of China, which causes the creatures to lose habitat, lay eggs and raise babies.

What are the causes? Fisheries in the South China Sea is not simply a story about "fish and fishers", but has become a matter of "fisheries security" - part of national security and global security because of its profound social impacts and long-term effects on the development potential of regional fisheries, as well as on food security in countries in the region and in the world. Finding the cause of the insecurity of fisheries in this sea area, China seems to be one of the culprits leading to such a situation. Offshore atoll clusters in the South China Sea contain interwoven strategic interests of countries inside and outside the region. Therefore, China's unilateral statements and actions when Beijing announced that the annual fishing ban on the South China Sea and when building artificial islands on seven coral shoals in the Spratly Islands that are occupied by Beijing's force from Vietnam in 1988. Such actions have been and will threaten environmental security, ecological security and fisheries not only in the Spratly Islands sea area but also to the rest of the South China Sea.

China's island reclamation activities in the South China Sea destroy the environment and reduce fish species. China's illegal rock-island reclamation in the Spratly Islands has caused the environmental pollution in the South China Sea to become one of the leading challenges in a non-traditional security issue. The South

China Sea is one of the regions with the world's most diversified marine ecosystems, accounting for 76% of the world's coral species and 37% of the fish living in coral reefs. According to the South-east Asian Fisheries Development Center (SEAFDEC), in every decade, there is 30% of the grass growing in the sea, 16% of living coral reefs is lost due to environmental pollution and unsustainable exploitation. However, according to experts' calculations, Beijing's building artificial islands in the Spratly Islands and Paracel Islands destroyed up to 160 km^2 of coral reefs and destroyed nearly 60 km^2 of ring corals in the surrounding areas. Mr. John McManus (Miami University) said that "about 10% of the coral area in the Spratly Islands and 8% of the coral area in the Paracel Islands in the South China Sea has been completely depleted due to Chine's activities". According to Edgardo Gomez (The Philippines), "it is estimated that with the current level of coral destruction, the South China Sea coastal countries will suffer losses of 5.7 billion USD per year, causing negative impacts across borders" (Anthony Bergin. 2017, April).

In 2014 - 2016, when building more than 1,370 hectares of artificial islands from 7 coral reef shoals in the Spratly Islands, China, nearly 160 km^2 of coral in the seabed was destroyed to get sand to build the island and caused damage to the coral reef ecosystem services in the South China Sea with an estimated value of about 4 billion USD per year. Simultaneously, according to the International Arbitration Court's decision, China has permanently destroyed the coral reef environment in the Spratly Islands sea area (MIC. 2020, May).

Dredging and construction on coral reefs in the South China Sea are severely destroying one of the most diversified ecosystems on the Earth. Most of the attention focusing on the South China Sea has revolved around China's military activities. However, quiet ongoing natural disaster in the area is also a matter of serious concern. A recent environmental report mentioning concrete data and evidence shows that large coral reefs are being "depleted" by warming seawater. However, besides the changing factors of the natural environment, the disappearance of many coral reefs is caused by another factor: the Chinese government's overfishing and island reclamation activities (MIC. 2020, May).

The Arbitral Tribunal's decision in The Hague in July 2016 on the lawsuit between the Philippines and China emphasises that China's construction of seven artificial islands in the Spratly Islands violates its environmental protection obligations within the framework of the United Nations Convention for the Law of the Sea (UNCLOS). Meanwhile, Beijing claimed its artificial island-building activities were under the "Green Project" scope. The techniques it used simply simulated processes that still take place in nature, for example, storms at sea wash away debris and dead marine organisms, causing them to agglomerate into marine entities gradually. John McManus, at Rosenstiel School, at Miami University, emphasised that topographical reclamation in Scarborough Shoal, Prata's archipelago, Paracel Islands and the Spratly Islands may be making the terrain and the natural environment in these areas is so destroyed that they cannot be restored (RFA. 2016, July). It is estimated that China's illegal activities in the South China Sea have damaged up to 98% of the coral area in this sea area.

In which China's illegal filling and construction of artificial floating islands caused a loss of about 14/15km^2, China's dredging activities caused a loss of about 39/40km^2, China's dredging activities to make parking station and navigational canals caused a loss of about 2/3 km^2, and China's giant clam mining caused a loss of about 104/104 km^2 (Hà. 2020, June).

It can be seen that the burying of coral reefs in the South China Sea in just a few years of China's building artificial islands has caused the most rapid and almost permanent losses in human history. The destruction of many thousands of hectares of coral reefs, seagrass beds, and other shallow marine ecosystems as material to make China's artificial islands in the Spratly Islands is too rough and gets out of standards. The above behaviours of China not only alter the inherent natural structure and function of the shoals, rocks and atolls in the Spratly Islands but also "sever" the ecological connection between this archipelago and the rest of the South China Sea. This has a broader impact on the nutritional, breeder and seed, and aquatic resources availability for much of the South China Sea and its surrounding sea parts of this sea region. (Vietnamnet.)

In addition, China's construction of artificial islands and illegally bringing soldiers to a garrison in the South China Sea also indirectly affects and destroys the ecological environment. While China was bringing soldiers to the garrison, heavy metals, persistent organic pollutants (POPs) and wastewater that may contain heavy metals or persistent organic was discharged directly into the sea without treatment. This causes serious impacts on the environment and marine ecosystems. China's construction of illegal structures in the Spratly Islands and Paracel Islands in China also changes the flow in coastal areas, adversely affects the marine ecosystem, and changes the conditions of the seabed and sediment balance, directly destroys marine ecosystems.
China has embellished and expanded "artificial islands" from the Spratly Islands and Paracel Islands' shoals in the South China Sea. It has destroyed thousands of hectares of nearby coral reefs and other shallow marine ecosystems to get materials to embellish such artificial islands. These activities have caused severe damage to countries along the South China Sea, including China. This has resulted in a total loss of about 4 billion USD per year, and the loss of fisheries alone is more than 400 million USD per year. The number of coral reefs and fish species in disputed sea areas in the South China Sea has decreased from 460 to 261, and the endangered species list now includes green turtles, giant clams and tortoiseshell turtles. According to John McManus, estimated that human activity had destroyed about 16,200 hectares of coral reefs, with 98% of which has been done by China alone. That would put the region's economic damage at roughly 6 billion USD per year. China disputes these scientific claims, saying that it does little ecological damage to coral reefs. (Akshat Rathi. 2016, July) Dr. Edgardo Gomez, an eminent marine scientist from the University of the Philippines-Marine Sciences Institute (UP-MSI), studied how the massive scale of China's construction over the rocks and shallow reefs in the South China Sea are a clear source of environmental concern in this region, as these involve dredging sand from the ocean floor and dumping them over entire coral reef systems (Louie Dane C. Merced. 2015, May).

Obviously, China has seriously violated relevant international conventions, such as UNCLOS (Articles 60, 192, 193, 196), especially Article 208 on marine environmental pollution; Convention on Biological Diversity (CBD); Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and violates Article 5 of the Declaration on the Conduct of Parties in the South China Sea (DOC) to which China has committed itself. In particular, such violation of China was clearly stated in the international tribunal decision in The Hague (July 12, 2016) established under Annex VII, UNCLOS in the Philippines's suing to China about the South China Sea (litigation in January 2013).

Accordingly, the Court considered the impact on the marine environment of China's artificial accretion and construction activities on seven structures of Spratly Islands and found that China had caused serious harm to the environment of coral reefs and violated the obligation to conserve and protect vulnerable ecosystems and the habitats of degraded, threatened and destroyed species. At the same time, it considered that China's authorities are aware of the fact that Chinese fishers catch rare sea turtles, corals and giant clams on a large scale in the South China Sea (through causing serious harm to the reef environment) and failed to fulfil obligations to prevent and terminate these activities. Another point to note is that the Chinese government does not control and manage fishers. Bejing allows fishers to over-exploit, illegally exploit and use destructive fishing methods (fishers used destructive fishing means such as close-meshed nets, electricity, high-powered lights, explosives, cyanide). This makes fish resource and other creatures, especially creatures of high economic value (sea turtles, sea clams), unable to recover. According to Dr. Edgardo D. Gomez, "the poaching of giant clam shells, corals, and other marine species by Chinese fishing vessels has repeatedly caused damage to the area's ecological balance." And, "illegally harvested shells are brought to mainland China, particularly to its Hainan province, where they are processed and sold as various coral crafts, shell bracelets, shell necklaces and mounted shell carvings" (GOVPH. 2015, April).

It can be seen that the indiscriminate fishing activities and actions degrading the marine environment of the countries surrounding the South China Sea are leading to a major disruption in the fisheries sector, and this environmental disaster will affect the lives of millions of people. The complex dispute context in the South China Sea has led to the "dispute of fishing areas" under the sovereignty claim of each country and led to increased stress. This has pushed fishers in the region into an invisible "fishing war", coupled with an increase in illegal fishing in disputed areas, of which about 70% are Chinese fishers. With the depletion of near-shore fish stocks, fishers in countries around the South China Sea are forced to go further to find new sources of fish, and they have to go into disputed sea areas to exploit. This is also the time for China to act to increase its presence in the South China Sea. Accordingly, China increases support for their fishers when fishing in these sea areas. Beijing has financed fishers with money, freshwater, fuel and costs for fishers to build larger and more solid ships and even retrofitted fishing boats for use if necessary. The Chinese government has subsidised fisheries with 4 billion USD per year since 2010. China has also organised military

training for vessels, equipped modern communications systems, and the Chinese Coast Guard also increased in the South China Sea to support fishers when they go fishing. After all, the South China Sea fish resources became even more exhausted. A recent map of the United Nations Food and Agriculture Organization (FAO) 's survey on fish resources in the South China Sea has shown that important fishing grounds in the South China Sea have been nearly exhausted due to overfishing.

