Theories of Sustainable Finance

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This paper attempts to formulate new theories of sustainable finance, meeting a need to establish a set of propositions that can help us understand the behaviour and actions of economic agents towards sustainable finance. The paper used a literature survey to establish a theoretical relationship between sustainable finance and the actions of economic agents. The paper proposed six theories of sustainable finance, namely, the priority theory of sustainable finance, the resource theory of sustainable finance, the peer emulation theory of sustainable finance, the life span theory of sustainable finance, the positive signalling theory of sustainable finance, and the system disruption theory of sustainable finance. These theories offer believable explanations for the behaviour and actions of economic agents towards sustainable finance. Academics, policy makers, economists, researchers and students will find these theories very useful in their work in sustainable finance.

Key Words: theories of sustainable finance, priority theory, resource theory, peer emulation theory, life span theory, positive signalling theory, system disruption theory, economic agents, green bonds, green finance
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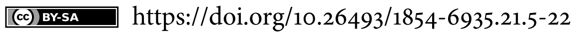
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Introduction

There is growing interest in sustainable finance, which can be seen in the widespread private sector support for sustainable finance, the issuance of national policy for sustainable financing in some countries, and the rise in sustainable finance research by academics (Migliorelli 2021; Kuhn 2020; Cunha, Meira, and Orsato 2021; Thistlethwaite 2014). This interest shows that sustainable finance has reached an important stage in development. But the legitimacy of sustainable finance as a field of study will be linked to the quality of theories that can explain and predict the behaviour and actions of economic agents towards the sustainable finance agenda.

At present, many published articles in the sustainable finance literature do not use theories and this slows the development of sustainable finance as a field of study. Formulating theories of sustainable finance will not

only develop sustainable finance as a field of study, but it will also help ensure that the field of sustainable finance will become a vibrant arena for theory testing using real world data, and it can open up an avenue to use empirical data to validate, refute or refine existing theory formulation. Therefore, it is important to formulate theories of sustainable finance.

Many ideas, opinions, expectations and perspectives on sustainable finance have emerged in the academic literature and in policy circles, such as the need for the banking sector to play a significant role in promoting sustainable financing (Jeucken 2010; Weber 2014); the need to develop sustainable finance regulation and disclosure rules (Ahlström and Monciardini 2021; Chiu 2021); the need to avoid greenwashing (Zeidan 2020; Gregory 2021); the need to ensure that investors put sustainability over short-term profits (Ryszawska 2018); the need to promote sustainable finance through the issuance of green bonds (Park 2018); the role of sustainable finance in achieving the sustainable development goals (Ziolo, Bak, and Cheba 2021); allowing financial institutions to play a significant role in promoting sustainable finance (Ozili 2021); the mainstreaming of sustainable finance as a solution to climate change risk (Chebly, Rutz, and Schiano 2018); and mobilizing institutional efforts towards sustainable financing (Shalneva and Zinchenko 2018). While these ideas and perspectives on sustainable finance are interesting and noteworthy, they do not provide explanations for the behaviour and actions of economic agents towards sustainable finance. Migliorelli (2021) observed that the sustainable finance landscape is characterised by heterogeneity which hinders the smooth conceptual development of sustainable finance. These observations in the literature present a strong case for formulating theories of sustainable finance.

Motivated by this concern, this paper formulates some theories of sustainable finance that explain the behaviour and actions of economic agents towards the sustainable finance agenda. The formulated theories are the priority theory of sustainable finance, the resource theory of sustainable finance, the peer emulation theory of sustainable finance, the life span theory of sustainable finance, the positive signalling theory of sustainable finance and the system disruption theory of sustainable finance. While no theory is perfect, the theories presented in this paper provide a good starting point from which a set of relationships and interrelationships can be established.

The theory formulation in this paper contributes to the sustainability literature. It presents a comprehensive understanding of the behaviour

and actions of economic agents towards sustainable finance. Economists, sustainability enthusiasts, policy makers and researchers can use these theories to explain the behaviour of economic agents towards sustainable finance in a single location or across countries.

