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Athens Journal of Business & Economics

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The *Athens Journal of Business & Economics (AJBE)* is an Open Access quarterly double-blind peer reviewed journal and considers papers from all areas of business and economics, including papers on accounting, finance, management, marketing, organization etc. The AJBE welcomes theoretical (including methodological), empirical (including case-studies) and policy (i.e., descriptive and non-analytical) papers. Given the mission of ATINER, the AJBE will also consider papers which emphasize country-related studies both at the business and the national economy level as well as economic history, history of economic thought and philosophy of economics papers. All papers are subject to ATINER's [Publication Ethical Policy and Statement](#).

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The current issue is the third of the ninth volume of the *Athens Journal of Business & Economics (AJBE)*, published by the [Business & Law Division](#) and the [Economics Unit](#) of ATINER.

Gregory T. Papanikos
President
ATINER



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18thAnnual International Symposium on Economic Theory, Policy and Applications 11-14 July 2024, Athens, Greece

The [Economics Unit](#) of ATINER, will hold its **18thAnnual International Symposium on Economic Theory, Policy and Applications, 11-14 July 2024, Athens, Greece** sponsored by the [Athens Journal of Business & Economics](#). The aim of the conference is to bring together academics and researchers of all areas of economics and other related disciplines. You may participate as panel organizer, presenter of one paper, chair a session or observer. Please submit a proposal using the form available (<https://www.atiner.gr/2024/FORM-ECO.doc>).

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- Dr. Chris Sakellariou, Head, Economics Unit & Associate Professor of Economics, Nanyang Technological University, Singapore.

Important Dates

- Abstract Submission: **8 November 2023**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **13 June 2024**

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The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Atiner.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
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- Delphi Visit
- Ancient Corinth and Cape Sounion

Conference Fees

Conference fees vary from 400€ to 2000€
Details can be found at: <https://www.atiner.gr/fees>



Athens Institute for Education and Research *A World Association of Academics and Researchers*

11th Annual International Conference on Business, Law & Economics 6-9 May 2024, Athens, Greece

The [Business, Economics and Law Division](#) (BLRD) of ATINER is organizing its 14th Annual International Conference on Business, Law & Economics, 6-9 May 2024, Athens, Greece, sponsored by the [Athens Journal of Business & Economics](#) and the [Athens Journal of Law](#). In the past, the [six units](#) of BLRD have organized more than 50 annual international conferences on accounting, finance, management, marketing, law and economics. This annual international conference offers an opportunity for cross disciplinary presentations on all aspects of business, law and economics. This annual international conference offers an opportunity for cross disciplinary presentations on all aspects of business, law and economics. Please submit an abstract (email only) to: atiner@atiner.gr, using the abstract submission form (<https://www.atiner.gr/2024/FORM-BLE.doc>)

Important Dates

- Abstract Submission: **3 October 2023**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **8 April 2024**

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More information can be found here: <https://www.atiner.gr/social-program>

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The Traditional Justice System versus Mediation from the Perspective of the Economic Analysis of Law

*By Jose Manuel Castillo Lopez**

In recent decades, several public and private institutions have pointed out the deficiencies in the Judicial Administration in Spain and, consequently, proposals for reform have been put forward, including the establishment of alternative dispute resolutions (ADRs) that will inevitably arise between individuals and companies. Both in fact represent two ways of solving social conflicts, of doing justice, but in which the observance of the legal guarantees of citizens must be the reserve of the Judicial System as a common procedure. Therefore, ADRs are not competitive mechanisms in the sense of being exclusive or alternative, but complementary, which open the possibility for companies and consumers to use extrajudicial means to resolve their conflicts. Mediation in consumer activities presents, in relation to the traditional and ordinary justice system, a series of elements that advise its use, since they can contribute to the improvement of efficiency and equity in the Judicial Administration. In addition, these advantages will increase with the incorporation of digital platforms into the administration of these procedures.

Keywords: *judicial administration, conflict resolution, efficiency, equity, legal security*

Introduction

In Spain, at the state level, the transposition of the European regulatory framework regarding the alternative resolution of consumer disputes, in particular Directive 2013/11/EU of the European Parliament and of the Council, of 21 May, 2013, has taken place through Law 7/2017, of 2 November, although some Autonomous Communities have also legislated in this area or, at least, have articulated various regulatory procedures for that purpose.

The Economic Analysis of Law can serve to support and explain the decision-making processes on the construction of alternative dispute resolution systems in different territorial areas.

Consequently, in this paper, after introducing the concept of the Economic Analysis of Law, I look at three fundamental questions:

- The application of this instrument to the study of current legal and judicial systems and alternative procedures for conflict resolution.
- The essential analysis points are efficiency and equity.
- Summary, theoretical precautions and consideration of the restrictions of the institutional framework to the incorporation in our legal system of alternative systems for resolving consumer disputes.

*Professor, University of Granada, Spain.

Economic Analysis of Law versus Formal Legal Dogmatics

Recently, and following the development of the Formal Legal Analysis, which aims to interpret the legal system as a whole or each of its normative elements, in particular (analysis and interpretation, integration and systematisation of legal norms), the Economic Analysis of Law has emerged. This branch of Economics (among others Warburton (2020)) studies the motivations in the origin, the effects of its elements and finally, the economic and social consequences of the existence of the norms, with application and compliance or not, by the obligated parties.

Essentially, therefore, Formal Legal Analysis and Economic Analysis of Law coincide in their objectives but use different methodologies (among others Miceli (2020)).

The organisation of justice as a public administration, with its inputs, internal mechanisms and outputs, occupies a prominent place in the Economic Analysis of Law, without forgetting institutional restrictions and, of course, the rationality and empirical evidence of the behaviour of operators, generically judges, lawyers and users of the legal system.

The concepts of efficiency, equity, transaction costs, externalities, organisation design, sanctions and incentives, etc. are widespread in this type of literature.

The incorporation of Economic Analysis of Law methodology to the review of judicial systems already boasts a young but intense trajectory. The origins of these approaches in Economic Science can be found in the writings of Ronald Coase, recipient of the Nobel Prize in Economics, especially in his article entitled *The Problem of Social Cost* (Coase 1960), though also in other equally relevant works such as *The Nature of the Firm* (Coase 1937)–, in contrast to the work of Pigou: *The economics of welfare* (Pigou 1912), which advocates government intervention in the resolution of social conflicts through the regulation, specifically, of taxes and sanctions.

The translation of the ideas of Coase to judicial conflicts means that, when the Judicial Administration intervenes in their resolution, part of the cost is assumed by the State but in reality it is only a small proportion, since the greater part is made up of the lawyers' fees, expert reports and preparation of evidence, psychosocial and opportunity costs, etc. assumed by the parties.

Therefore, as a general approach, the resolution of a judicial conflict with criteria of efficiency and fairness can be carried out, after the establishment of property rights, through a simple direct negotiation between the affected parties, either with or without the intervention of a third party (arbitrator, mediator, friend, etc.), under the sole condition of economic and social rationality, that is, the cost of accessing the resolution of the conflict through the intervention of these agents is lower than the cost of ordinary judicial administration transactions.

The deficiencies and subsequent dissatisfaction caused in citizens by congestion in the courts and the delay in obtaining definitive resolutions cannot be solved exclusively and automatically, without further reflection, by measures for incrementing means addressed to the Judicial Administration, particularly by increases in resources and improvements in organisation.

It is important to bear in mind that the resources used in the Administration have institutional restrictions and, above all, opportunity costs.

On the contrary, today it is possible to identify that the greatest room for manoeuvre is on the demand side, that is, in the reduction of the number of users and cases. In other words, the increase in conflicts and the choice of the judicial route for their resolution is related to the bureaucratic empire that affects above all the operators of the Judicial Administration, who have a monopolistic participation in procedures, as occurs in the case of judges but also and, above all, in that of lawyers and solicitors.

If the judicial process were endowed with greater doses of information and transparency towards users, it would provide them with better knowledge and certification of the results of conflicts. Under these conditions, the number of requests for access to the courts would also decrease substantially, to which the existence of alternative conflict resolution systems, less costly and more equitable with respect to the judicial process, based on various ways of materialising agreements between the parties.

Social Perception and Statistical Evidence of the Judicial Administration

Both Spanish citizens and the various institutions most closely related to the Judicial Administration in Spain, such as the European Commission (2020), the Consejo General del Poder Judicial (“General Council of the Judiciary”) (1998), bar associations, but in particular, the opinion of users in the barometers of the Centro de Investigaciones Sociológicas (“Centre for Sociological Research”) (CIS) (various years) and the Ministerio de Política Territorial y Función Pública (“Ministry of Territorial Policy and Public Function”) (2018) itself presenting the Executive as the penultimate institution, among the nine worst valued by citizens, with the last one being precisely the Administración de Justicia (“Judicial Administration”), as I indicate in Table 1.