Secondly, *the problem of illegal fishing and the risk of a "humanitarian crisis"*. The illegal fishing situation and the risk of humanitarian crisis related to the conflicts between the parties involved in fishing, and the negative reaction of some surrounding countries related to the illegal fishing, which increases stress in the relations among countries surrounding the South China Sea. According to the ASEAN Post: "One main reason that overfishing occurs in this region is due to IUU fishing. While it's a region-wide phenomenon, it has been particularly highlighted in two areas. The first is the Gulf of Thailand, where the overall catch per unit effort has plummeted by 86% since 1966, making those waters among the most overfished on the planet. The second is Indonesia, which is estimated to lose nearly 4 billion USD a year to illegal fishing. The most frequent violators are from China, Thailand and Vietnam." (The ASEAN Post Team. 2018, September).

Illegal fishing activity is a significant challenge for countries surrounding the South China Sea and is one of the major challenges for ASEAN. For example, "Vietnam has a major problem with illegal fishing by large foreign boats, which in 2003 numbered as many as 300 to 500. The foreign boats fish offshore by day and inshore by night, often landing and selling their catches in Vietnamese ports. In November 2011, a Vietnamese Coast Guard ship chased and sideswiped a China Marine Surveillance boat that penetrated Vietnam's EEZ. At the same time, because of overfishing and other pressures on coastal stocks, Vietnamese fishers increasingly have been venturing into the Chinese-controlled Paracels, leading to a growing number of incidents with Chinese fisheries patrol boats." (DNI. 2013, July). Thailand has also faced the infiltration of foreign fishing vessels in the Gulf of Thailand, while its fishers often fish illegally in Indonesian sea areas. Indonesia has long been suffered from this problem due to its abundant marine resources in a large territory that is difficult to control. The main problem is that foreign fishing vessels both illegally fish and overfish.

In the face of increasing illegal fishing in the South China Sea, some countries took strong actions, such as Indonesia using a policy of destroying illegal fishing vessels to prevent IUU fishing. Indonesia's solution also brought controversy in the region as it is not the only country with territorial sea areas and exclusive economic zone (EEZ) encroached by foreign fishing vessels. Such strong treatment also caused concerns for relationships with neighbouring countries. Or Malaysia's shooting at foreign fishing vessels causing damage to life and property, as well as China's policy of allowing its fishing vessels to crash into foreign fishing vessels operating in the South China Sea to assert "claims of sovereignty" by Beijing. These activities of the countries surrounding the South China Sea not only demonstrate the lacks of regional cooperation in ensuring fisheries security but also increase stress among countries, as well as increase stress in

traditional security issues, as well as creating a humanitarian crisis related to the law enforcement of countries against fishing vessels operating in the South China Sea.

One of the biggest challenges of fisheries cooperation in the South China Sea is the fact that countries have not yet reached an agreement on the extent of fishing rights. With 12% of global fish catch in the South China Sea in 2015, and more than half of the fishing vessels in the world are estimated to operate this region. Its fisheries officially employ around 3.7 million people and unofficially many more. However, the South China Sea has been dangerously overfished by countries (Gregory B. Poling. 2019, January). Fishers are facing the risk of working harder, but the fish stocks are declining day by day. Therefore, in the coming time, the countries in the region need to negotiate on traditional fishing areas in the South China Sea based on international law and the conclusions of the Arbitral Tribunal's decisions in July 2016. This will be an important foundation for establishing regional cooperation mechanisms that control fishing in the field.

That fact shows that ending illegal fishing to prevent the degradation of marine resources completely is a job that requires the cooperation of the countries. This is also an opportunity for countries in the region to cooperate in conflict resolution and develop sustainably. Therefore, the countries bordering the South China Sea should change their approach from focusing on traditional sovereignty perspective to a cooperative perspective, especially to protect regional resources.

Many initiatives have been raised to promote cooperation among countries in the South China Sea against illegal fishing and management of fisheries in the South China Sea. At the regional level, countries can cooperate to control the exploitation of fish resources by establishing a regional fisheries organisation. In practice, many regions of the world have established regional fisheries organisations such as the Northeast Atlantic Fisheries Commission (NEAFC), the South Indian Ocean Fisheries Agreement (SIOFA). However, the provisions of international law and multilateral commitments among countries related to the fisheries in the South China Sea do not seem to have any effect on fishers in the South China Sea. Fishing activities take place in the direction of "mind one's own business". Therefore, facing illegal fishing in the South China Sea, some countries adopted a strong controversial policy to protect their seafood resources, which substantially impacted the relations among coastal countries. For example, Indonesia implemented the policy of detonating and sinking foreign fishing boats illegally fishing in its sea areas. Particularly in the illegal fishing sector, countries in the region, especially Indonesia, have applied strong measures such as sinking violation vessels to prevent this situation, but field data shows that the actual situation is not be improved. Every year, hundreds of illegal fishing boats are arrested in Indonesian sea areas. Several arrests of fishing vessels have led to stress between the two countries, such as the arrest of China's fishing vessels by Indonesia's law enforcement vessels in March 2016 (*Ifan Ariansyach;* Bangkokpost. 2019, May).

Indonesia's policy of exploding and sinking fishing vessels was not following international law. Ahmad Almaududy Amri *at the Australian National Centre for Ocean Resources and Security (ANCORS), University of Wollongong, Australia,* analysed on Diplomat that UNCLOS addresses possible measures to combat illegal fishing in the

two regions, the sovereign sea areas of a country and the EEZ of that country, where they only have sovereign rights but sovereignty. With respect to the EEZ, Article 73 UNCLOS allows a State to "board, search, arrest and initiate prosecution" of the infringing vessel, but "penalties for the violation do not include imprisonment or any form of corporal punishment". Consequently, international law does not seem to support Indonesia's policy towards the sinking of fishing vessels within its EEZ. UNCLOS tried to limit sanctions aimed at violating the EEZ. UNESCO stated that the measures that could be used did not include corporal punishment of the crew member or even imprisonment unless it was permitted under a bilateral agreement between the two countries (Ahmad Almaududy Amri. 2015, January).

On April 27, 2019, Indonesia arrested a Vietnam's fishing vessel bearing number BD 97916 TS and 12 fishers on this vessel (Hong. 2019, May). On May 04, 2019, the Indonesian government continued to sink 51 foreign fishing vessels captured by this country. Of these, there are 38 *Vietnamese*-flagged vessels, 6 Malaysian, 2 Chinese and 1 Filipino (Independent. 2019, May). In 2018, Indonesia destroyed 86 Vietnamese fishing vessels for illegally catching fish in its waters. Vietnam has several times called on Indonesia not to use violations against Vietnamese fishing vessels and fishers in a manner that goes against the strategic partnership between Vietnam and Indonesia (Lynh. 2019, May).

Indonesia also needs to pay attention to the concerns of Vietnam and the relevant countries and treat fishers humanely, as stated in the spirit of the DOC (on code of conduct in the South China Sea) in 2002. At the same time, stress between any two members of ASEAN will certainly affect more or less the solidarity and stability of the whole bloc, especially in the context of the existence of the forces that want to cause divisions within ASEAN. ASEAN is inherently divided in its response to the South China Sea disputes. The more disputes between members, the less cohesive the bloc will be.

In this case, ASEAN needs to show its role more clearly. If Indonesia and other ASEAN countries can resolve existing disputes in the sea, increase transparency in fisheries, and cooperate in combating illegal fishing in the region, the number of fishing vessels sunk will decrease significantly. Countries in the region need to work together to establish the best solution and work together to promote maritime transparency (for example, requiring a Vessel Navigation System transceiver with all) and control domestic fishing in a better manner.

Besides, sovereignty disputes in the South China Sea affect fishers' fishing activities in the South China Sea and increase the risk of a humanitarian crisis in this area. For example, the sovereignty claims in the South China Sea and increasing law enforcement activities in this sea region through actions such as sinking fishing vessels of other South-east Asian countries having sovereignty claims in the South China Sea when China believes foreign fishing vessels have "violated the sovereignty" of this country in the South China Sea. This not only increases stress among countries on the South China Sea issue but also goes against international law provisions and commitments between the parties to provide humanitarian treatment to fishers in distress in the sea. Several cases of China's sinking foreign fishing vessel and treating inhumanely to foreign fishers that were in distress in the sea, such as China's vessel sinking a Philippine's fishing vessel

named Gimver-1. On the evening of June 09, 2019, when the Gimver-1 fishing vessel of the Philippines was operating near Rong Lawn, it was suddenly sunk by a China's fishing vessel named Yuemaobinyu 42212. There were 22 fishers on the Gimver-1 vessel at that time. China's vessel then went away and left the 22 Filipino fishers who were sinking with the ship alone. The fishers had to stick to plastic containers and were lucky enough to be discovered and rescued by a Vietnam's vessel. Filipino fishers who were in distress stayed on Vietnam's vessel until June 12, 2019, after communicating with other Filipino fishing vessels via radio waves to kindly request them to support in pulling the vessel. This is the most serious case in the disputed sea area between the two countries that have come closer together since President Rodrigo Duterte took power in the Philippines in 2016. According to international practice, seafarers must help rescue people in distress at sea. But this has not been done by China. Besides, the political intentions of the authorities over the dispute in sovereignty in the South China Sea has led to a humanitarian crisis for fishers in distress at sea (Anh. 2020, April).