The remainder of the paper is organized as follows. The second section presents a conceptual background and the literature review. The third section presents the theories of sustainable finance. The fourth section concludes.

Conceptual Framework and Literature Review

DEFINING SUSTAINABLE FINANCE

Several studies in the literature have defined sustainable finance. For instance, Ryszawska (2016) defines sustainable finance as finance that supports sustainable development in three combined dimensions which are the economic dimension, environmental dimension, and the social dimension. Migliorelli (2021) defines sustainable finance as finance that supports sectors or activities that contribute to the achievement of at least one of the relevant sustainability dimensions. Gerster (2011) defines sustainable finance as finance that takes into account environmental, social, and governance (ESG) factors. Ozili (2021) defines sustainable finance as finance that takes into account ESG considerations when making investment decisions in the financial sector. Bakken (2021) defines sustainable finance as investment decisions that take into account the ESG factors of an economic activity or project. Sommer (2020) defines sustainable finance as the mobilization and allocation of capital to support the transition towards a more sustainable economy. The International Capital Market Association defines sustainable finance as finance that incorporates climate, green and social finance while also adding wider considerations concerning the longer-term economic sustainability of the organizations that are being funded, as well as the role and stability of the overall financial system in which they operate (International Capital Market Association 2020). United Nations Environment Programme defines sustainable finance as finance that meets the long-term needs of a sustainable and inclusive economy along all dimensions relevant to achieving those needs, including economic, social, and environmental issues (UN Environment 2017).

Collectively, these definitions of sustainable finance can be grouped into two categories. The first category views sustainable finance as finance

that takes into account economic, social and governance considerations while the second category views sustainable finance as finance that meets the long-term needs of the economy.

LITERATURE REVIEW

The sustainable finance literature is a growing literature within the broader finance literature. Migliorelli (2021) observes that the sustainable finance landscape is dominated by an overabundance of heterogeneous concepts, definitions, and industry and policy standards. Migliorelli (2021) argues that such heterogeneity may hinder the smooth conceptual development of sustainable finance. To reduce the heterogeneity, the author recommends that the conceptual and applied practice of sustainable finance should be referred to as 'finance for sustainability.' Granier and Rigot (2021) conducted a bibliometric analysis of sustainable finance studies from 1981 to 2018. They find that the sustainable finance debate is structured around five themes: the performance of socially responsible investment (SRI) funds, corporate social responsibility, the performance of responsible companies and stock market indices, the investment strategies of financial actors, and the role of pension funds in sustainable development.

Existing studies in the sustainable finance literature emphasize the need for financial institutions to focus on sustainable financing. For instance, Oman and Svartzman (2021) argue that the financial sector needs to play a greater role in the transition towards a sustainable economy, and that policy makers in different parts of the world have begun to develop sustainable finance programmes to achieve the ambitious target of combating climate change based on the Paris agreement. Shabb, Curtis, and Libertson (2021) point out that the finance sector is playing an ever increasing role in supporting the transition to sustainable development by incorporating sustainability into their financial analysis and investment portfolios. Schoenmaker (2018) shows that some financial institutions have started to avoid unsustainable companies from a risk perspective, and have begun to invest in sustainable companies and projects to create long-term value for the wider community.

Schumacher, Chenet, and Volz (2020) examine the role of sustainable finance and investment in Japan and how the Japanese financial sector can mitigate growing climate risks and support Japan's transition towards a zero-carbon, sustainable economy. They show that the Japanese financial sector and its institutions are exposed to significant climate risks em-

anating from both inside and outside Japan, and the Japanese financial sector has started to consider climate-related risks and to align itself with the sustainable development goals and the 2°C warming scenarios outlined in the Paris climate agreement. Urban and Wójcik (2019) investigate how investment banks integrate sustainability in their underwriting services. They find that investment banks continue to patronize underwriting companies that have been flagged for major environmental, social, and governance misconduct, and that investment banks do not restrain from underwriting companies that provide contentious products, such as tobacco, coal, and nuclear weapons.