Table 1. *Opinion of Spaniards Regarding Various Public Services (Satisfaction %) (2018)*

SERVICES	HIGH	QUITE	LITTLE	NOT	DK	NO	N
Public company	5.9	41.9	35.4	5.9	10.8	0.1	2489
Assistance in public hospitals	9.7	43.2	36.3	8.9	1.8		2489
Assistance in public health centers	10.3	50.5	29.3	7.6	1.5	0	2489
Social services	3.4	27.4	35.0	11.9	22.1	0.3	2489
Unemployment protection procedures	2	23.1	30.3	10.4	33.9	0.2	2489
Public transportation	8.4	45.9	26.8	10.0	8.8	0.2	2489
Public works and infrastructure	3.3	35.6	38.8	14.0	8.2	0.1	2489
Administration of justice	1.1	14.5	37.9	29.1	17.1	0.2	2489
Pension management procedures		25.0	25.6	11.4	35.2	0.4	2489
Citizen security	5.0	48.4	30.2	9.2	6.9	0.3	2489

Source: Ministerio de Política Territorial y Función Pública (2018).

Regarding the evolution of the opinion of Spanish citizens about Justice in decentralization the last 35 years through the CIS Eurobarometers, the following results were repeatedly obtained on average, collected in Table 2.

Table 2. *Evolution of the Opinion on the Judicial Administration (%)*

Assessment	Years						
	1987	1992	1995	1996	1998	2011	2019
Very good	0	0	0	0	0	0	0
Fairly good	19.1	8.9	14	15.5	9.9	18	21.4
Regular	34.5	38.6	35.5	39.6	24.9	28.7	24.1
Bad	23.5	31.1	29	26.1	38.7	36.7	30.9
Very bad	5.3	13.6	16.6	13.2	18	11.3	17.1
DK/NO	16.7	7.6	4.5	6.4	8.1	5	5.4

Source: Centro de Investigaciones Sociológicas.

The growth of the negative opinions “Bad” and, above all, “Very Bad” is relevant, and they are supported by the increase in interest and information shown by citizens on these issues, which is manifested by a threefold decrease in responses DK/NO.

These results globally coincide with those recently obtained by the General Council of the Judiciary (2021).

Repeatedly over the last three decades, one of the fundamental perceptions and complaints of Spaniards collected in the surveys of the Center for Sociological Research refer to the organisation and functioning of the Judicial System.

Table 3 highlights the low number of responses that show disagreement with judicial decisions (15.26%), compared to that shown in Table 4 as regards deficiencies in attending to citizens (36.56%) and above all, the duration of procedures and delay in obtaining due and definitive resolutions (53.69%) (efficiency: “slow and late justice is not justice”) and obscurantism by the administrator; finally, on the part of the lawyers, poor ethical behaviour (35.5%), which ultimately determines that the content of judicial decisions is affected by the economic capacity of litigants (fairness) and more recently by public corruption (efficiency and fairness).

Table 3. *Reasons for Writing Claims, Complaints, Suggestions and Requests for Information (%)*

Reasons	2008	2012	2016	2020
Relating to operation of courts and tribunals	78.47	66.35	68.98	68.39
Disagreement with judicial resolution	11.1	18.59	14.16	12.06
Unjustifiable or extraneous matter	6.6	7.8	11.29	12.93
Information requests	2.91	5.85	2.84	5.15
Suggestions	0.66	0.88	1.79	1.09
Thanks	0.26	0.88	0.92	0.38
Total	100	100	100	100

Source: General Council of the Judiciary and own creation (2021).

Who Are Responsible? Judges, Lawyers or Users?

It is common for users, courts and lawyers to blame themselves for this state of affairs.

The truth is that, along with the problems of the Administration, on the side of the lawyers there is a series of archaic institutions and regulations that substantially worsen access to Justice by citizens including, among others, compulsory professional membership of lawyers, swearing of accounts, consent, and the obligatory intervention of representatives before the courts (*procuradores*) in numerous procedures, etc.

The alternative resolution of consumer disputes, through the different available solution methods, can contribute to the satisfaction of consumers and companies, improve efficiency and, without a doubt, is an important complement to the judicial system for achieving legal protection. Over the last three decades one of the fundamental perceptions and complaints of Spaniards collected in the aforementioned CIS surveys refers to the organisation and functioning of the Judicial System and is related, first of all, to the delay in obtaining definitive judicial decisions (efficiency); secondly, with the concern that decisions are influenced by the economic capacity of the litigating parties (fairness), and more recently by corruption (efficiency and fairness).

Various institutions such as the General Council of the Judiciary itself, the bar associations, but particularly the users in the barometers of the Center for Sociological Research (CIS)¹, present the Executive as the penultimate institution, among the nine worst valued by citizens, with the Judicial Administration in last place: 46.6% of Spaniards perceive that “it works poorly or very poorly”; 88.4% believe that “it does not provide the same treatment to everyone”, and it is the opinion of 50.6% that “it does not inspire confidence.”

However, it is most striking that a radically different opinion to that expressed by the rest of the citizens regarding the functioning of the judicial system is that of the judges: 98% consider themselves as “guardians and guarantors of the rights of citizens”; 99% feel totally independent when making their decisions, despite admitting that 84% of governments and their environment try to influence their decisions; and, in particular, 72% of the judges interviewed feel pressured by the news media.

In short, the deficiencies of the Judicial System in Spain generate inefficiency in the Economic System and social inequity, as there is a large amount of uncertainty in the resolution of social conflicts and, in any case, these are influenced by the economic capacity of the litigants.

As the well-being of Spaniards is powerfully influenced by access to and the functioning of justice, reforms in this area are justified and recommended. The strengthening of this well-being can be obtained by enabling alternative systems to traditional justice imparted by the jurisdictional bodies, and this is precisely one of the purposes of the new European framework for alternative and online resolution

¹The methodology of the barometers of the Centro de Investigaciones Sociológicas, as well as its database and main studies can be found at: https://www.cis.es/cis/opencms/ES/11_barometros/metodologia.html

of consumer disputes, since all member states are required to ensure that consumers are able to file consumer claims with certified entities.

But, in reality, where does responsibility for this state of affairs lie? With the courts, lawyers or users?

Quite a few of those users who have had some not fully satisfactory experience with the Judicial Administration and the System have most likely heard the mutual blaming of the cause of these deficiencies between lawyers and the courts.

Rightly or wrongly, depending on how you look at it, the legal profession in Spain currently enjoys a series of privileges with respect to other citizens, and is governed by a series of rules that in some aspects would not be out of place in a number of medieval institutions.

Among others, compulsory membership², substitution³, the swearing of accounts⁴, the figure and role of the representative before the courts (*procurador*)⁵, etc. hinder the formal and real access of citizens to the public service of Justice.

²The Organic Law of the Judiciary (Law 1694/1985) states: “the association of Lawyers, Representatives before the Courts and Social Graduates will be mandatory to act before the Courts and Tribunals in the terms provided in this Law and by the general legislation on professional associations”.

³The regulation of the substitution of lawyers (*venia*), is included in article 26 of the General Statute of Lawyers (EGAE) and in the correlative article 9 of the Code of Ethics of Spanish Lawyers. The EGAE typifies the infringement of the provisions of article 26 on substitution as a serious offense. For its part, the Code of Ethics considers it as very serious when the substitution of the lawyer is carried out in a procedural communication without prior communication to the senior court.

⁴Article 35. Lawyers’ fees.

1. Lawyers may claim from the party whom they defend the payment of the fees they may have accrued in the matter, submitting a detailed invoice and formally stating that these fees are due to them and have not been paid.

2. Once this claim is filed, the Court Clerk orders the debtor to pay said sum, with the costs, or challenge the account within a period of ten days, under penalty of coercion where he/she fails to pay, or file a challenge.

⁵The figure of the *procurador* is regulated in Spain in articles 3 and following of the Law of Civil Procedure, 118, 119, 277 and 652 of the Law of Criminal Procedure, 18 of the Labour Procedure Law and 33 of the Contentious-Administrative Jurisdiction Law and from the corporate point of view, representatives before the courts are subject to their General Statute, approved by Royal Decree 2046/1982, of July 30.

This is one of the figures involved in the most controversial judicial processes, mainly due to the increase in procedural costs for the user and above all due to the questioning of the role at a time when users themselves could assume this function, if not directly the lawyer, but mainly the effective reduction of its functions through the installation of a digital platform in the Judicial Administration that makes it difficult to carry out a large part of the procedures that the prosecutor previously carried out, namely receiving and transmitting notifications, managing the funds, presenting documents) and that they be developed in person in writing in court.