Another case is that China's sinking of Vietnam's fishing vessel in early April 2020 also created stress between the two countries and a strong response from the international community to China's actions. On April 02, 2020, the fishing vessel named QNg 90617 TS and 8 Vietnamese fishers who are operating normally in the sea area belonging to Paracel Islands of Vietnam was stopped and sunk by China's coastal vessel. Vietnam's Ministry of Foreign Affairs gave a diplomatic note of protest and asked China to pay compensation for the Quang Ngai fishing vessel's sinking with eight fishers in the Paracel Islands (Anh. 2020, April).

In addition, since 2009, China issued a fishing ban from May to August every year, stretching from the northern sea area of the South China Sea to point 12 degrees of north latitude, including part of the Gulf of Tonkin and Paracel Islands. This led to a strong reaction from countries in the region and increased stress between China and countries surrounding the South China Sea, especially Vietnam and the Philippines, on the South China Sea issue. At the same time, China's fishing ban also strongly affects the fishing activities of fishers in the region in the South China Sea.

Thirdly, *the impacts of destructive fishing practices on fisheries security*. Poisons and explosives are the most commonly used for destructive fishing methods in the South China Sea. This creates a heavy price on the sustainable development of the fisheries by reducing fish stocks. Besides, fisherman has long used cyanide as a fishing method in reef habitats, and other types of poison are commonly used in the South China Sea. Another destructive fishing method for harvesting fish is blast fishing, which typically involves dynamite and can dramatically harms the coral reefs in the South China Sea. The impacts of blast fishing have exacerbated the problem of overfishing on coral reefs in this sea area (DNI. 2013, July).

2. Fishing dispute resolution efforts

The most urgent issue in the South China Sea is the development of a regional cooperation mechanism for fisheries management and conservation. This mechanism

includes cooperation to reassess biodiversity, biological resources and aquatic resources in the South China Sea. At the same time, the countries surrounding the South China Sea need to base on the international arbitration tribunal's decisions and the United Nations Convention on the Law of the Sea to temporarily delimit the maritime boundaries. On that basis, the concerned parties develop fisheries management agreements in their own sea areas and cooperate to manage fisheries in the mid-South China Sea region. In addition, fishing should be completely banned, and conservation regions should be established in disputed areas such as the Paracel Islands, Spratly Islands and Scarborough Shoal. Only with those measures will it be possible to protect marine fish resources in the South China Sea and protect fishers. Cooperation in fisheries management is as challenging as sovereignty disputes in the South China Sea. Except for China, all other countries surrounding the South China Sea belong to ASEAN, comply with the ASEAN consensus principle. That means if China has a positive attitude, it will be very easy to unite other countries for common interests. Therefore, ASEAN may play an important role in finding a voice of consensus among countries in promoting fisheries cooperation between internal bloc countries and between ASEAN countries and China.

Article 123 of the United Nations Convention on the Law of the Sea (UCNLOS) provides that countries surrounding semi-enclosed sea areas such as the South China Sea have an obligation to cooperate to protect the marine environment management of fish resources. Article 192 of UNCLOS sets out a common obligation for countries to "protect and preserve the marine environment". Unlike oil and gas exploitation which can only be done based on the sovereignty right of the coastal countries to the continental shelf, the obligation to jointly manage marine resources makes fisheries management and environmental protection a sector which is easier to promote cooperation in the South China Sea. However, cooperation in protecting fish resources in the South China Sea is one of the major challenges of the region and is the reason for many incidents at sea in recent time. The provisions of international law related to marine fisheries have not been promoted their effects. ASEAN still underestimates security risks from fisheries security issue, even though fisheries in the South China Sea have been a direct factor causing some stress among countries surrounding the South China Sea. Although ASEAN has also established several mechanisms to promote cooperation and management of non-traditional security issues, notably the ASEAN Regional Forum (ARF), which is a mechanism hosted by diplomacy channel, focusing on trust-building and preventive diplomacy. Since its inception in 2004, ASEAN Regional Forum Security Policy Conference (ASPC) has opened a new channel of dialogue and exchanges among defence officials, diplomats and military research specialists. In addition, that the ASEAN Defense Ministers Meeting Plus (ADMM+) successfully held for the first time in Vietnam on October 12, 2010, became a regular forum, really opened the highest-level official and cooperative dialogue mechanism (Ministerial level) on national defence and security among ASEAN members and non-regional countries. However, a number of non-traditional security issues existing in the South China Sea, such as fisheries security and environmental security related to island

reclamation in the South China Sea, have not been properly recognised in ASEAN's security mechanisms.

For a long time, ASEAN countries have faced a deadlock regarding illegal fishing in their exclusive economic zones or territorial sea. ASEAN member countries announced that they would join a "joint war" against IUU fishing in 2016 after many countries in the region received a "yellow card" from the EU. Vietnam also showed determination in ending the situation of Vietnamese fishing vessels violating the regulations on marine exploitation. Especially the illegal fishing in foreign sea areas. According to Deputy Prime Minister Trinh Dinh Dung on November 06, 2019, Vietnam must completely resolve the situation of Vietnamese fishing vessels violating the marine exploitation regulations, especially illegal fishing in foreign sea areas. He emphasised "strengthen coordination by functions and tasks assigned to the task of combating IUU marine exploitation, especially in the handling of IUU exploitation behaviour. The Deputy Prime Minister assigned the Ministry of National Defense to host and coordinate closely with the Ministry of Agriculture and Rural Development, the People's Committees of coastal provinces, and concerned ministries and departments in implementing effective measures to prevent and stop the situation of Vietnam's fishing vessels and fishers committing illegal fishing in foreign sea areas as soon as possible, try to complete before the next EU's inspection." (Baochinhphu. 2019, December).

To promote cooperation against illegal fishing among ASEAN countries, Vietnam has also always promoted multilateral efforts to combat IUU fishing in Southeast Asia. As the Chair of ASEAN in 2020, Vietnam aims to promote its influence so that together with member countries to end illegal fishing activities of fishers in each other's sea areas. Vietnam continues to actively participate in the initiative "Building a roadmap to combat illegal, unreported and unregulated marine exploitation in ASEAN for the period of 2020-2025," as well as ideas in the ASEAN region on sustainable fisheries development and prevention of IUU exploitation (Baodautu.vn. 2020, August).

In the context that many regional countries have to receive the European Commission's "yellow cards" such as Thailand (2015), the Philippines (2014) or Cambodia's receiving a "red card" in 2014. ASEAN countries have promoted joint efforts to combat IUU fishing over the years. Furthermore, ASEAN member countries agreed on the policy of establishing an ASEAN Network for Combating IUU (AN-IUU) with the main objective of sharing information and improving the capacity to manage and combat illegal marine exploitation among member countries. ASEAN also promotes the implementation of the Regional Plan of Action to Combat Illegal, Unreported and Unregulated (RPOA-IUU). At the same time, ASEAN implements management measures and unifies cooperation among member countries to combat illegal exploitation through information exchange and transparency mechanisms. It is identified that one of such illegal fishing status in Southeast Asia is due to over-exploitation of the marine resources of the countries, and the qualifications and quality of labour in the fisheries sector and fishers are still limited. Therefore, ASEAN countries are actively implementing measures to protect and manage fish resources, unify legal provisions on fisheries and environmental protection among relevant parties.

As the Chair of ASEAN 2019, Thailand also hosted an ASEAN - EU conference on combating illegal fishing in April 2019. The above conference concluded that it is necessary to establish a special force for member countries to share information, coordinate law enforcement activities and choose measures to ensure sustainable fishing in the region. However, this plan is likely insufficient to satisfy Indonesia, which has suffered great economic losses from illegal fishing. ASEAN is requested to develop a new and effective solution to ensure that all member countries enjoy the fair and peaceful benefits of this resource.

Up to now, ASEAN has also established several mechanisms to promote fisheries cooperation, such as the ASEAN Sectoral Working Group on Fisheries (ASWGFi), the ASEAN Fisheries Consultative Forum (AFCF). ASEAGFi also actively promotes exchange on combating IUU activities. For example, on June 27, 2019, the opening session of the 27th Meeting of the ASEAN Sectoral Working Group on Fisheries (ASWGFi) was held in Da Nang. This meeting was a part of the series of events of the 9th Meeting of ASEAN Shrimp Alliance, the 11th Meeting of ASEAN Fisheries Consultative Forum and the 27th Meeting of the ASEAN Sectoral Working Group on Fisheries lasted from June 24 to 29, 2019, in Da Nang, Vietnam. Following the discussed issues from the previous conferences, the series of events in 2019, representatives of ASEAN member countries continue to discuss issues, include: (i) Combating IUU exploitation in order to implement the Regional Plan of Actions on combating IUU fishing and closely coordinate among ASEAN countries; (ii) Perform management, exploitation and development of marine resources sustainably; (iii) Trace the origin of marine products from marine product exploitation and aquaculture; (iv) Respond and mitigate the impacts of climate change on marine product exploitation and aquaculture in the region; (v) Formulate the sustainable marine product development policies in the region; (vi) Ensure food security and harmonise plant and animal quarantine measures in the region, and (vii) Improve fisheries management capacity, especially implement the Agreement on Measures in Port Countries.