Fatemi and Fooladi (2013) argue that the current approach to shareholder wealth maximization is no longer a valid guide for the creation of sustainable wealth because it emphasizes short-termism which has had the unintended consequence of forcing many firms to externalize their social and environmental costs. The author calls for a shift to sustainable finance. Ryszawska (2016) also shows that the role of finance is changing from the dominant view of maximizing profits and shareholder wealth towards one supporting sustainable development, a green economy, a low carbon economy, and mitigation of climate change. Ozili (2021) proffers solutions that can make finance become sustainable. Ozili (2021) argues that (i) there should be greater focus on how some aspects of finance can contribute to sustainability; (ii) light-touch regulation may be needed to grow the relatively small sustainable finance sector; (iii) there is a need to adopt a bottom-up approach to grow the sustainable finance sector; (iv) voluntary ESG disclosures and related sustainability reporting should be encouraged; and (v) short-term financial instruments can complement long-term instruments in sustainable financing.

Theories of Sustainable Finance

This section presents some theories of sustainable finance. The theories are the priority theory of sustainable finance, the resource theory of sustainable finance, the peer emulation theory of sustainable finance, the life span theory of sustainable finance, the positive signalling theory of sustainable finance, and the system disruption theory of sustainable finance. The theories are summarized in table 1.

PRIORITY THEORY OF SUSTAINABLE FINANCE

The priority theory of sustainable finance argues that the rate at which economic agents make every effort to achieve sustainable finance goals

TABLE 1 Summary of the Theories

Proposition	Merits	Demerits
Priority Theory of Sustainable Finance		
States that the rate at which economic agents make every effort to achieve sustainable finance goals in a country or region is a true reflection of the priority given to the sustainable finance agenda.	(i) It recognizes that economic agents have multiple important priorities with the possibility of making the attainment of sustainable finance goals an additional priority; (ii) it gives economic agents an opportunity to articulate the importance or priority they give to sustainable finance goals.	(i) Prioritizing the attainment of sustainable finance goals does not necessarily mean that the sustainable finance goals will be achieved; (ii) sustainable finance goals can still be achieved without making it a priority.
Peer Emulation Theory of Sustainable Finance		
States that economic agents take similar actions, or adopt similar policies and strategies, of the peers they emulate in pursuit of sustainable finance goals.	(i) It provides an opportunity for economic agents to share the same societal, economic and political ideals on sustainable finance with the peers they emulate; (ii) it is faster to adopt the sustainable finance policies and actions already adopted by peers as only few adjustments need to be made before adopting it; (iii) it is cheaper to adopt the policies and actions taken by peers as the copying economic agent does not need to spend much of its own resources to formulate an entirely new course of action, policy or strategy to achieve its sustainable finance goals; (iv) significant improvement can be made to the sustainable finance policies and actions that have been adopted by peers.	(i) Adopting the sustainable finance policies and actions that have been adopted by peers bypasses the distinct creativity involved in developing a new course of action, policy or strategy from scratch as well as the valuable insights that could be gained during the process; (ii) adopting the same or similar sustainable finance policies and actions that have been adopted by peers in other countries may not yield the expected results due to differences in financial markets, financial regulation, governance mechanisms, and political will to achieve sustainable finance goals.

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in a country or region is a true reflection of the priority given to the sustainable finance agenda (Wilson 2010). The priority can be assessed from three dimensions: (i) the coordinated, independent and collaborative ef-