The profession of *procurador*, as we understand it in Spain, is unique, although it is similar to the figure of enforcement agents that exist in other countries, such as the French *le hussies de justice* or the Portuguese *delegado*, although with even less powers.

However, in another 30 European countries there are auxiliary agents involved in the judicial process that are not equivalent to the profession, and in many places they are even civil servants.

In countries such as Germany, France and Italy the figure of *procurador* and lawyer are merged.

The majority of lawyers in Spain consider that morality is something that is basically connected to their private lives rather than with the exercise of their profession, and the matter of compulsory membership is partly responsible for this aberration. In reality, this requirement turns the private legal service practically into a monopolistic company. The moral practice of the lawyer consists of complying with the legal norms, including those of the deontological code that comes from obligatory association, among others, through the figure of professional secrecy that allows detriment to be caused to others by the hiding of information, and even wrongful harm to be directly caused to individuals other than their clients.

The catalogue of undesirable practices of a large number of lawyers inundate individual testimonies, meetings, social networks and other media outlets, at least in Spain, and includes: the abusive collection of fees by not returning the provision of funds when their client wins the lawsuit with the right to costs; little interest and means displayed by the lawyer in the first instance with respect to the second instance, which he considers as inexorable, thus increasing the cost of the proceedings for the client and a rise in lawyer's fees; the frequent situation wherein a few hours before the deadline for submitting documents they do not yet exist, are ill-prepared by the lawyer or are in an incipient situation, indeed, after several months and even years of conversations and contributions of documents by the client, various charges for provision of funds in the event that the lawyer does not require any other document "essential" to the proceedings such as a medical certificate or similar; the difficulties in finding an experienced and solvent lawyer for the most humble citizens, when the opposing party is a powerful local individual or institution; bragging to the client of friendship or intimate relationship with the judge or declaring a political opinion very different from that of the client to justify an undesired judgment, etc.

As regards judges and prosecutors there is lack a code of ethics, and economic rationality predicts and, the non-methodical empirical evidence available at least shows that these groups will as a priority carry out those actions that will benefit them personally, above all, in reducing their workload, and increasing their chances of personal development and professional promotion.

Their behaviour is far removed from that of carrying out tasks of universal morality, supported above all by the absence of a thaumaturgical nature of the norms and that judicial actions brought by citizens against the resolutions of judges, at least, require, in addition to essential institutional support (other judges and lawyers), a huge amount of financial resources that are not within the reach of most litigants.

The practical performance of judges, prosecutors and lawyers in Spain, in particular the latter, entails a high moral risk or perhaps an "intrinsic immorality". The problem behind this reality is that "We need lawyers as much as we need refuse collectors, and in both cases we should expect them to smell bad."

The intellectual and cultural levels of numerous judges in Spain are extremely deficient. The origins of this lie in the mechanisms that operate in the decision of

students opting for this degree path⁶, study plans and ordinary teaching practices of most of the current Faculties of Law, in which, despite recent slight improvements, rote and descriptive contents far exceed those of an analytic nature.

The system of public competitive examinations (*oposiciones*) to for would-be judges consists in applicants being able to “sing” around 328 topics from various branches of Law, of course, for a large number of years (at least 10 for some and even 15 or more for those few who can afford such a luxury), isolated from society and its concerns and problems.⁷ In these conditions, people become “odd”; after a good number of years they see that their colleagues are raising families and prospering professionally, and when they themselves reach the end of this period if they do not take the exams in short they have nothing, not to mention that few people can bear the expense involved, so the social origin of the judge must be that of the economically privileged.

A considerable number of current lawyers in Spain have previously studied to be judges but, after 5, 10 or even 15 years preparing for the professional exams, have decided or have had no other choice but to abandon this career path and dedicate themselves to the professional practice of being a lawyer, for which of course they lack the theoretical knowledge and convenient experience.

Of those who successfully complete the *oposición* process and reach the position of judge, on very few occasions can it be related to social, artistic, humanitarian, intellectual or cultural concerns, among others, and it is a frequent complaint of lawyers, users of the judicial system and even of some judges of note that there is often an attempt to hide these deficiencies with the “arrogance of the ignorant” (Romero 2018).⁸

However, it is most striking that a radically different opinion to that expressed by the rest of the public regarding the functioning of the judicial system is that held by judges. Among others, 98% consider themselves as “guardians and guarantors of the rights of citizens”, 99% feel totally independent when making their decisions, despite admitting that 84% of governments and those close to these attempts to influence their decisions and, in particular, 72% of the judges interviewed felt pressured by the media.

There was a consensus in Spanish society, including among the members of the Judicial Administration, the rest of the legal operators and other experts, about the deficiencies of our legal system, with agreement not only on the main aspects or problems presented by Justice in Spain but even in their solutions.

This was included in the State Pact for Justice Reform signed in 2001 by the PP and PSOE (2011).

⁶Most universities do not require a grade point cutoff for accessing a degree in law and most students lack the vocation to be a lawyer, at least when they begin studies.

⁷https://elpais.com/politica/2017/04/07/actualidad/1491596451_160160.html.

⁸Pascual Sala, president of the General Council of the Judiciary, yesterday called for prudence, discretion and strength in the Judicial Administration and attacked the spectacular nature and arrogance of judges and magistrates, although he did not refer to any specific example.... . “Spectacularity can be a symptom of arrogance, but arrogance is a generally ephemeral brilliance; as soon as you scratch the personality of an arrogant individual, very high doses of clumsiness and lack of intelligence are discovered,” added Sala.

The Spanish people, beginning with those who dedicate their professional activity and even some who dedicate their lives to the service of Justice, unequivocally demand a substantial effort to improve and modernise the organisation of our judicial system.

Traditional shortcomings, added to the new demands of an increasingly dynamic and complex society and the rise in litigation and complexities thereof, force us to undertake the necessary reforms.

From the point of view of social welfare, it is necessary for Justice to act with greater speed, fairness, efficiency, effectiveness and quality, with the most modern methods available and procedures that are simpler and more accessible to citizens. It must satisfactorily fulfill its constitutional function of guaranteeing the rights of citizens in a reasonable time and of providing legal certainty, by acting with predictable patterns of behavior and decision. It must act as an independent, unitary and integrated power, with a backbone governed by an institutional coherence that, ultimately, allows it to carry out its constitutional functions more effectively.

Nevertheless, the result of this Pact, analysed fifteen years after its signing, is not comfortable at all.

Indeed, CIS pointed out in 2021 regarding the functioning of the Judicial Administration, only 10.2% of those surveyed felt “fairly satisfied or very satisfied”, while 78% said they were “not very satisfied” and 38.3% “not satisfied at all”, with these opinions being substantially different to that which occurs with other public services such as, for example, healthcare or education.

As the well-being of Spaniards is powerfully influenced by access to and functioning of the public service of justice, reforms are needed in this area. The improvement of this well-being can collaborate with the authorisation of complementary systems to the traditional justice imparted by the jurisdictional organs.

The Situation in the EU

The indicator of confidence in the judicial system is one of the nine variables that make up the quality of life indices prepared by the European Statistical System, broader than the traditional indicator based exclusively on GDP growth and, furthermore, its homogenisation of the methodologies used facilitates a harmonised comparison of the different countries that make up the European Union.

Table 4. *Trust in the Judicial System in the European Union*

European Union (28 countries)	4.6
Belgium	5.0
Bulgaria	3.0
Czech Republic	3.8
Denmark	7.5
Germany	5.3
Estonia	5.2

Ireland	5.1
Greece	4.1
SPAIN	3.1
France	4.5
Croatia	3.3
Italy	3.6
Cyprus	3.6
Latvia	4.5
Lithuania	4.9
Luxembourg	5.3
Hungary	5.1
Malta	4.9
Holland	6.2
Austria	6.0
Poland	4.2
Portugal	2.9
Romania	5.8
Slovenia	2.7
Slovakia	3.6
Finland	7.2
Sweden	6.7
United Kingdom	5.5
Island	5.7
Norway	7.2
Switzerland	7.0
Serbia	3.4

Source: European Social Survey (2021a, b).

Of the 28 countries of the European Union only three, Slovenia (2.7), Portugal (2.9) and Bulgaria (3.0) have a lower index than Spain (3.1) which are, therefore, in a defined position behind the average (4.6) and at the antipodes of the best performing countries, Denmark (7.5), Finland (7.2) and Norway (7.2).

Public Spending on Justice in Spain

The determination of Public Expenditure on justice in Spain is a difficult task to carry out, among other reasons mainly because of the decentralisation and distribution of the powers of justice in Spain between the Ministry of Justice, the Autonomous Communities and the General Council of the Judiciary.