ASEAN currently plays a relatively weak role in managing non-traditional security issues in the South China Sea in general, including fisheries security. Formerly, it seems that ASEAN still considers the problem of fisheries security to be a problem for many countries surrounding the South China Sea. Meanwhile, the fisheries security issue in the South China Sea is also related to several other security issues in this sea region, in which that the island reclamation activities damage the environment and reduce the number of fish stocks, as well as the lack of cooperation between countries in delimiting fishing zones as well as resolving illegal fishing issues in the South China Sea have pushed up conflicts among nations to a higher level. This can have a strong impact on the region's general security environment. Therefore, what ASEAN needs to do in the short term is to call on countries to comply with international law and the commitments signed between the parties relating to a non-traditional security issue. Given that situation, ASEAN stated in the *Joint Communique* of the *53rd ASEAN* Foreign Ministers' *Meeting that:* "We encouraged the ASEAN Member States to intensify cooperation in promoting maritime security, safety and freedom of

navigation and overflight, addressing transnational crime at sea, creating a conducive environment for peaceful settlement of disputes, ensuring marine sustainability, providing humanitarian assistance to persons and vessels in distress at sea, combating Illegal, Unreported, and Unregulated (IUU) fishing, promoting maritime connectivity and commerce, strengthening marine scientific research, in accordance with international law, including the 1982 UNCLOS, the relevant Standards and Recommended Practices (SARPs) of the International Civil Aviation Organization (ICAO), and the relevant instruments and conventions of the International Maritime Organization (IMO)." (ASESAN. 2020, September).

However, while countries have not found a common voice in promoting fisheries security in the South China Sea, ASEAN needs to promote its role as multilateral cooperation mechanisms in the region to make the countries have a common forum to discuss and find solutions. Accordingly, ASEAN needs to show some non-traditional security issues outlined in the South China Sea, such as maritime security, environmental security and fisheries security, into its joint agenda and statement. In other words, fisheries security needs to be seen more cautiously by ASEAN and considered as a potentially large security risk in the region. Otherwise, fisheries in the South China Sea may cause armed conflicts between countries in the future. Meanwhile, the Asian Foundation has recommended that ASEAN implements an inclusive and uniform legal framework to regulate fisheries policies throughout the region. Maritime jurisdiction at sea can be complicated as boundaries may overlap, but this is exactly the reason why national action plans against IUU fishing needs to be harmonised across the region (The ASEAN Post Team. 2018, September).

Therefore, countries of the South-east Asian region – namely Malaysia, Vietnam, Philippines, Brunei and Indonesia–should work with other claimant nations to manage fish stocks without compromising claims over the sea. In fact, the South China Sea countries already have fisheries cooperation, but the results are still small. For example, the joint fishing agreement between Vietnam and Cambodia in the Gulf of Thailand. The sea delimitation for the Gulf of Thailand region is extremely complicated and takes much time to negotiate. The four concerned countries, including Vietnam, Thailand, Malaysia and Cambodia, have respectively signed agreements aimed at joint exploitation, especially for fish resources, to ensure temporary benefits while waiting for an official delimitation decision. So far, three agreements have been signed, including Thailand - Malaysia Agreement (1979), Vietnam - Cambodia (1982) and Vietnam - Malaysia (1991). However, it should be noted that the Thailand - Malaysia Joint Exploitation Memorandum of Understanding (1979) and Vietnam - Malaysia (1991) only govern joint oil and gas exploration and exploitation activities between countries in the region with overlapping the continental shelf, fishing activities are not mentioned or are just mentioned without specific regulations. Therefore, in the Gulf of Thailand, there is only the 1982 Agreement on Historical Water Areas between Vietnam and Cambodia that regulates joint fishing activities. However, the agreement content is very general, unclear, and more political. Specifically, Article 3 of the Agreement stipulates, "The marine exploitation of local people in this area continues to

follow the business practices from before to now". In fact, the absence of a mechanism to manage and conserve natural resources while the fishing race is still taking place between countries will inevitably lead to the depletion of fish resources and impact the environment and economy of coastal countries in the long run. Besides, according to the provisions of Article 123 UNCLOS in 1982, cooperation in the management, conservation, exploration and exploitation of marine resources is also an obligation imposed on semi-enclosed coastal countries of the Gulf of Thailand.

Conclusion

Fisheries in the South China Sea bring many benefits in terms of economic and contributing to stabilising socio-economic status, ensuring livelihoods for hundreds of millions of coastal people in the South China Sea. However, facing overfishing, illegal fishing, and fishers' use of fishing methods that destroy the marine environment are the main reasons for the severe decline in fish resources. This increases the risk of fisheries security in the South China Sea. Through multilateral cooperation in disputed sea areas, preserving the marine environment must be an inevitable trend. The countries in the South China Sea have a responsibility to sustainably exploit and protect the marine ecological environment, which must be done in parallel with the settlement of territorial disputes at sea. That fact shows that countries' cooperation is requested for ending illegal fishing to prevent the degradation of marine resources completely. This is also an opportunity for countries in the region to cooperate in conflict resolution and sustainable development. Therefore, the countries bordering the South China Sea should change the approach from focusing on traditional sovereignty to a cooperative perspective, especially to protect regional resources. While countries surrounding the South China Sea have not yet found a way to cooperate to ensure fisheries security, ASEAN could play a larger role in providing mechanisms for cooperation and control of threats to fisheries security in the South China Sea. These mechanisms include enhancing existing ASEAN instruments and the provisions of international law. Moreover, ASEAN can develop an inclusive non-traditional security cooperation mechanism so that all concerned countries can work together to find a solution to the problem of fisheries security.

Also, many initiatives have been launched to promote cooperation among countries in the South China Sea against illegal fishing and management of fisheries in the South China Sea. At the regional level, countries can cooperate to control the exploitation of fish resources by establishing a regional fisheries organisation. Many regions of the world have established regional fisheries organisations such as the North-East Atlantic Fisheries Commission (NEAFC), the *Southern Indian Ocean Fisheries Agreement* (*SIOFA*).

At the national level, coastal countries need to strengthen maritime control ability and strong regulations to deal with illegal fishing. At the same time, the countries build programs to support economic development, help coastal people stabilise their lives, propagate and disseminate the law to people, and minimise illegal fishing activities in the South China Sea. One of the biggest challenges facing fisheries cooperation in the South China Sea is that countries have not yet reached an agreement on the extent of fishing rights.

Therefore, in the coming time, regional countries need to negotiate on traditional fishing areas in the South China Sea based on international law and the conclusions of the Arbitral Tribunal's decision in July 2016. This will be an essential basis for establishing regional cooperation mechanisms that control fishing in the field.

Although the amount of fish in the South China Sea maybe only 5% compared with 1950, efforts to cooperate in managing fisheries and conserving marine resources face many obstacles from China. Cooperation in fisheries management is as challenging as sovereignty disputes in the South China Sea, as cooperation in fisheries management in the South China Sea is facing many obstacles due to sovereignty disputes as well as increasingly assertive attitudes and actions of China. The entire fisheries in the South China Sea are in danger of being devastated if the claimants do not promptly resolve this decline. Besides, critical habitats such as coral reefs, seagrass beds, and mangroves were destroyed. The coral reefs have been destroyed because China exploited giant clam shells and artificial island-building activities. The damage caused by China's activities is enormous. According to some assessments, due to China's artificial island-building and exploitation of giant clams, up to 160 square kilometres of healthy coral reefs in the Spratly Islands and Scarborough Shoal have been partially destroyed or damaged, causing economic losses of up to USD 4 billion per year to fisheries in the South China Sea. On the other hand, marine conservation is very weak. According to the Aichi Biodiversity Targets and the United Nations Sustainable Development Goals, by 2020, about 10% of the national sea area needs to be preserved (CBD. 2018, September). However, this is very difficult. In Vietnam, for example, only less than 1% of the national sea area has been preserved, and preservation is also facing many difficulties (ZingNews.vn. 2018 June).

The issue of territorial and maritime disputes in the South China Sea has caused many difficulties for management and international cooperation in fisheries management. Due to China's authoritarian attitude, disregard for international law of China, efforts to build international and regional cooperation mechanisms to prevent IUU fishing, better manage the fisheries in the South China Sea to facilitate for the fish stocks to recover has not been successful so far. (ZingNews.vn. 2018 June) It can be seen that as long as territorial disputes take place, the regional marine environment will continue to pay a heavy price. The South China Sea is a large marine ecosystem with many marine species migrating throughout the South China Sea, so to preserve this sea, the cooperation of regional countries is required. Therefore, to solve the problem of marine fish resources degradation in the South China Sea, countries inside and outside the region need to unite and have a common voice to persuade China to comply with international law, together with efforts to cooperate in fisheries management.

It can be seen that the reason ASEAN has not yet fully played its role in ensuring fisheries security is mainly that ASEAN still considers the fisheries security issue as a narrow area, mainly related to cooperation on "agriculture - fishery – forestry" among countries. Therefore, ASEAN has not really emphasised the risk of affecting the regional security situation from the fisheries security issue, especially the dispute in fisheries activities and the fact that fisheries become a factor in the territorial

sovereignty disputes between countries and fisheries become a victim for political intention among countries. Tensions over fisheries disputes in the South China Sea have affected the security environment in this maritime area. Fishery disputes have become political-diplomatic disputes among countries; fishers may continue to be victims of harsh treatment by countries when fisheries activities are no longer considered ordinary economic activities.