TABLE 1 *Continued from the previous page*

Proposition	Merits	Demerits
Life Span Theory of Sustainable Finance		
States that economic agents' interest in sustainable finance is affected by the life span of sustainable finance products, services, instruments, schemes, policies or activities.	(i) It provides a good explanation for why there is increased (or decreased) demand or support for specific sustainable financing instruments, products or services such as green bonds; (ii) it recognizes the role of information or prediction about the life span stages of sustainable financing products, services, instruments, schemes, policies or activities.	(i) Information about the life span stages of sustainable financing products, services, instruments, schemes, policies or activities may not be readily available; (ii) predictions about the life span stages of a specific sustainable financing product, service, instrument, scheme, policy or activity may be inaccurate.
System Disruption Theory of Sustainable Finance		
The potential disruption to the existing system (mainstream finance) arising from the transition to sustainable finance can compel economic agents to make a decision on whether or not to support or join the transition to sustainable finance.	(i) It acknowledges that the transition to sustainable finance can disrupt the existing mainstream financial system; (ii) the theory proposes that full information disclosure to economic agents about how the transition to sustainable finance will take place and its effect on economic agents can help economic agents to understand the reason for the shift to sustainable finance, and such explanations can help to reduce their resistance to the transition to sustainable finance.	(i) The transition to sustainable finance may not necessarily require overhauling the entire mainstream financial system.

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forts put together by economic agents towards achieving sustainable finance goals, (ii) how quickly or slowly a consensus is reached, and (iii) how quickly or slowly actions are taken towards achieving sustainable finance goals.

Generally, economic agents have different priorities. These priorities can be ranked from the least important to the most important. The rank-

TABLE 1 *Continued from the previous page*

Proposition	Merits	Demerits
Positive Signalling Theory		
States that economic agents have an incentive to disclose positive information about their commitment to pursue one or more sustainable finance goals in order to signal good news to external parties who can support their sustainable finance goals.	The disclosure of information about sustainable finance can reduce information asymmetry between investors and firms.	(i) Disclosing information about sustainable finance does not mean that economic agents will follow through with actions; (ii) the frequent disclosure of positive information about sustainable financing by firms could be used as a tactic to suppress or hide bad information in firms.
Resource Theory of Sustainable Finance		
States that some countries have superior human-made resources which gives them a comparative advantage in achieving their sustainable finance goals and in transitioning to sustainable finance, compared to other countries.	(i) It recognizes that some countries have abundant human-made resources compared to other countries; (ii) the resource theory of sustainable finance recognizes the differences in the level of development among countries, since development is a human-made process and is also a function of the amount of available human-made resources.	(i) The differences in human-made resources could be used as a basis to discriminate against countries that are unable to achieve their sustainable finance goals; (ii) the theory does not recognize the fact that it takes a long time to build human-made resources.

ing of sustainable finance goals in their list of priorities is a true reflection of the importance given to sustainable finance goals by economic agents. However, these priorities may change over time in response to changing realities in a country or in the world. If the sustainable finance agenda is listed among the priorities of economic agents at a particular time, it means that economic agents will take the sustainable finance agenda very seriously and will put in a great deal of effort to achieve sustainable finance goals (Kuhn 2020). Conversely, if the sustainable finance agenda is not listed among the priorities of economic agents, it means that economic agents will not take this agenda very seriously during a given time period and will not put in any effort to achieve sustainable finance goals during that period (Krauss, Krüger, and Meyer 2016). For instance, in the case of firms, financial institutions can show the priority they give

to achieving sustainable finance goals by incorporating the principles of sustainable financing into their core business model so that sustainability becomes a fundamental principle guiding the conduct of their business activities (Setyowati 2020; Cunha, Meira, and Orsato 2021).

Prioritizing sustainable finance goals is not without consequence. This is because making the attainment of sustainable finance goals a priority can lead to abandoning other important goals until the sustainable finance goals are achieved. This means there will be a trade-off: to forgo one goal in order to achieve another goal. Such trade-offs can be very costly, thereby leading to the rejection of the idea to prioritize sustainable finance goals over other important goals. For example, developing countries that have important economic development needs, such as increasing GDP per capita, may not see the need to prioritize sustainable finance goals as they may consider sustainable finance to be an inferior economic development need. The implication of the priority theory of sustainable finance is that the priority given to sustainable finance goals depends on the priority given to other important goals at the time the prioritizing is being considered.