However, in recent decades an increase in the means and public spending allocated to the management of the administrative organisation of Justice is clearly revealed, with litigation and the consequent average pending rate for the duration of proceedings and enforcement thereof also having increased.

The conclusion is that the cost of justice in Spain is quite inefficient, to which a significant dose of inequity must be added because the budget allocation for the higher courts is not related to the rate of litigation in the spatial sphere of each one of them, consequently revealing large territorial imbalances, unjustified from any point of view whether it be legal, social or economic.

Peace Courts

The increase in litigation in Spain bears a great responsibility for the virtual disappearance of justices of the peace.

In reality, a significant part of this increase in litigation is due to the economic, corporate and professional interests of legal operators, especially lawyers, who irresponsibly induce potential litigants to immerse themselves in conventional or traditional legal proceedings riddled with uncertainties.

“Bring me the papers, we’re going to bankrupt...” is an all too frequent expression made by some lawyers to their clients, when it is most likely that the only party “bankrupted” is the client himself who, to begin with, the lawyer asks for a succulent supply of funds and who too often is not warned of the expected technical and legal difficulties of the proceedings, among which include above all the probable non-enforcement of the judgment, the prolonged temporary duration and its corresponding monetary and psychological cost, plus the social stigmatisation in the event of losing the case.

A rigorous supply of information by the lawyer to the client about the real expectations as regards the proceedings, prior to their initiation, would substantially reduce the number of lawsuits that reach the courts.

The outlook of this situation is related to the aggravation that is a direct result of the fact that Peace Courts have practically disappeared.

Justices of the peace are not legal professionals belonging to the judicial career who have accessed the job through public exams, but are individuals selected by the city council of the municipality in which there is no Court of First Instance, and appointed by the administration chamber of the corresponding Higher Court of Justice for a period of 4 years.

Generally, it has involved older people who enjoyed great prestige in the community, and their powers are regulated in Organic Law 6/1985 and, therefore, together with assisting the other the courts, their influence in the resolution of conflicts was considerable, among which included informing, mediating, advising and even dissuading litigants by informing them of the likely outcome of the proceedings.

According to the General Council of the Judiciary, in 2020 there were 7,700 justices of the peace in Spain who resolved 646,835 cases, but in reality they are already lower in number and have also been losing powers in recent years.

Finally, the Draft Organic Law on Organisational Efficiency of the Public Service of Justice, which modifies Organic Law 6/1985, of July 1, on the Judiciary, for the constitution of the Courts of Instance and the Justice Offices in the municipalities, indicates:

This law undertakes the organisational reform of the Judicial Administration in all its areas, through the creation and constitution of the Instance Courts and the evolution of the Peace Courts into modern Offices of Justice in the municipalities.

In effect, this draft regulation recommends the effective disappearance of the Peace Courts in Spain.

Politicisation of Higher Courts of Justice

In essence, the regulations that govern appointments to positions in the Judiciary in Spain are Organic Law 6/1985, of 1 July, of the Judiciary, Organic Law 2/1979, of 3 October, of the Constitutional Court, and the Spanish Constitution, and as a result thereof all the important positions in our judicial system are filled not as a result of professional criteria, but instead chosen discretionally by the political executive, that is, Parliament (Congress) and the Senate, autonomous community chambers and the General Council of the Judiciary, sometimes in part by Congress. The main function of the General Council is to govern the judges.

On the side of the members of the Public Prosecutor's Office, the appointment of the State Attorney General is the direct responsibility of the Government.

The level of political corruption in Spain is very high compared to the European average, and this is perhaps the most immediate reason why political parties try to control the appointment of members of the higher courts.

The Council of Europe, in a report by GRECO (The Group of Experts against Corruption of the Council of Europe), has in recent years repeatedly urged the Spanish authorities to reform the election system for members of the General Council of the Judiciary (CGPJ).

The 20 members of the Council rely for their election on a reinforced majority of three fifths of the Congress and Senate, and to date there has been no precise agreement between the majority parties, the PSOE and the PP.

The current CGPJ, appointed in 2013, and in office for more than three years (2018), has not been renewed due to the lack of consensus between the PSOE and the PP for its renewal, and this is also transferred to the existence of more than 40 senior positions with discretionary appointment.

Examples of political interference with the judges of the higher courts in Spain are repeated and numerous, with the resultant public scandals being demoralising for citizens and sustaining the negative perception held by Spaniards about Justice, particularly the more enlightened ones.

The best-known cases include those related to mortgage taxes, the case of Catalonia, the *Noos* case, actions by the former King, Juan Carlos de Borbón, the illegal financing of political parties, substitutions of Supreme and Constitutional court judges expressly to address certain cases, among other examples, put on display before Europe some of the most significant weaknesses of Spanish democracy.

A serious error on the part of judges, lawyers and even some legal experts is that they refer to the fact that, despite the poor perception and image held by citizens of the judicial system, every time they have a conflict they go to court as the first way of solving it.

This conception, which is removed from reality and probably the result of corporatist myopia, reduces social conflicts with legal significance to those of public administrations or those of individuals with high economic disposal, with direct relationships with institutions, socially integrated and totally dependent on the legal system. On the contrary, there are a large number of people who, due to their culture and economic conditions, cannot or do not ordinarily resort to the

judicial system for the resolution of their social conflicts, which is expensive and uncertain for them, and instead try to resolve them and indeed do so in most cases through other means, be they legal or not. Of course, there are others who, because they carry out their activity in part in breach of the legislation applicable to them or directly outside the law, do not usually turn to the ordinary courts to resolve conflicts that arise in their economic activity or daily lives.

At least, it appears judges are unaware that for a considerable part of the judicial conflicts that reach the courts the real reason is not the one that is formally presented (theft, prevarication, attacks against free competition, etc.) but others (infidelities, betrayals between members of a political party, discrepancies among company executives, etc.).

More Resources for the Judicial Administration or Implementation of Alternative Systems? (Supply or Demand?)

The problems exhibited and the consequent dissatisfaction in citizens caused by congestion in the courts and the corresponding delay in obtaining definitive resolutions cannot be dealt with exclusively through supply methods directed at the Judicial Administration, particularly through the increase of resources and improvement of its organisation. Without disregarding the possibilities offered by this aspect, the area where today it is possible to identify the greatest room for manoeuvre is on the demand side, that is, in the reduction of the number of users.

Thus, the number of requests for access to the ordinary courts would decrease substantially with the development and establishment of alternative conflict resolution systems, less costly compared to the judicial process, based on different ways of materialising agreements between parties.

Now, the institutional basis from which we start and which is compatible, at least, with the partial results of our research is that ordinary justice has failures that must inexorably be corrected; however, from a global and technical-scientific point of view, despite the name, alternative dispute resolution (ADR) systems, cannot be considered as competitors in the sense of alternatives to the ordinary judicial system. Both, in fact, represent two ways of resolving social conflicts, of doing justice, but in which the observance of the legal guarantees of citizens must ultimately be reserved for the ordinary Judicial System.

In other words, alternative dispute resolution systems can contribute to optimising efficiency in the Judicial Administration by including the mechanism of voluntary agreements between the parties, which is less expensive and quicker than ordinary jurisdiction (Kaplow 1986). However, this must all occur without endangering the equality of all citizens in access to Justice and with the inescapable safeguard of legal certainty, based on the possibility that the voluntary agreement between the parties does not occur, access to ordinary justice is guaranteed.

The increase in conflicts and the choice of the judicial route for their resolution is related to the bureaucratic empire that affects above all the operators of the Judicial Administration, who have a monopolistic involvement in

proceedings, as occurs with judges but also and, above all, with lawyers and *procuradores*.

If the judicial process were endowed with a greater dose of information and transparency towards users, this characteristic would provide them with better knowledge and certainty about the foreseeable result of their conflicts. Under these conditions, the number of requests for access to the courts would decrease substantially. The achievement of this goal could also contribute to the existence of alternative conflict resolution systems, less costly with respect to the judicial process, based on different ways of materialising agreements between parties.

When the Judicial Administration intervenes in the resolution of conflicts, significant costs are incurred, both public and private. As a consequence, from the point of view of the Economic Analysis of Law, it is possible that an improvement in social efficiency may be obtained if there is an alternative dispute resolution system in which the cost of accessing a solution accepted by the parties in dispute is lower than the transaction cost of ordinary justice, including psychosocial and opportunity costs. Logically, this efficiency can only be assumed if the system in question does not fail to attend to a certain consensus based around criteria of equity and legal certainty considered as institutional restrictions.