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PAPER

Integrating Cryptocurrencies to Legal and Financial Framework of India

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Abstract With the ever-growing popularity of cryptocurrency in India as well as globally, it is potential as an agent of various illegal activities such as money laundering and cybersecurity breaches is also gaining traction in the global, national and regional debates. Considering its emergence in India, it is pertinent to examine the issues associated with the usage of cryptocurrency and the scope it entails for the Indian economy if allowed. The government of India has so far not identified it as valid tender due to its potential usage in hiding black money and in terror financing. However, the government has not necessarily closed the door to any future regulations of cryptocurrencies. Therefore, despite operating in a grey area, the sector continues to proliferate in India and the world. This paper briefly describes the nuances and current affairs related to cryptocurrencies across the globe. It further provides a legal and regulatory perspective of cryptocurrencies in India while also discusses various cybersecurity issues related to its usage and concludes with a list of challenges associated with its incorporation in the national legal regime and tries to provide a certain recommendation that can help guide the future regulation of this disruptive innovation.

Keywords: Bitcoin, Cryptocurrency, Cyber Security, Disruptive Innovation, Money Laundering, Terror Financing.

JEL Classification: G38, K2, K4, G210, G230, G28, E51, F30.

1. Cryptocurrency: an Introduction

When Satoshi Nakamoto (a pseudonymous individual or group) published the paper titled "*Bitcoin: A Peer-to-Peer Electronic Cash System*" in 2008, he/they would have hardly expected that the valuation of this cryptographic money, i.e. Bitcoin, founded

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a year later, would reach as high as 2300 USD per unit in less than ten years. Today, around 969 digital currencies exist globally, with an aggregate market capitalisation nearing almost 116 billion USD (Sharma, 2017). Introduced as a peer-to-peer electronic payment system, these cryptocurrencies allow an exchange of money between parties without any need for a formal banking system. They are also known as "Decentralised Digital Currency or Virtual Currency. This means that the cryptocurrency network is a decentralised digital currency network that is capable of being transferred directly between peers, while the transactions are maintained in a public ledger, available to all the users (Crosby et al., 2015). This decentralised control means that no single authority or institution controls the flow of transactions, supply or valuation of the currency. This digital payment system depends upon the cryptographic proof of the entire chain of the transaction and applies various cryptographic algorithms and functions to ensure the anonymity/ privacy of the users, who are thus recognised by an alphanumeric public key (Kessler, 2013). These transactions do not reveal the parties' identity but instead use their digital signature for identification, thus maintaining anonymity/privacy. The basic principle regarding the genuineness or the authenticity of the transactions is the cryptographic proof and not mutual trust, thus differentiating it from the traditional banking system (Kessler, 2013).

This paper will try to provide an overview of one of the major disruptive innovations of this century, i.e. the cryptocurrencies, by first analysing its features and understanding why it gained so much traction globally. Subsequently, it will try and analyse the advantages and risks associated with this disruptive innovation and how, if at all, they can be managed. Further, the paper looks at the position of cryptocurrency regulations in India while analysing major committee reports, the government's attitude and the Supreme Court's approach towards the same. Further, the next chapter highlights the global trends vis-à-vis cryptocurrency regulation and looks at the approach towards various countries like the USA, UK, and Russia. Finally, the paper concludes with appropriate suggestions highlighting the inevitability and importance of the cryptocurrency regime, especially in the post-COVID-19 recovery stage.

2. Research Methodology

Doctrinal research methodology has been adopted to analyse the legislative framework of cryptocurrency in India. Along with this, the methodology has been descriptive in nature wherein the authors. The data required for this research were both primary and secondary. The primary data source was judgements of the supreme court, government reports, ordinances and statutes. The secondary data was collected from the following sources: research articles, newspaper reports, books, journals, websites and law databases like Manupatra, SCC Online and Taxmann.

3. Features of Cryptocurrency

The most significant features of this disruptive innovation, which is growing in

popularity every day, are listed as follows:

- **Decentralised**

  Cryptocurrency is a decentralised currency, implying that any government or statuary authority doesn't control it. What serves as an advantage of this decentralised nature is no government regulations. Unlike other fiat currencies, these can be transferred to any part of the world without any restrictions.

- **Irreversible Transactions**

  Transactions carried on the Cryptocurrency networks are non-reversible. This saves the traders from dishonest claims' charge back' or the consumer-initiated payment-reversal-based system.

- **Pseudonymous Transactions**

  It is believed that Cryptocurrency transactions are anonymous since they are pseudonymous. To register in exchange for buying or selling Cryptocurrency, the user is required to provide his/her personal information. Every user is assigned two keys, i.e. a private key and a public key (Frankenfield, 2020). The public key can be shared with others across the network, but the private key acts as a password and is secret in nature and is not shared. The public key ensures that there is no double-spending, and the transactions are duly verified and recorded (Antonopoulos, 2017). It is worth noting that every transaction that has ever occurred in the history of the Bitcoin economy is publically accessible and viewable, and anyone is allowed to inspect them due to the public key and ledger.

- **Cap on Bitcoin and other Cryptocurrencies**

  Unlike other fiat currencies, the production of Cryptocurrency is limited as these cannot be printed but are mined. For example, the mining of Bitcoin is capped at 21 million and is estimated to be mined by the year 2140 (Zahid, 2015). The mining of such Bitcoins is done by miners who use sophisticated computer technology for solving complex mathematical problems. Bitcoin mining is a highly competitive process wherein the Bitcoin miners compete with all the miners present on the network, and in exchange, they get a certain number of Bitcoin as a reward.

- **Avoids Counterfeiting**

  Digital currencies can be reduced easily, and the risk of double-spending (digital currency being spent in more than one transaction) hovers. However, in Cryptocurrencies, the possibility of counterfeiting is less as it requires massive computational powers to generate. Furthermore, when such transactions are submitted in the network, the network ensures the validity of the address as well as the value, thereby making counterfeiting impossible to accomplish.

Thanks to such features, cryptocurrencies have disrupted the traditional ways of money transfer through banking and other financial institutions worldwide. As cryptocurrencies continue to gain traction, governments worldwide and their regulatory bodies have been pondering measures to regulate cryptocurrencies. As a result, the legality of

cryptocurrencies currently varies from country to country. While some countries are framing laws and measures, others are yet to react to this disruptive innovation. Furthermore, the potential use of cryptocurrencies in terror financing, ransomware, illegal drugs or arms exchange, and even various cybercrimes has raised the alarm among security and law enforcement agencies worldwide (Goldman et al, 2017).

The Reserve Bank of India has been keeping a close check on the ever-expanding use of cryptocurrencies in India and had even issued a warning in 2013, informing users, holders and traders of virtual currencies about the potential financial, legal and security risks (Reserve Bank of India, 2013). Further, it had issued a circular regarding the same, which will be discussed subsequently. The Ministry of Finance likewise held a public discussion on regulating virtual currencies in May 2017. Moreover, since the Indian government's Demonetisation announcement, which was implemented on November 8, 2016, India has seen a rise in the adoption and usage of Bitcoins (KPMG, 2017). Therefore, it has become essential to examine the various aspects of cryptocurrencies across the globe and India and discuss the issue of cybersecurity and consumer protection in the digital payment ecosystem.

4. Cryptocurrency as a Disruptive Innovation

The term ***'Disruptive Innovation'*** was coined by Professor Clayton Christensen (2015) as a "*procedure by which an item or service flourishes at first in simple applications at the base level of a market and afterwards stubbornly climbs upmarket, and in the end, displaces the established contenders*." There have been various occurrences where disruptive innovations have displaced well-established competitors. One such example is the displacement of Short Messaging Service (SMS) by WhatsApp. These disruptive technologies have a lot to offer to the users in terms of value, cost-effectiveness, ease of use and simplicity (Lee, 2013). Considering cryptocurrencies with this viewpoint, they can displace the existing financial frameworks.

4.1. Advantages of Cryptocurrency

The success of cryptocurrencies could be credited to the advantages they entail:

- **Privacy Protection**

  One of the most significant advantages of cryptocurrencies is that they ensure the anonymity and privacy of the transacting parties. The parties can use pseudonyms and can thereby conceal their identity and information. This was indeed one of the most significant factors behind the tremendous jump in investments in cryptocurrencies in the first place.

- **Cost-Effective**

  Another advantage of cryptocurrencies is that they have a single transaction amount, and their transaction fees are very modest. Electronic Transactions attract high fees and charges, and cryptocurrencies solve this problem by having a single currency globally, eliminating third-party clearing houses/gateways,

and cutting down the cost and time delays (Kumar, 2017). The presence of an inbuilt security and fraud prevention mechanism also substantially reduces the transactions costs of these currencies.

- **Lower Entry Barriers**

Possessing a standard bank account or a card requires massive documentation and verifications, let alone the accounts and cards for international usage. Moreover, there is uniformity regarding the criteria set by such financial institutions and intermediaries. Cryptocurrencies solve such issues by lowering the entry barriers as they are free to join, and the users are not required to go through the verification process such as identity and address proofs.

- **Alternative to Banking Systems and Fiat Currencies**

The traditional banking sector is characterised by tight control and regulations, while cryptocurrencies offer a more flexible, reliable and secure means of exchanging money outside the rigid control of the national or private banking systems.

- **Open Source Methodology and Public Participation**

Cryptocurrencies are based on open source methodology, wherein the software source code is available publicly for review, development and scrutiny. The ecosystem of such currencies is a participation-based model wherein the development, bug reporting and fixing etc., are checked and done by the broad user base, rather than an individual or an institution (Matsuura, 2016). They have built-in quality control and self-policing mechanism for building practices, frameworks and protocols.

- **Immunity to Government-led Financial Retribution**

Governments generally have the authorisation to freeze or seize the users' bank accounts, but it becomes incapable of doing so in the case of cryptocurrencies. The cryptocurrencies are immune from any seizure, thus increasing the investor confidence in such form of currencies (McDowall, 2017).