The priority theory of sustainable finance has two merits. First, it recognizes the fact that economic agents have multiple important priorities with the possibility of making the attainment of sustainable finance goals an additional priority. Secondly, it gives economic agents an opportunity to articulate the importance or priority they give to sustainable finance goals (Wilson 2010). Such priority may be articulated through public announcements in the media (Pinchot and Christianson 2020).

The priority theory of sustainable finance has two demerits. One demerit of the theory is that prioritizing the attainment of sustainable finance goals does not necessarily mean that these goals will be achieved. Another is that sustainable finance goals can still be achieved without making them a priority per se. For instance, the sustainable finance goals of a country can be achieved by private sector agents without making it a national policy priority.

THE PEER EMULATION THEORY OF SUSTAINABLE FINANCE

The peer emulation theory of sustainable finance argues that economic agents take similar actions, or adopt similar policies and strategies, of the peers they emulate in pursuit of sustainable finance goals. The peer emulation theory of sustainable finance suggests that, when there are no uniform standards to guide action towards sustainable finance, economic agents resort to adopting similar policies or actions taken by the peers

they admire or emulate. This implies that economic agents will pursue specific sustainable finance goals because the peers they emulate are doing so or have already done so in the past. Emulating one's peers makes sense when economic agents share similar perspectives and views on sustainability (Cowett 2008). The tendency to emulate ones' peers in the pursuit of sustainable finance goals is stronger when two or more economic agents have similar societal, political and economic ideologies and aspirations (Ditlev-Simonsen and Midttun 2011). For example, countries that share the same ideals on climate change will most likely adopt similar sustainable finance policies and actions towards achieving their individual sustainable finance goals.

The peer emulation theory of sustainable finance has five merits. First, it provides an opportunity for economic agents to share the same societal, economic and political ideals on sustainable finance with the peers they emulate. Second, it is easier and faster to adopt the sustainable finance policies and actions already adopted by peers as only few adjustments need to be made. Third, it is cheaper to adopt the policies and actions taken by peers as the copying economic agent does not need to spend much of their own resources to formulate an entirely new course of action, policy or strategy to achieve their sustainable finance goals. Fourth, significant improvement can be made to the sustainable finance policies and actions that have been adopted by peers. Such improvement can make the adopted policies become better and more attractive for the next adopter. Fifth, under this theory, economic agents do not view peers as direct or indirect competitors.

The peer emulation theory of sustainable finance has two demerits. First, adopting the sustainable finance policies and actions of peers bypasses the distinct creativity involved in developing a new course of action, policy or strategy from scratch as well as the valuable insights that could be gained during the process. Second, adopting the same or similar sustainable finance policies and actions that have been adopted by peers in other countries may not yield the expected result due to differences in financial markets, financial regulation, governance mechanisms, and the political will to achieve sustainable finance goals.

THE LIFE SPAN THEORY OF SUSTAINABLE FINANCE

This theory is adapted from Vernon's product cycle hypothesis (Vernon 1979). The life span theory of sustainable finance argues that interest in sustainable finance is affected by the life span of sustainable finance prod-

ucts, services, instruments, schemes, policies or activities. It argues that sophisticated economic agents know that sustainable finance products, services, instruments, schemes, policies or activities (hereinafter 'sustainable finance products') have a life cycle which begins with the introduction of sustainable finance as a new concept, the growth of sustainable finance, the maturity of sustainable finance, and the decline of sustainable finance. The knowledge that economic agents have about the life cycle of sustainable finance products, enables them to make independent predictions about the estimated life span of a specific sustainable finance products; and based on that prediction, economic agents are able to reach a decision on whether to make a short-term commitment, long-term commitment or no commitment at all to sustainable finance. This means that the extent of support for sustainable finance by economic agents, and the extent of their support for the transition from traditional/mainstream financing to sustainable financing, depends on the perceived life span of a specific sustainable finance products by economic agents.