Comparison of the Degree of Efficiency and Fairness Provided by the Ordinary Judicial Procedure and Consumer Mediation

The full array of dispute resolution methods that can be used for alternative resolution of consumer disputes is quite extensive. It is worth distinguishing between autocompositive (negotiation, mediation and intermediation) and heterocompositive (arbitration and others) solution methods.

Regarding the mediation system, in summary, an impartial third party who is not involved or has no interest in a certain way of resolving the conflict accompanies and helps the parties to reach an agreement. This, however, is not mandatory and, therefore, binding, if the parties do not wish it.

It is usually presided over by transparency and the contribution by the parties of a large number of arguments via what can translate into easy and affordable access to justice, and provide effective help in decongesting ordinary justice.

The economic analysis of the conduct of agents and legal proceedings has been extensively studied by the Economic Analysis of Law and today has reached a high level of development (Kaplow 1986). As the so-called alternative conflict resolution systems have appeared and been put into operation, research has been carried out with the aim of comparing their fundamental elements with the equivalents of the traditional justice system.

My examination focuses particularly on the comparison between the ordinary judicial system and mediation in consumer affairs as main exponents of the different methods of solving social conflicts. As the elements to be compared are very numerous, I focus on some elements that allow me to measure the degree of efficiency and equity achieved in each case. With improvement of efficiency I mean the reduction of costs of all kinds that must be incurred to obtain a resolution

or judgment, including opportunity costs, psychological and social costs and those related to public image.

For its part, in the concept of fairness we include both the meaning of the resolution or judgment, that is, who does it benefit or harm, as well as the distribution of the costs of the procedure used.

In Table 5 we compare various components of the efficiency and equity of the traditional justice system and mediation.

Table 5. Comparison of the Traditional Justice System and Mediation

Efficiency	Courts	Mediation
General	Voluntary/compulsory	Volunteer for both
Bonding	Binding	Binding/ Non-binding
Third party choice	Choice by Law	Volunteer
Flexibility and speed	Standardised Procedure	Greater flexibility and less Speed
Duration	Indeterminate	Shorter duration
Enforcement of the resolution	Last instance (provisional)	Executable
Equity		
Confidentiality/Publicity	Advertising	Confidentiality
Direction of the procedure	Judge	The parties and the mediator
Transaction costs	Elevated	Minor
Transparency	Stairway	Highest
Corruption	High	Minor
Influence of economic power	High	Higher but smaller
Interest of lawyers and others	High	Minor
Degree of compliance with Resolutions	Medium	High degree of compliance
Control of the parts	Medium	High

Source: Own elaboration based on the bibliography and available experiences (2019).

Efficiency

The public costs for a trial involving a small amount of 600 euros are on average 3,000 euros, and 75% of those cases derived by the Judicial Administration to mediation end with an agreement.

The costs or private expenses for the parties to the proceedings of a small claim amount to approximately 2,000 euros, both for plaintiff and defendant.

A civil claim of 300,000 euros supposes, on average, a lawyer's fee up to judgment of 30,000 euros plus costs related to enforcement, those claimed by *procuradores* and those of the experts and other professionals who have been consulted. In the event that the plaintiff wins the lawsuit and gets a judgment on costs, all expenses should be paid by the convicted party, but **what normally occurs is that lawyers fail to return the required provision of funds, with their fees in reality being the costs assessed by the judge plus the provision of funds.**

If the client loses the lawsuit, his or her expenses will amount to payment of his *procurador* fees plus those of the opposing party's *procurador*.

However, if the litigants have resources that do not exceed twice the minimum interprofessional salary in Spain, they can request **free legal aid**. In this case, except for the requirement of clandestine payments, the proceedings will be cost-free, but if they win they will have to pay the lawyer's bill and those of their collaborators, including procurador and experts.

On the other hand, **the monetary costs of involved in mediation** for both parties of a litigation such as the one indicated are close to 1,200 euros⁹. Opportunity and psychological costs of the proceedings, which mainly depend on their duration, are not included here.

For its part, **the real cost for the administration of each mediation claim** is estimated at around 1,600 euros.

In the White Paper on Mediation in Catalonia, a study carried out for this Autonomous Community concludes that if cases of legal proceedings were reduced by 20% within it, its Judicial Administration would save 4 million euros per year its Judicial Administration.

For the purposes of the efficiency of the mediation system, the question of the convenience or not of the costs for both parties is controversial. It seems reasonable that in the case of basic services, the complaining consumer does not pay anything, simply to make the system viable. Faced with an uncertain resolution and probably of little economic importance individually, few consumers would risk initiating the mediation process, if this entails any cost.

On the other hand, for the respondent company, in turn, the added cost of the mediation would be very low (little else apart from fees), because they have already financed these expenses (lawyers, administration, etc.), among other reasons. It would therefore be efficient and fair for them to pay some amount.

The only thing left is to legally solve the possibility of abuse on the part of consumers in mediation claims ("I'm going to discredit you, I'm going to ruin you with lawsuits", etc.).

On the one hand, it must be borne in mind that "equality of arms" does not occur in conflicts in consumer affairs between users considered on an individual basis and those large companies that are responsible for a number of basic services under a monopolistic regime and, on the other hand, it is likely that the company interrupts the supply of a basic service for citizens, meaning that their bargaining power is, in reality, insignificant.

The mediation process is substantially quicker than legal proceedings. This period could be improved even more substantially if online resolution procedures are promoted, developed and implemented using information and communications technology.

Judicial independence is a concept that in all likelihood contributes to the reduction of corruption and, consequently, to high levels of efficiency in the legal and economic systems and, ultimately, to achieving a system of competition and

⁹The cost for the businessperson and consumer of mediation is not zero. The initial fees may be zero but this does not extend to the cost of lawyers, tests, expert reports, investigations, etc. contributed or used as arguments in the mediation process. This matter is, in any event, controversial from the economic point of view. It seems reasonable that in the case of supplying basic services, the complaining consumer not be required to pay anything, simply to make the system viable.

distribution of benefits based on the merits of economic agents and not, on the other hand, on influences.

Systems such as the Spanish one have excluded alternative consumer dispute resolution entities from accreditation where the staff in charge are paid in full by the respondent company. On the other hand, the level of transparency of the accredited entities has also been regulated by the Directive 2013/11/EU and by Spanish law, in such a way that it is contemplated that the consumer may have the possibility of knowing what problems are the most frequent and what would be the probable solution for the demand this raises. In short, the degree of transparency that an alternative resolution entity for consumer disputes can guarantee compared to the judicial system is much greater.

Justice in Spain is very expensive and consequently unequal depending on the level of income of the litigants. In reality, as in other areas of life, there are two kinds of justice, that of the rich and that of the poor.

Large companies, banks, institutions, white-collar criminals, drug traffickers, etc. all hire the best lawyers and as a result, in part, they achieve a high percentage of success in legal proceedings. The going rates for these lawyers are prohibitive for the majority of the population and for this reason people who lack funds, in the event they decide to initiate legal proceedings, are obliged to entrust their affairs to duty lawyers appointed by the state who, with few and obvious exceptions, are not among the most prestigious and experienced.

A Catalan lawyer of great renown in Spain and, especially among social groups, Loperena (2003), with first-hand knowledge of this situation, has masterfully expressed it:

One piece of advice: never go to hospital or court on your own initiative. If you have no other choice - when they take you on a stretcher, handcuffed or the law forces you to go, do so, but never cross their thresholds without having thought it through a thousand times. Because, although it is known where the entrance leads, the exit can lead you to the cemetery or jail. When you read this, many of you will wonder if lawyers who are competent, honest, decent fair and staunch defenders of the weakest still exist. Without wanting to sound corporatist, I can assure you that they do. Of course there are! During the 40 years that I practiced law, I met hundreds.

In reality, the rules do not have thaumaturgical power and it is possible that this suitability of mediation in consumer affairs fails or, at least, its foreseeable positive effects are reduced if the basic rule is not reinforced by adequate and sufficient technical elements and human resources.

There is consensus on the consideration that for the new mediation model to achieve its aims in terms of equity and efficiency of social welfare, it must be supported at least by the following characteristics: transparency, speed, cost-free, flexible, memory, etc. and for this, it is obviously essential that the process be carried out through a computer platform that permits the online resolution of consumer conflicts. The following must be included in the design of this platform:

1. Technologies to support mediation: communication and management tools in order to speed up the procedure.

2. Mediation improvement technologies: combined use of web pages, blogs, wikis and other tools that support the arguments and proposals of the parties.
3. Enabled mediation technologies: that allow the mediation process itself to be structured: forms, information flows, algorithms for crossing standard mediation proposals, etc.

Finally, the great advantage of mediation as a method of conflict resolution, prior to ordinary judicial proceedings, consists both in the willingness of the parties as regards its development and in reaching an agreement, which makes it highly attractive for the parties, who control the development of the procedure at all times.