4.2. Risks associated with Cryptocurrency

Despite such potential and advantages, cryptocurrencies possess *certain risks that can disrupt the **cybersecurity** and other mechanisms of the states*. The major risks associated with these currencies can be classified into **two aspects**, i.e. *Risks involved in Cryptocurrencies* and the *Risks from the use of Cryptocurrencies*. Such risks are highlighted below:

- **Wallet/Exchange Security**

The wallets generally store the keys and transaction history of various users. Such wallets and exchanges are the weakest links in the entire cryptocurrency ecosystem. The users are prone to the risk of losing their entire holdings if they at all lose the encryption key or lose the key due to theft or hacking activities. In 2014, 480 million USD in Bitcoins were stolen from Tokyo's Mt. Gox Exchange (Floyd, 2015). The world has witnessed many such instances in recent years.

- **Hijacking/Distributed Denial of Service (DDoS) attacks on Cryptocurrency System**

Cryptocurrencies are open source platforms that are kept up and running by the pooled resources of the miners. Such a platform is prone to cyber-attacks and other similar hacks, which might slow down the services or even make the trading platforms inaccessible (Floyd, 2015). Many studies have shown that cryptocurrencies are prone to hijacking and other internet related attacks (Apostolaki et al., 2017).

- **Uncertainty in the Regulatory Environment**

A significant risk associated with trading in such currencies is the ambiguous regulatory framework. The future of cryptocurrencies will depend on how the countries' regulatory frameworks are devised and implemented. There is no certainty at this moment as different countries have approached these currency issues differently.

- **Lower Acceptability and Lack of Liquidity**

Cryptocurrencies function outside the regulated and managed banking systems. So the market access gets limited to the well-known cryptocurrencies, i.e. those with high market capitalisation. For other not so popular cryptocurrencies, there is a lack of liquidity. Also, the acceptability of such a form of currency in the market is very limited as per the current market scenario.

- **Price Volatility**

The volatility of the financial instrument over a period of time determines the risk level associated with the instrument. Cryptocurrencies are extremely risky and are prone to substantial price fluctuations. Cryptocurrencies lack any vulnerability index yet and are a risky investment.

- **Uncertainty over Consumer Protection and other dispute settlement mechanisms**

Cryptocurrencies are decentralised, and therefore it lacks any central authority for mediation and dispute redressal of the users. The transactions are irreversible, making the users vulnerable to fraud as they are void of any safeguards.

- **Potential Use for Illicit Trade and Criminal Activities**

Cryptocurrencies are decentralised and beyond the control of any authority. This factor has majorly facilitated their absorption in the black market and its related activities. Regulatory bodies have raised concerns that such accounts cannot be seized or examined, creating problems in law enforcement. As per reports, many crime groups have been operating through Bitcoins for payment in exchange for illegal activities during the last four years (Gil, 2017). The perpetrators of the Wannacry Ransomeware demanded ransom through Bitcoins (Mullin & Lake, 2017).

- **Potential use for Terror Financing**

Considering the factors mentioned above, cryptocurrencies can become the

new funding mechanism and mode for terrorist activities and outfits engaging in such activities. Cryptocurrencies have thrown open a new challenge before the regulators and law enforcement agencies are not well prepared to deal with such challenges as per the current ambiguous regulatory framework dealing with cryptocurrencies.

- **Potential for Tax Evasion**

The fact that government agencies do not regulate cryptocurrencies makes them a lucrative option for tax evasion. Payments through these modes can be used to avoid tax liability. Countries are yet to reach a consensus on whether the income earned through trading or mining of cryptocurrencies can be included in the asset's gross income or capital gains. Also, the authority of a state to enforce taxation on these currencies has been questioned. Considering such issues, the US has declared these currencies as intangible property, and trading in cryptocurrency is deemed taxable (Shome, 2017). Similar debates are being addressed in other countries like India and other countries.

Until and unless such risks are mitigated, the future of cryptocurrencies will continue to remain dubious. Cryptocurrencies are entirely new payment method, providing privacy and other benefits to the users, but it simultaneously poses risks to cybersecurity, law enforcement and other such issues. The authors will now analyse the legal and cybersecurity challenges this new mode of payment poses to the law enforcement agencies in India and how these currencies are regulated and controlled in the world and India.

5. Legal Issues Associated with Cryptocurrencies & Position in India

Legal aspects and issues associated with cryptocurrencies vary from country to country. Some countries recognise them as money, some countries categorise them as an asset and legal instrument, while some countries are yet to ascertain whether the cryptocurrencies are legal. India is one such country where cryptocurrency is neither illegal nor legal as no legal or regulatory framework is in place. The status of cryptocurrency is slightly complicated. For instance, it is illegal for commercial use in China but legal for individuals' transactions.

On the other hand, countries like Iceland have banned cryptocurrencies as clear cut laws are already in place banning their use. However, in India, cryptocurrencies do not have any legal framework in place and are currently unregulated. Therefore, various legal concerns exist vis-à-vis cryptocurrencies as described above in the form of various risks such as wallet security, lack of regulations, lower acceptability, lack of liquidity, price volatility, and lack of dispute settlement and redressal mechanisms.[1] Unlike banknotes, coins, etc., which are government-issued currencies falling directly under issuing authority's control and drawing their value as promised by the issuing authority, cryptocurrencies are decentralised in nature, making them difficult to be put under any government regulation. Further, there is a lack of an appropriate legal

[1] See Ch. 4.

framework to regulate the flow of virtual currencies in most countries, including India. Moreover, wallets managing cryptocurrencies are created and managed by independent private companies as there are no internationally binding laws in place. Therefore it is difficult to impose liability in case any loss is caused to the customer or any financial crime is committed through these wallets. Because of the loopholes present in some countries' legal and taxation system, one can misuse features of cryptocurrencies like anonymity for the purpose of tax evasion by hiding assets. This online route of transacting in cryptocurrencies has made it easier to evade border taxes as they can be cashed out when inside the country. Money laundering is a substantial legal challenge while dealing with cryptocurrencies because of their flow between countries with little or no supervision as these are not bought through banks (Bloomberg, 2017).

There are various security issues, as explained above, concerning cryptocurrency transactions, which are Hijacking, Denial of Service attacks, Potential for use in illicit trade, funding terrorism and tax evasion.[2] Moreover, issues like Spoofing and Phishing attacks, Insecure Initial Coin Offerings, which is used to raise funds through buying and selling of cryptocurrency, Hacking of payment gateways and fraud at the trading exchanges are other issues that are affecting the growth of the virtual currency market in India and in the world (Vishwakama et al., 2018).

Because of these risks associated with cryptocurrencies, governments are taking cautious steps while responding to such disruptive changes in the financial system. The government of India and its regulatory authority, the Reserve Bank of India, have been keeping track of these developments. The RBI in 2013 had issued an advisory that dealing with virtual currencies can subject the users to unintentional breaches of anti-money laundering and combating the financing of terrorism (AML/CFT) laws (Reserve Bank of India, 2013). In 2017 again, the RBI affirmed its stand and cautioned the users, traders and holders of cryptocurrencies about the potential financial, legal, customer protection and security-related risks (Reserve Bank of India, 2017). Simultaneously, RBI also clarified that it had not granted any license or authorisation to any entity or corporation to deal with such schemes regarding Bitcoin or any other virtual currency.[3] In 2018, The RBI had issued a circular in April banning financial institutions from providing services to crypto businesses (Reserve Bank of India, 2018).

Further, the Securities and Exchange Board of India (SEBI) formed **'*Committee on Financial and Regulatory Technologies (CFRT)*'** which suggested that it has become essential to regulate Bitcoin transactions to ensure India's public issue norms are not breached (Securities and Exchange Board of India, 2017). Not only this, there are chances of undermining private placement norms by collecting money from random persons via Bitcoin Exchanges. Therefore, the SEBI Committee above also strives to ensure that Bitcoins, their derivatives or any other cryptocurrency are not used for funding illegal undertakings, nor can it be used as a medium to divert any sort of black money.[4]

Due to the rising concerns, the government decided to set up Committee on

[2] See Ch. 4.
[3] *Id.*
[4] *Id.*

Digital Payments headed by Mr Ratan P Watal in 2016 to examine the current status of virtual currencies and to analyse the global regulatory framework governing the same (Ministry of Finance, 2016). The committee submitted its final report recommending the inclusion of financially and socially left out groups and integrating evolving disruptive technologies in the market while safeguarding the security of Digital Transactions and providing level playing to all players. It also suggested inter-operability of the payment system between banks and non-banks, up-grading the digital payment infrastructure and institutions and a framework to recognise innovations and prominent efforts facilitating digital payments.

Further, in 2017 Dinesh Sharma Committee suggested a total ban on cryptocurrencies. Due to strong public reaction, another committee headed by Subhash Chandra Garg was set up in 2018, which has been working on a draft law/framework for cryptocurrencies. Online cryptocurrency exchanges have expanded in India. Zebpay, Unocoin, Coinsecure and Searchtrade are some of the famous Bitcoin start-ups. These are basically self-regulated trading platforms that employ strict customer identification procedures like Know Your Customer (KYC) and monitor transactions capable of being suspicious in nature to curb criminal activities like money laundering and terror financing. These start-ups have also formed their association known as the **'*Digital Assets and Blockchain Foundation India*'** for supporting the use of digital assets like Bitcoin, Etherium etc., within India. This association aims to educate people about the risks involved while investing and trading crypto tokens and best industry practices (Kastelein, 2017).