The implication of the life span theory of sustainable finance is that economic agents may reduce their support for sustainable finance or make only a short-term commitment to sustainable financing if they believe that a given sustainable financing product will be short-lived or if they believe that the sustainable finance agenda will soon fade away just like other development schemes have faded away in the past. On the other hand, economic agents will increase their support for sustainable financing or make a long-term commitment to sustainable finance if they believe that a given sustainable financing product will exist for a long time or if they believe that the sustainable finance agenda will permanently replace existing traditional/mainstream sustainable finance products.

The life span theory of sustainable finance has two merits. The first merit of the life span theory of sustainable finance is that it provides a good explanation for why there is increased (or decreased) demand or support for specific sustainable financing instruments, products or services such as green bonds. If economic agents believe that the green bond market will grow and dominate the traditional/mainstream financial market for a long time, they are likely to invest more in green bonds. On the other hand, if economic agents believe that the green bond market will be short-lived, they will either reduce their investment in green bonds or avoid the green bond market. Another merit of the life span theory is that it recognizes the role of expectations about the lifespan of sustainable financing products.

The life span theory of sustainable finance has two demerits. The first demerit of the life span theory of sustainable finance is that expectation about the life span stages of sustainable financing products may be subjective and biased. Another demerit is that expectations or predictions about the life span stages of a specific sustainable financing product, service, instrument, scheme, policy or activity may be inaccurate.

SYSTEM DISRUPTION THEORY OF SUSTAINABLE FINANCE

The system disruption theory of sustainable finance argues that pursuing sustainable finance goals may disrupt the structure of the traditional/mainstream financial system and can disrupt businesses that rely heavily on traditional/mainstream financing. The disruption caused by the transition to sustainable finance, depending on its severity, may lead to resistance from affected economic agents, or a general lack of public support for the sustainable finance agenda. Under this theory, the potential disruption to the existing system (traditional/mainstream finance) arising from the transition can compel economic agents to make a decision on whether or not to support or join the transition to sustainable finance. Economic agents will base their decision on whether the perceived benefits of sustainable finance outweigh the costs, and whether the resulting disruption will significantly affect their business, income or means of livelihood.

Full information disclosure will undoubtedly help economic agents in reaching a decision on whether to support the transition to sustainable finance or not. The theory acknowledges that the transition to sustainable finance is not smooth, and can disrupt traditional/mainstream finance. The implication of the theory is that sufficient information should be disclosed about how the transition to sustainable finance will take place and which systems or structures will be discontinued, if any, in preparation for the transition. Information should also be disclosed about whether any new systems or structures will be created and how the change will affect businesses that heavily rely on traditional/mainstream finance to fund their business operations and activities. Information should also be disclosed about what will be done to compensate economic agents affected by the transition. Providing full information disclosure can help in making the transition smooth while at the same time offering compensation to those affected by the disruption caused by the sustainable finance transition.

The system disruption theory of sustainable finance has some mer-

its. First, it acknowledges that the transition to sustainable finance can disrupt the existing traditional/mainstream financial system. Second, the theory proposes that full information disclosure to economic agents about how the transition to sustainable finance will take place, and its effect on economic agents can help economic agents to understand the reason for the shift to sustainable finance, and such explanations can help to reduce their resistance to the transition.

The system disruption theory of sustainable finance has one demerit which is that the transition to sustainable finance may not necessarily require overhauling the entire traditional/mainstream financial system. Rather, sustainable finance can co-exist as a sub-sector within the traditional/mainstream financial system or may exist as a blended financial system (Gutterman 2020; Krauss, Krüger, and Meyer 2016), where economic agents can voluntarily decide whether they want financing that takes into account ESG factors or not (Ozili 2021).

POSITIVE SIGNALLING THEORY

The positive signalling theory argues that economic agents have an incentive to disclose positive information about their commitment to pursue one or more sustainable finance goals in order to signal good news to external parties who can support their goals (Quatrini 2021; Park 2018). Economic agents can disclose positive information about their sustainable finance intentions by making direct public announcements in the media or by providing additional voluntary financial and non-financial information in their published annual reports. For example, firms can publish information about their latest sustainable finance instruments or green bonds in order to attract investors who want to invest their funds in firms that have a sustainability orientation. Such disclosure makes it easier to attract investors who are interested in green bonds. Similarly, a government can publicly announce that it will issue a national sustainable finance policy. Such an announcement will not only increase the country's sustainability reputation, it can also signal the country's readiness to receive foreign technical support when implementing a national sustainable finance policy, and it can attract huge foreign direct investment aimed at green projects in the country.