For this reason, the effectiveness of mediation demands the participation of both parties, but not culmination in agreement.

The convenience of this obligation on the part of the company is exacerbated in basic services monopolies such as water, electricity, communications, etc., and even in the articulation of collective mediations that have an impact on a certain number of consumers.

As mediation is or may be more efficient than the ordinary justice system, from the point of view of collective or social interest, participation in it should be mandatory, but as it presents or may present equity problems, in order to save it, the possibility of judicial proceedings must always remain open.

If the agreement does not arise, any steps carried out by the mediator must be transferred to the ordinary courts both to seek savings in public judicial costs and to know the attitude and arguments of the parties.

Equity

The equity of ordinary judicial proceedings is one of the deficiencies pointed out by both experts and users. In this case, both the management of the proceedings, “equality of arms”, and the result of the enforceable resolution depend largely on the economic capacity of the parties.¹⁰

One of the main causes of inequity in the ordinary judicial system is public corruption. In this sense, judicial independence is an essential requirement for reducing this element and, consequently, for maintaining a high level of efficiency in both the judicial and economic systems, which would contribute to achieving a structure of competition and distribution of benefits based on the merits of economic agents and not, on the other hand, on their economic or political influences (equity).

¹⁰On the other hand, for the respondent company, in its case, the added cost of the mediation would be very low (fees and little else), among other reasons, because it has already financed these expenses (lawyers, administration, etc.). Therefore, it is efficient and fair that they pay something. The only thing left to do is legally solve the possibility of abuse by consumers in mediation claims (“I’m going to discredit you, I’m going to ruin you with lawsuits”, etc.).

Although independence and transparency of the judicial system are not homonymous, it is true that an essential requirement for the former is a transparent system. In fact, a good part of the indicators on corruption in the different countries were not obtained by evaluating the sentences and other judicial resolutions, since it is obvious that “not all of what they are and not all of those who are are”, but through transparency in the activities of administrations, among the most important the Index of International Transparency.

However, the mediation procedure, in all the hypotheses of assumption of charges, is the most equitable, insofar as although “the inequality of arms” persists, neither party is obliged to finalise the proceedings nor, therefore, to accept the resolution proposed by the mediator, if it considers it unfair¹¹. On the other hand, “unequal arms” can also be mitigated by the intervention of an equitable mediator, who does not have an interest in the stamp of the resolution of the conflict.

Summary and Conclusions

Those entities, organisations and companies that have carried out mediation tasks in Spain in conflicts in relations between companies and consumers in recent decades, both on their own initiative and due to legal requirements, are very numerous and the proceedings are diverse. The simple task of their systematisation constitutes a pending assignment for research, and an enormous quantity of resources is required to carry it out.

The new European Union framework for the alternative online resolution of consumer disputes is in accordance with Directive 2013/11/EU of May 21, 2013, regarding the alternative resolution of consumer disputes and Regulation 524/2013/EU, of May 21, on online resolution of consumer disputes. This regulatory framework is that which has been transposed into the Spanish system through Law 7/2017, of 2 November and as a whole, of course, it supposes a new institutional base upon which mediation activities in disputes that arise in consumer activities are going to be developed from this moment onwards.

Various public and private institutions have been pointing out in recent decades the deficiencies of the Judicial Administration in Spain and have likewise made proposals for reform, although alternative dispute resolution systems (ADR) cannot from a global and technical-scientific perspective emerge as substitutes in the sense of alternatives to the ordinary judicial system.

Access to Justice for all citizens is a fundamental right enshrined in article 6 of the European Convention for the Protection of Human Rights and Fundamental Freedoms that has been transferred to Community Law by article 47 of the Charter of Fundamental Rights of the European Union and, on the other hand, the Spanish

¹¹If we start from the basis that mediation is or can be more efficient than the ordinary justice system, from the point of view of collective or social interest, participation therein and acceptance of the mediator’s resolution should be mandatory, but as it presents or can present problems of fairness, with the purpose of saving it, the possibility of judicial proceedings must always remain open. In an attempt to also reduce costs (efficiency), there should be an effort to incorporate what was carried out and demonstrated in the failed mediation into the judicial proceedings.

Constitution in article 117.3 attributes exclusively to the Judiciary the power to “judge and enforce what is judged”, that is, citizens have the right to resort to the courts in the exercise of their legitimate rights and interests.

Nevertheless, the concept of legal guardianship is broader than the strict legal guardianship that corresponds to the courts. There may be other ways of resolving conflicts that are more appropriate in certain contexts or for particular cases than judicial proceedings.

Both, in reality, represent two ways of resolving social conflicts, of doing justice, but in which the observance of the legal guarantees of citizens must be reserved for the Judicial System. Therefore, ADRs are not substitute mechanisms in the sense of excluding, or alternative in the strict sense; rather, they are complementary, opening up the possibility for companies and consumers to use extrajudicial means that are more agile and less costly than the ordinary judicial process for putting an end to their litigation and claims.

The pioneering interpretations of Coase collected today by the Economic Analysis of Law and applied to the Judicial System postulate, as a general approach, that the resolution of a conflict based on criteria of efficiency and equity can be carried out, after establishing the rights of property, through a simple direct negotiation between the affected parties,

This intervention of a third party (arbitrator, mediator, friend, etc.), has to be developed under the condition of economic rationality, that is, that the cost of accessing the resolution of the conflict through the intervention of these agents be lower than the transaction cost of ordinary justice and, from here:

Mediation in consumer activities presents, in relation to the traditional justice system, a series of elements that recommend its use, since they can collaborate in the improvement and efficiency of the management of Justice in Spain and, therefore, in increasing the well-being of the majority of the population. We are referring, above all, to lower public and private costs, shorter duration, greater transparency and, therefore, improved predictability in conflict resolution and, furthermore, these advantages will increase with the incorporation of digital platforms to the management of these procedures.

We believe that the advantages in terms of efficiency and fairness that consumer mediation presents as a way of resolving consumer conflicts have been successfully demonstrated.

However, the rules do not have thaumaturgical power and it is possible that this suitability of mediation in consumer affairs fails or, at least, its foreseeable positive effects are reduced if the basic rule is not followed by both technical elements and human resources, adequate and sufficient for its development, management, control and, where appropriate, sanction.

There is consensus on the consideration that for the new mediation model to achieve its aims in terms of equity and efficiency of social welfare, it must be supported, at least, by the following characteristics: transparent, fast, free, flexible, with memory, etc. and for this, it is obviously essential that the process be carried out through a computer platform that allows online resolution of consumer conflicts.

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Evaluation of Productivity in the Canadian Copyright-based Industries

*By Rashid Nikzad**

Copyright industries are an important part of the economy, accounting for five to over ten percent of the GDP of certain economies. Studies suggest that the copyright sector has grown faster than the entire economy in most countries. However, the author's earlier study found that Canada's core copyright-based industries accounted for a smaller share of the economy when compared to those industries in the United States and Europe. This paper examines the factors behind the slower growth of copyright-based industries in Canada. In particular, the paper estimates the growth of the main economic indicators of the core copyright-based industries of Canada and compares them with those of the rest of the economy and with those of the copyright-based industries in the United States. The study also explores the impacts of factors such as exports, foreign direct investment, and information and communication technologies on the productivity of the copyright-based industries. Generalized Method of Moments (GMM) and System GMM methods are used to estimate the models. The study suggests that there is a significant gap between Canada and the United States in terms of value added, employment, investment, and labor productivity growth of core copyright-based industries.

Keywords: *copyright industries, productivity, economic growth, Canada*

Introduction

Copyright is a type of the intellectual property rights. It applies to “every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression” (WIPO 2015, p. 22). The economic justification for copyright is the possibility of market failure and sub-optimal production of copyrighted goods because these goods are both non-rival and non-excludable. The copyright sector is a growing part of the service sector and accounts for five to over ten percent of the gross domestic product (GDP) of advanced economies (WIPO 2015). There has been significant interest in the economics of copyright in the past few years, driven by factors such as the shift to the service economy; adoption of the internet, digital production and distribution; and better understanding of the value attached to intangible assets (PwC 2010, USPTO 2012; OHIM and EPO 2013, WIPO 2015).

Moreover, while literature suggests that the increase in productivity is the main driver of economic growth in advanced economies (OECD 2019), studies show a significant productivity gap between Canada and the United States (OECD

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2012, Baldwin et al. 2014a). Considering that the service sector, including the copyright-based industries, now accounts for about 70 percent of the GDP of advanced economies, understanding the factors behind productivity, growth, and income distribution of the service sector is of paramount importance. However, despite the importance of the service sector in the economy, most studies on productivity and innovation are focused on the manufacturing sector.