In November 2017, a Public Interest Litigation (PIL) was filed before the Hon'ble Supreme Court of India by an activist Mr Dwaipayan Bhowmick cautioning about the dangers of using Bitcoin as it is devoid of any control or regulation currently in India.[5] The petitioner highlighted cyber-attacks *ransomware* wherein hackers demanded Bitcoins as a ransom for releasing stored data and computer systems. The three-judge bench of the Apex Court comprising of Chief Justice Mr Deepak Misra, Justice A. M. Khanwilkar and Justice D. Y. Chandrachuda, hearing the PIL, issued an order to the Ministry of Finance, Ministry of Law and Justice, Ministry of Information and Technology, SEBI and RBI, directing them to set up ***a panel to frame regulations to control the flow of virtual currencies*** in India (The Hindu, 2017).

During the presentation of the Union Budget 2018, Finance Minister Mr Arun Jaitley stated that "*Cryptocurrencies are not a valid tender, and the government will take all measures to eradicate the use of cryptocurrencies in funding illegal activities or as part of the payment system*."(The Hindu Business Line, 2018) Because of the potential use of cryptocurrencies to hide black money, the government in India is still reluctant to recognise it as a valid tender.

Recently, in March 2020, the April 6th Notification of the RBI was challenged before the Supreme Court in **Internet and Mobile Association of India v Reserve Bank of India**.[6] This case has given new hope to the cryptocurrency regime in India. The Hon'ble

[5] Writ Petition (Civ.) No. 1076/2017

[6] (2020) SCC OnLine SC 275

Supreme Court decided to set aside the RBI Circular on the ground of proportionality. The petitioners had challenged the RBI Circular banning the cryptocurrencies and had asked instead to regulate the flow of Bitcoins in the country. While setting aside the order, the court stated that to date, RBI has not come out with any report that has highlighted any loss or adverse impacts suffered by any entities regulated by it on account of the trading or exchange of virtual currencies within the country. The court stated that the government must consider regulating virtual currencies and that banning might be an extreme tool to deal with such disruptive innovation. Considering these developments, the Government has decided to introduce Cryptocurrency and Regulation of Official Digital Currency Bill, 2021 in the Indian Parliament and may even consider launching its own digital currency. Thus, the government has not necessarily closed the door on future regulation of cryptocurrencies, nor does it mean that it is banned currently (Christopher et al., 2018). Therefore, despite operating in a grey area, the sector continues to grow. Therefore, considering its emergence in India, it is crucial to examine the issues and scope for the Indian economy.

6. International Legal and Regulatory Framework of Cryptocurrencies

The year 2017 witnessed countries like United States, Canada, Japan, and Australia taking a positive approach towards embracing Bitcoin as a legal tender. However, countries like Iceland and Sweden have paved restrictions towards accepting cryptocurrencies. The status of Bitcoin in certain countries has been discussed below:

6.1. United States of America

In 2012, the FBI published a document, '*Bitcoin Virtual Currency: Unique Features Present Distinct Challenge for Deterring Illicit Activity*', wherein the Agency highlighted apprehensions related to Bitcoin being used for illicit activities, such as trading of drugs, etc. Later, in October 2013, FBI investigations led to the shutdown of a website named '*SilkRoad*', which was known to be a criminal haven and was used for selling goods that were illegal in many countries, including narcotics, and used Bitcoin as a medium of exchange (Gabbatt & Rushe, 2013).

The Financial Crimes Enforcement Network issued guidance on Bitcoin in 2013. The enforcement network defined Bitcoin as a money service business (MSB) instead of a currency. In the USA, Bitcoin is regulated under the ***Bank Secrecy Act, 1970***. Suppose a business or an individual activity comes under the definition of MSB. In that case, they are required to comply strictly, among other things: i) all the registration facilities ii) anti-money laundering laws iii) maintain record keeping iv) prepare relevant reports, etc. (Trulioo Blog, 2016).

The International Revenue Services only recognise US bills and coins as legal tender. However, in the year 2017, at least 8 US States worked on bills accepting and promoting Bitcoin and blockchain technology, and a few of them have already passed a law in this regard (Yeong, 2017).

6.2. European Union

EU has no legislation on regulating cryptocurrencies. However, vide press release '*Bitcoin: Supervisory evaluation of Bitcoin and risks for Users'*, issued in December 2013, European Central Bank warned users of Bitcoin on the dangers of using virtual currency.[7] Further, the Bank also clarified that virtual currency users might be subject to taxes such as capital gain tax or Income tax.[8]

The year 2017 witnessed European Commission gearing up to propose penalties for cyber-crime involving cryptocurrencies. As such, in the coming months, the EU may issue directives for the creation of a European cybersecurity agency to formulate the stringiest regulations for those involved in cyber-crimes, including Ransomware attacks. Such attackers demand virtual currencies as ransom (European Commission, 2017). The EU is working with the UK to bring cryptocurrencies, mainly Bitcoins, within the ambit of anti-money laundering and counter-terrorism financial legislation (Kollewe, 2017). The move will ensure that the online platforms where Bitcoins are traded will carry out due diligence on customers and will report suspicious transactions. Such a move will bring digital currency-related activities within the purview of the national authorities.

6.3. United Kingdom

In the UK, the Financial Conduct Authority (FCA) is the regulator responsible for ensuring that financial services are provided to protect consumers and maintain the integrity of the market.[9] In the last year, several Bitcoin businesses have approached the FCA seeking clarification on the legalities of operating Bitcoin exchanges.

However, the FCA has not offered any constructive guidance or comment on the regulation of digital currencies. In fact, the FCA has gone as far as stating it does not regulate digital currencies and has no intention of doing so (Jankelewitz, 2014). The result is that Bitcoin businesses in the UK are not obliged to register with or be authorised by the FCA.

In the UK, the ***Money Laundering Regulations 2007*** set out who must help prevent money laundering and provide steps to achieve this. Customer due diligence is central to these regulations, and businesses should know where the money is coming from by identifying their customers.

UK is poised to come down hard on Cryptocurrency trading, especially Bitcoin, to address the growing concerns regarding the crimes being committed with it. The UK is planning to amend its Money Laundering Regulations, bringing digital currencies under the same regulations as the fiat money, wherein the traders will be required to disclose their identities and be required to conduct proper due diligence.[10] Such changes are expected to be implemented in early 2018.

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[7] European Banking Authority Opinion on Virtual Currencies (2014). Available at: https://www.eba.europa.eu/documents/10180/657547/EBA-Op-2014-08+Opinion+on+Virtual+Currencies.pdf

[8] *Id.*

[9] Financial Conduct Authority (2016), About the FCA.Available at: https://www.fca.org.uk/about/the-fca

[10] UK pushing to include Bitcoin under Money-Laundering Rules (2017), Reuters. Available at: https://www.reuters.com/article/us-markets-bitcoin-britain/uk-pushing-to-include-bitcoin-under-money-laundering-rules-idUSKBN1DY0Y2

6.4. Russia

The Russian president recently clarified Russia's stand on cryptocurrency and demanded its officials to establish a legal framework to regulate digital currencies (Liao, 2017). The Central Bank of Russia has proposed creating Pax Crypto, the first joint multinational cryptocurrency for BRICS and EEU countries to increase the investments in Blockchain Technology and create a cashless society (Ozelli, 2018). The Russian Government has officially published the draft law entitled "***On Digital Financial Assets***, " regulating cryptocurrencies in Russia. The bill regulates cryptocurrencies and initial coin offerings and defines cryptocurrencies not as legal tender but as a "*type of digital financial asset*" and also characterises trading in digital currency as a taxable activity (Helms, 2018). The law also gives Russians the right to trade their cryptocurrency for other digital currencies and for fiat currencies.

The new regulation mandates that the operators of the exchange of digital financial assets can only be registered legal entities (Helms, 2018). The regulation outlines an approach that would regulate cryptocurrency across Russia tightly while still not ruling it illegal.

6.5. Japan

In April 2017, the ***Payment Services Act***, a part of Japan's Banking Act, was embedded to allow '*virtual currencies*' as a legal form of payment. The Cryptocurrencies were recognised for settlements, and the country allowed 11 digital currency exchanges. A clarification was issued by the tax agency categorising revenues from Bitcoin as income, allowing trading losses to be deducted from such income (Sano, 2017).

On December 15, 2017, it was reported that GMO internet, a Japanese company, will pay part of its salary to its employees in Bitcoin. From February 2018, the company, which is into a wide range of web-related businesses, will start paying up to 100,000 Yen per month by Bitcoin to its employees in Japan (Presse, 2017).

6.6. Venezuela

People belonging to economically weaker sections and wealthy business leaders exchange their Bolivars, i.e. Venezuela's currency, into Bitcoin. On the one hand, the concerned authorities have fined and arrested people who use computers to earn Bitcoin through 'mining' operations as these results in high consumption of electricity, which the state bears. On the other hand, the authorities have allowed trading in Bitcoin (Helms, 2017).

On December 3, 2017, Venezuela launched its own cryptocurrency named '***Petro***'. The primary reason behind Venezuela's move on cryptocurrency is the enormous financial crisis the country is facing due to the USA government's financial sanctions (Noack, 2017). The said sanctions are paralysing its ability to move money through an international bank, causing economic distress to its economy.

6.7. Turkey

As the central bank of Turkey faces hyperinflation and rising inflation, it is on its way to adopt Central Bank Digital Currency (CBDC) in the second half of 2021 as a pilot project. The idea of CBDC is directly inspired by cryptocurrency, but CBDC is issued by the State and hence a legal tender.[11]

6.8. The Bahamas

The Central Bank of Bahamas launched "sand dollar" in October 2020, making it the first CBDC to be launched in a country.