The merit of the positive signalling theory of sustainable finance is that the disclosure of information can reduce information asymmetry between investors and firms.

The positive signalling theory has some demerits. First, disclosing in-

formation about sustainable finance does not mean that economic agents will follow through with actions. Second, the frequent disclosure of positive information about sustainable financing by firms could be used as a tactic to suppress or hide bad information such as when a firm has recently recorded huge losses in its investment portfolio that is linked to fossil fuel and then goes on to announce positive information about its sustainable investment intentions.

RESOURCE THEORY OF SUSTAINABLE FINANCE

The resource theory of sustainable finance proposes that the differences in human-made resources capable of supporting the attainment of sustainable finance goals is an explanation for why some countries have made tremendous progress in achieving their sustainable finance goals compared to other countries.

The resource theory of sustainable finance argues that some countries have superior human-made resources which give them a comparative advantage in achieving their sustainable finance goals and in transitioning to sustainable finance, compared to other countries. For example, some countries have abundant foreign reserves, a budget surplus, low external debt, a well-developed financial sector, advanced financial technology systems, robust financial regulation and supervision, strong climate change monitoring systems, better education about sustainability, a population that is sustainability-conscious, and a large number of institutional investors willing to invest in sustainable finance instruments. Countries with these abundant human-made resources have a comparative advantage and are therefore able to achieve their sustainable finance goals easily and more quickly than countries that do not have these resources. Countries with abundant human-made resources are also able to make a quicker transition from traditional/mainstream finance to sustainable finance compared to countries that have very few foreign reserves, a large budget deficit, high external debt, an under-developed financial sector, poor financial technology systems, weak financial regulation and supervision, and very few or no institutional investors willing to invest in sustainable finance instruments.

The implication of the resource theory of sustainable finance is that economic agents in countries that have abundant human-made resources can achieve sustainable finance goals much more quickly than countries that have limited human-made resources. Therefore, each country should be allowed to achieve its sustainable finance goals at its own pace and

within the limit of its available human-made resources. Countries that have very few human-made resources may lag behind in achieving sustainable finance goals while others may not be able to achieve any of their sustainable finance goals due to human-made resource constraints.

The resource theory of sustainable finance has two merits. First, it recognizes that some countries have abundant human-made resources compared to other countries, and this potentially explains why some countries are able to use their human-made resources to support the attainment of sustainable finance goals. Two, by taking into account the differences in human-made resources among countries, the resource theory of sustainable finance recognizes the differences in the level of development among countries since development is a human-made process and is also a function of the amount of available human-made resources.

The resource theory of sustainable finance has two demerits. First, the differences in human-made resources could be used as a basis to discriminate against countries that are unable to achieve their sustainable finance goals. Second, the theory does not recognize the fact that it takes a long time to build human-made resources. Therefore, countries that have very little human-made resources could use this as an excuse for not making any effort to achieve sustainable finance goals.

Conclusion

This paper formulated some theories of sustainable finance which could be used to advance the sustainability discussion in academic and policy circles. The formulated theories are: the priority theory of sustainable finance; the resource theory of sustainable finance; the peer emulation theory of sustainable finance; the life span theory of sustainable finance; the positive signalling theory of sustainable finance; and the system disruption theory of sustainable finance. These theories provide explanations for the behaviour and actions of economic agents towards the sustainable finance agenda.

Sustainable finance remains a growing field of study, and these theories can help to advance the ongoing discussions about sustainable finance. These formulated theories of sustainable finance have implications for developing a solid foundation to understand the behaviour and actions of economic agents towards sustainable finance. Future developments in sustainable finance may present new opportunities and challenges for theory development thereby presenting new opportunities for further research.

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