Nikzad and Solomon (2019) estimate the values added and employment of the core copyright-based industries of Canada. This study extends Nikzad and Solomon (2019) on three fronts. First, it estimates the growth of the economic indicators of the core copyright-based industries of Canada for 2006-2019. Second, it compares these indicators with those of the United States. Third, it proposes an empirical model to explain the factors behind the productivity gap between the Canadian copyright-based industries and those of the United States. The study suggests that there is a significant gap between the value added, employment, investment, and labor productivity growth of the core copyright-based industries of Canada and those of the United States.

The structure of the paper is as follows. The next section explains the economic indicators of the core copyright-based industries in Canada. The section also compares Canada's copyright industries with those of the United States. The following Section develops a model that can be used to empirically test the factors that may affect the labor productivity of copyright industries. The last section concludes.

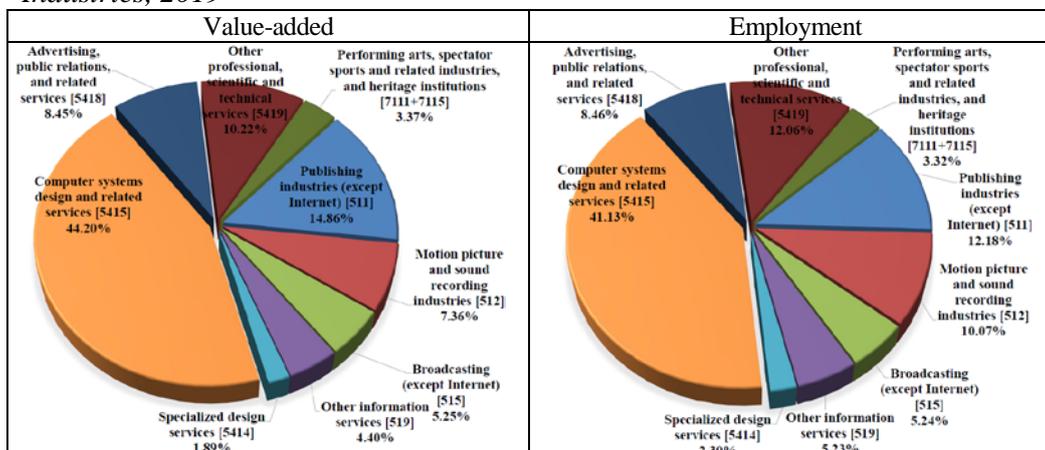
The Value of the Core Copyright-Based Industries in Canada

This paper uses the United States Patent and Trademark Office's 2012 study (USPTO 2012) to identify the core copyright-based industries in Canada. USPTO (2012) is a revised version of WIPO (2003), which was published by the World Intellectual Property Office to define the copyright-based industries. To define the "core" copyright-based industries, USPTO (2012) focuses on the subset of copyright-based industries that are primarily responsible for the "creation" or "production" of copyrighted materials. USPTO (2012) was later used by the "Office for Harmonization in the Internal Market" and the "European Patent Office" (OHIM-EPO 2013) and Nikzad and Solomon (2019) to conduct similar studies for Europe and Canada.

USPTO (2012) identifies 13 industries at the 4-digit North American Industry Classification System (NAICS) level as the core copyright-based industries (Table 1). Figure 1 shows the shares of the value-added and employment of these industries in Canada in 2019.

Table 1. *Core Copyright-Based Industries*

No	NAICS	Industry
1	5111	Newspaper, periodical, book, and directory publishers
2	5112	Software publishers
3	5121	Motion picture and video industries
4	5122	Sound recording industries
5	5151	Radio and television broadcasting
6	5152	Cable and other subscription programming
7	5191	Other information services (news syndicates and internet sites)
8	5414	Specialized design services (visual and graphic arts)
9	5415	Computer systems design and related services (software and databases)
10	5418	Advertising, public relations, and related services
11	5419	Other professional, scientific, and technical services (photography and translation)
12	7111	Performing art companies
13	7115	Independent artists, writers, and performers

Figure 1. *Value-Added and Employment Shares of the Core Copyright-based Industries, 2019*

Source: Author's calculation based on Statistics Canada's data.

The variables of interest for this study include value-added, employment, investment, labor productivity, and total factor productivity (TFP). Value-added, employment, and physical investment are extracted from Statistics Canada's CANSIM Table 379-0031, Table 281-0024, and Table 029-0046. The value added is in 2012 chained price. Physical investment is made constant by dividing the investment's current values by the GDP deflator. Labor productivity is calculated by dividing value added by labor. Consistent with Mohnen and Hall (2013) and Baldwin and Gu (2013), the TFP is estimated by dividing value added by the contributions of labor and capital.

Table 2. Growth of the Economic Indicators of the Copyright-based Industries in Canada from 2006 to 2019

Growth (%)	Value added	Labor	Physical investment ²	Labor productivity	TFP ³
Publishing industries (except Internet) [511]	6.20	-10.75	4.50	18.99	7.14
Motion picture and sound recording industries [512]	40.59	102.20	21.87	-30.47	-19.45
Broadcasting (except Internet) [515]	-6.42	-18.02	-16.42	14.14	18.52
Other information services [519]	81.32	18.28	558.91	53.29	-8.16
Specialized design services [5414]	-38.09	2.41	40.76	-39.55	-53.76
Computer systems design and related services [5415]	78.83	72.77	70.04	3.50	7.39
Advertising and related services [5418]	32.99	28.60	42.45	3.41	-7.76
Other professional, scientific and technical services [5419]	13.95	17.18	92.15	-2.76	-16.44
Performing arts, spectator sports and related industries, and heritage institutions [71A] ¹	21.20	31.24	NA ⁴	-7.65	NA
Core copyright-based industries ¹	35.63	32.79	NA	2.14	NA
Core copyright-based industries, excluding NAICS 71A ¹	37.35	33.59	39.98	2.81	3.60
All Industries	25.55	18.78	3.79	5.70	6.32

Source: Author's calculation based on Statistics Canada's data.

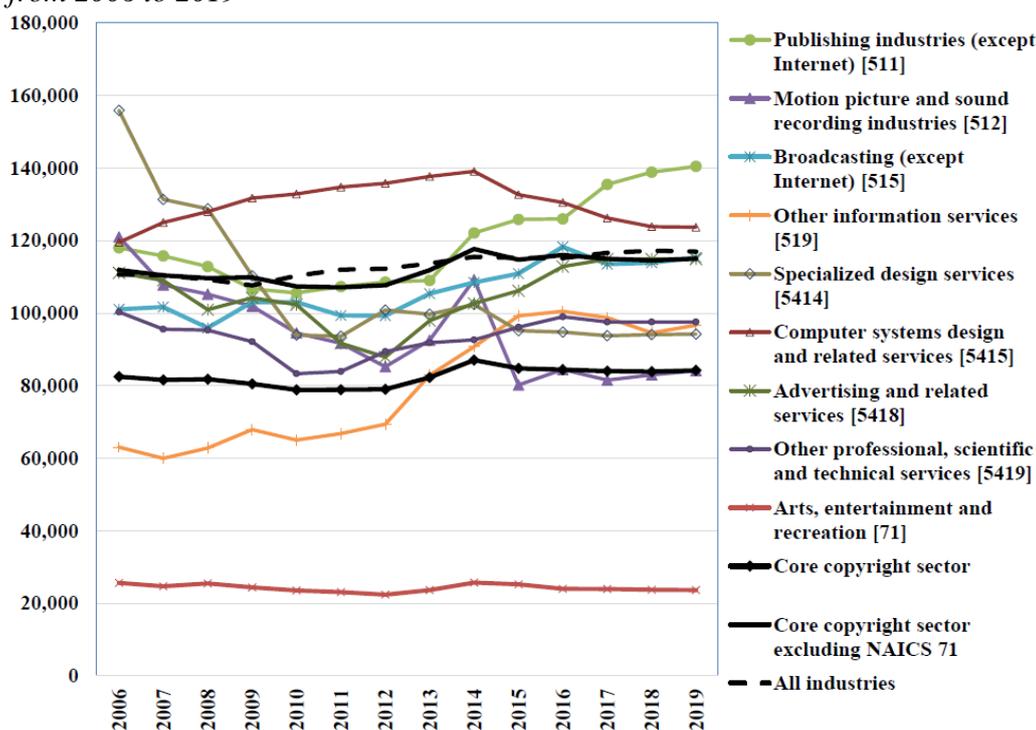
¹Note that Statistics Canada does not publish the value added and investment of NAICS 7111 and 7115. Instead, it publishes NAICS 71A, which includes both copyright industries (NAICS 7111 and 7115) and non-copyright industries (NAICS 711 and 712). This paper uses NAICS 71A as a proxy for NAICS 7111 and 7115. The estimates for the core copyright-based industries are reported with and without NAICS 71A.