7. Conclusion and Way Forward

As far as future discourse on legality or regulation of cryptocurrencies is considered, the government might adopt the following course:

- Allow cryptocurrencies to grow as per the market forces without any intervention;
- Regulate the cryptocurrency regime while ascertaining its legal status as a legal instrument or capital asset along with adopting measures for preventing the potential risks as discussed above;
- Forbid the use of cryptocurrencies considering the security risks and interest of the users.
- It can also introduce Central Bank Digital Currency (CBDC), as is being done by various countries globally.

However, keeping in view the rising interest of people in investing in cryptocurrencies, technological advancements, state practices and entrepreneurs in this field, it is significantly less likely that the use of cryptocurrencies would be banned in India. Hence, if further growth and development of cryptocurrencies in India and their adoption in the financial system occur, they will have to be regulated under close supervision and scrutiny, especially during the initial phase of its lawful adoption. For developing nations like India, disruptive innovations bring their own set of benefits and challenges. Since the developing countries are at the lower end of the technology adoption cycle, the developments or novel ideas in disruptive innovation are generally viewed against the existing policies, processes and technologies. Therefore, there might be some hesitation in the early phase of adoption or integration of cryptocurrencies as legal tender, but with *proper regulation* and *adoption of international best practices*, the worth of cryptocurrencies could be realised.

In case the cryptocurrencies are recognised as a legal instrument and given authorisation as an electronic payment system, it shall fall under the purview of the RBI, and *commercial transactions and capital gains could be subjected to tax,* and likewise, *foreign payments could be brought under the auspices of Foreign Exchange Management Act* (FEMA). In terms of benefits, it can *reduce the cost related to remittances* and *fascinate future business entrepreneurs resulting in innovation, job and wealth creation*.

[11] TRT World (2020), Turkey set to Pilot Digital Currency in 2021. https://www.trtworld.com/magazine/turkey-set-to-pilot-digital-currency-in-2021-42780

In a landmark judgment of Internet and Mobile Association of India v RBI, the Supreme Court has struck down the RBI's curbs on cryptocurrency, terming the RBI circular of April 2018 as illegal.[12] However, RBI has decided to review the ruling, which will go a long way in deciding the future of cryptocurrencies in India.

As far as the issue of price volatility is considered, which exposes the users to fluctuating costs resulting in losses, it is undoubtedly beyond the control of the government because diverse factors determine the prices. Nevertheless, a broader user base and acceptability is likely to stabilise the prices. Domestic laws can prevent the users from frauds, but as far as dispute settlement is considered, State will have limited jurisdiction because of the decentralised structure in which cryptocurrencies operate where ledgers and parties are spread across the globe. Cryptocurrencies by design ensure that the anonymity of the transacting parties or their privacy while transactions are being made, is preserved. However, while regulating the cryptocurrency regime in India, there might be requirements of mandatory KYC norms, PAN Number, Adhar for trading, sale or purchase at the authorised exchanges.

With the mounting user base and latest increase in Bitcoin's value which is one of the most famous virtual currencies available, there are more and more obstacles that need to be tackled, like the need for a legal framework and regulating authority, awareness about the use of wallets, transaction processing as well as risks associated with virtual currency transactions. Therefore, it can be said that Cryptocurrencies have got great potential to become a global currency. Even in countries where the authorities ban its use, it is still an issue to restrict the use entirely without internet censorship. So it will not be wrong to say that there is vast growth potential and benefits of incorporating virtual currencies into India's legal and existing financial system provided concrete measures are taken to prevent security issues and illicit activities by designing and implementing robust cybersecurity frameworks and enhanced security awareness. Moreover, the adoption of digital currency with sovereign backing is gaining further prominence worldwide owing to social distancing and concerns regarding cash payment during pandemic situations like COVID-19. Hence the shift towards digital payments is gradually becoming inevitable.

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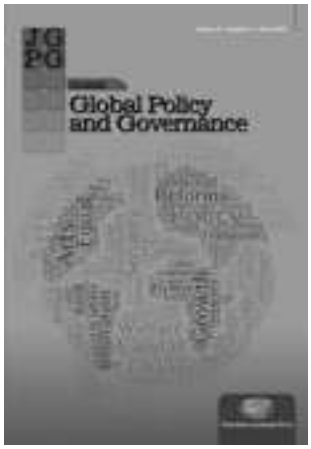

Aims and scope

Global governance is a challenge of our era and us as human beings no matter where we live and what values we believe in. After one hundred years of development, international relations are so closely and tightly knit. A problem in a community might affect the life of the people in a remote part of the world and its solution might also be in the hands of these people. But can't be assumed outside the more global International Relations theories and practices approach, an interrelated already practiced at every policy decision making, economic and financial levels and first of all by the main international powers and players.

How can we manage this complex of various relations and how the outcome matters for our life and common future? It is the time for us to invest our wisdom and energy to make global governance work now and to give a sense to the United Nations already reduced to a zero-sum-game, simply playing on the major emergencies and conflicts. Because, just to mention first the obsolete veto system that would be at least extended to all the 15 countries of the Security Council, both permanent or at rotation, with the weighting of votes bringing less hypocrite the present five Jalta powers partition already 70 years ago. We are talking of a world that is not existing anymore, dissolved in the passage to the third millennium but with UN moving as in the previous century.

There is no simple way and framework for global governance. Global governance is a general term which means to think globally and act globally. It is complicated because problems might be local but even so assuming quite often a global political relevance that transforms them into a global issue and the connected challenges. The solution might be then achieved in national or regional groups of States but very often they escalate to continental or global international relevance. We need to sort out which solutions are the best for the problems or conflicts. We need to identify who should be the persons of good will taking the challenge and adding their political, intellectual,

scientific capabilities and mighty for the reasons of the an ordinate human destiny.

The international community have to take an action worldwide to reshape the UN and its political and operative roles. The so-called global issues are definitely the ones requesting a global governance, interdependence of International Relations with finance, economy, technology, research, peace and conflicts in the new scenario with advanced knowledge until a few years ago unimaginable, new military mighty introduced by innovation must be some of the crucial challenges, where also our Journal Global Policy and Governance intends to contribute opening its pages, issue after issue, to faculty, experts, testimonies, articles and relevant review of books, researches and working papers.

We intend to embrace and reach all the possible interested colleagues and fellows around the world, as choices and strategies in all the sectors involving public and private governance, nobody excluded, are under questioning and innovative evaluation. Global world is not anymore, a provocative statement and the real antagonist of utopian return to nationalism, sovranism and the theories dominant before the treaty of Rome in 1956 and the European Union from the founders to the EU 27. Middle East, Black Sea, Eurasia, Ukraine, Baltic, Turkey have the capability to reshape the future.

But why looking globally, the event of the last 50 years development and raising growth and international roles of China, India and even before Japan impose a new approach to leading players as US, European Union and new emerging countries in Latin America and Africa, where similar problems we have encountered in our complex transition seasons during the last previous century of the Eurasian continental emersion, with a relevance both for Transatlantic relations and the Asian contemporary competitive reality while the problematic Middle East still remains a factor of permanent instability and danger as we are in part still acing nowadays. The needs of evolutions and political solutions to reforming and giving voice and accountability to all the emerging countries emerged with their billions of inhabitants. We really have to rethink the International Relations and the theories of Global Governance and Policy choices, accepting the pluralism of institutional architectures and ways to give voice and accountability to their citizens. The European Union represents a “non-Statehood” institutional governance, without even a traditional Constitution and with the sovereignty belonging to the member countries.

This absence of typical institutional factors that characterized the international relations of the traditional powers of the last previous century had not impeded to European Union to adopt an architecture established by the Treaty of Rome, in front of which the rest of the world was mainly sceptic until the reunification of Germany and the collapse of URSS. The illusion of the antagonists of the different European strategies and policies adopted even more with the successful the unique currency Euro and the high welfare and technologic standards already achieved by European countries. Even now, in presence of the pandemic virus hitting progressively since 2019 almost European Union countries had shown the best governance and control of the COVID-19 while all the continents, To add a valuable contribution to this scientific debate is our very aim and scope.

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Editor in-chief: Prof. Dr. Giorgio Dominese - Curriculum

Giorgio Dominese is the founder of CEEUN-Central Eastern European University Network and President of Transition Studies Research Network, being also Editor of Transition Studies Review and of the Journal of Global Policy and Governance, all of them published by Transition Academia Press.

After lecturing at Ca' Foscari Venice University (1973-1975), he was Professor of Transitions Economics at Udine University from 2002 to 2008. On 2007 he start lecturing at the Course of European Economy and Financial Governance in full English at Rome Tor Vergata University until 2012. He was for twenty-six years professor at Roma LUISS University as Chair of Economic and Policy of Transitions, then International Relations and from 2011 to 2014 was Chair of Geopolitics at the Master of Science in International Relations.

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He had been lecturing as well at Beijing University, at the Viet Nam National University, visiting professor at Bahia Blanca University, Argentina and at the Astana ENU-Eurasian National University in Kazakhstan, lecturing as well at George Washington University USA, EMUNI University Slovenia, MGIMO, HSE and Academy of Science-European Institute in Moscow, Latvia University Riga. Visiting lecturer at National Vietnam University, at the Singapore Economic Review conferences in cooperation with Nanyang Technological University on 2013, 2015 and this year on July-August 2019. He was presenting a main paper and seminar on Law, Economics and Growth at Chulalongkorn University Bangkok in 2015.

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