²Physical investment is probably not a good measure for investment and assets in the copyright sector. The reason is that intangible assets and investment in intangible asset constitute an important part of assets in the copyright sector. These assets are not captured by physical investment.

³TFP is defined as $TFP = \text{Value Added} / \text{Labour}^{0.7} * \text{Capital}^{0.3}$, assuming constant shares of labour and capital equal to 70% and 30%. Besides this strong assumption, the lack of data about the intangible assets in the copyright sector makes the calculated TFP less reliable.

⁴NA: Data not publicly available.

Table 2 presents the growth of the economic indicators of the copyright-based industries from 2006 to 2019. Some industries are combined due to data limitation. Table 2 suggests that “Computer systems design and related services” (NAICS 5415), “Other information services” (NAICS 519), and “Motion picture and sound recording industries” (NAICS 512) had the highest economic growth measured by value added and labor in 2006-2019. However, with the exception of the labor productivity of “Other information services” (NAICS 519), the productivity measures of the other industries did not grow much or declined. “Specialized design services” (NAICS 5414) shows a significant drop in value added, labor productivity and TFP in this period. Table 2 also shows that while value added, labor, and physical investment of the entire core copyright-based industries grew faster than those of the entire economy in 2006-2019, its productivity indicators grew more slowly.

Figure 2. Trend of Labor Productivity in the Canadian Copyright-based Industries from 2006 to 2019

Source: Author's calculation based on Statistics Canada's data.

Also, as Figure 2 shows, the labor productivity of the core copyright-based industries is below that of the entire economy. This difference becomes negligible if NAICS 71A is excluded from the core copyright-based industries. Note that Nikzad and Solomon (2019) had found that the value added of the core-copyright based industries grew more slowly (30%) than the entire economy (31%) in 2001-2015. An explanation for that finding of Nikzad and Solomon (2019) was that the core-copyright based industries were more susceptible to the impact of the 2008 economic recession than the entire economy.

Moreover, Nikzad and Solomon (2019) show that while the core copyright-based industries employed a similar share of employees in Canada, the United States and the European Union in 2010, these industries had a relatively smaller contribution to Canada's GDP (Table 3). This result implies a lower labor productivity of the core copyright-based industries of Canada than those of the United States and Europe. This study expands on this finding by comparing the economic indicators of Canada's core copyright-based industries with those of the United States.

Table 3. Shares of the Core Copyright-Based Industries, 2010

	Share of GDP	Share of Employment
Canada	3.0%	3.4%
United States	4.4%	3.5%
European Union	4.2%	3.2%

Table 4 presents the growth of the economic indicators of U.S. copyright-based industries from 2006 to 2019. Unlike Canada, all core copyright-based industries of the United States for which data is available show a significant increase in value added and labor productivity. Also, the growth of the labor productivity of the core copyright-based industries of the United States in 2006-2019 is higher than that of the United States' economy and those of Canada.

Table 4. *Growth of Economic Indicators of Copyright-based Industries in the United States from 2006 to 2019*

Growth (%)	Value added	Labor	Physical investment ¹	Labor productivity
Publishing industries (except Internet) [511]	91.44	-15.25	94.83	125.88
Motion picture and sound recording industries [512]	44.47	16.53	38.39	23.98
Broadcasting (except Internet) [515]	66.23	-18.70	45.55	104.47
Other information services [519]	483.18	178.81	593.72	109.17
Specialized design services [5414]	NA ³	4.22	NA	NA
Computer systems design and related services [5415]	200.89	70.02	62.60	76.98
Advertising and related services [5418]	18.43	6.35	NA	11.36
Other professional, scientific and technical services [5419]	NA	37.17	NA	NA
Performing arts, spectator sports, museums, and related activities [711AS] ²	42.96	30.21	25.46	9.79
Core copyright-based industries (available industries)	108.44	29.41	69.35	61.07
Core copyright-based industries (available industries), excluding NAICS 711AS	118.88	29.34	73.23	69.23
All industries	24.47	10.61	20.19	12.54

Source: Author's calculation based on data from U.S. Bureau of Economic Analysis and Bureau of Labor Statistics.

¹Physical investment growth is proxied by changes in the net stock of private fixed assets. Due to the lack of data for this variable, "Broadcasting (except Internet) [515]" and "Other information services [519]" are proxied by "broadcasting and telecommunications [515, 517]" and "information and data processing services [518, 519]".

²The closest data publicly available to represent the economic variables related to the copyright industries NAICS 7111 and 7115 is NAICS 711AS. However, the scope of this industry is not the same across all variables.

³NA: Data not publicly available.

⁴TFP was not calculated because most industries do not have publicly available data for physical capital.

Possible explanations for the lower growth of the core copyright-based industries of Canada compared to those of the United States are as follows. First, various studies suggest that Canadian labour productivity and TFP lag those of the United States (McFetridge 2008, Council of Canadian Academies 2009, Lynch and Sheikh 2011, OECD 2012, Science, Technology and Innovation Council 2015). Copyright based industries may suffer from the same issue as the rest of the economy. Also, it is possible that industries that are classified under the same NAICS in Canada and the United States include different activities with different

capital and labor intensities. For example, the difference between Canada and the United States in the labor productivity growth of an industry like “Motion picture and sound recording industries” may be attributed to different types of activities that are classified under the same NAICS 512, while the activities in Canada are more labor intensive and the activities in the United States are more Capital intensive.

Second, some studies suggest that Canadian businesses spend less on the information and communication technology (ICT) than US businesses, and that when they spend on the ICT, the quality of their ICT investment is lower than that of US businesses. There are also studies that suggest that this ICT gap is one of the factors behind the Canada-US productivity gap (Gera and Gu 2004, Acharya 2014, Baldwin et al. 2014b). ICT could be an important contributor to the success of the copyright sector. Third, it could be possible that the investment in and value added of the copyright sector are not fully captured in statistics. It should be noted that an important part of investment and output of this sector is intangible. Fourth, the productivity gap could be the result of different copyright policies in the two countries that affect the investment and growth of the copyright sector.

The next section develops an empirical model to examine some of the factors behind the difference in the labor productivity of the copyright-based industries of the two countries.

Analysis of Labor Productivity

The Model

The paper assumes that the production (value added, Y) of the core copyright-based industries is a function of labor (L), capital (K), exports (Exp), foreign direct investment (FDI), and ICT expenditures (ICT). All of these variables are expected to have a positive effect on production:

$$Y = L^\alpha K^\beta Exp^\mu FDI^\gamma ICT^\eta \quad (\text{Equation 1})$$

At the next step, labor productivity (LP) is defined by dividing production on labor:

$$LP = Y/L = L^{\alpha-1} K^\beta Exp^\mu FDI^\gamma ICT^\eta \quad (\text{Equation 2})$$

After taking the logarithm, Equation 2 is transformed to the following model to estimate the effect of the variables of interest on the labor productivity of the core copyright-based industries:

$$\log LP_{i,t}^{CA} = \theta_i + \theta_t + \lambda \log L_{i,t}^{CA} + \beta \log K_{i,t}^{CA} + \mu \log Exp_{i,t}^{CA} + \gamma \log FDI_{i,t}^{CA} + \eta \log ICT_{i,t}^{CA} + \varepsilon_{i,t} \quad (\text{Equation 3})$$

where i and t stand for industry and year, CA stands for Canada, θ_i and θ_t indicate industry and time dummies, λ equals $\alpha-1$, and ε is the error term. Equation 3 is the first model to estimate. Literature also suggests that research and development (R&D) expenditures is an indicator of knowledge accumulation that can increase productivity. However, this variable is not considered in the model for two reasons. First, there are not much disaggregated data about the R&D expenditures of the copyright sector. Second, it is not clear in literature what constitutes R&D expenditures in the copyright sector and its relationship with output.

The second model examines whether the difference between the labor productivity of Canada and that of the United States can be explained by the differences in labor, capital, exports, FDI, and ICT expenditures of the two countries. Starting with Equation 2, the difference between the labor productivity of the two countries can be modeled as follows where US stands for the United States:

$$\frac{LP^{CA}}{LP^{US}} = \frac{(L^{CA})^{\alpha-1} (K^{CA})^{\beta} (Exp^{CA})^{\mu} (FDI^{CA})^{\gamma} (ICT^{CA})^{\eta}}{(L^{US})^{\alpha-1} (K^{US})^{\beta} (Exp^{US})^{\mu} (FDI^{US})^{\gamma} (ICT^{US})^{\eta}}$$

(Equation 4)

After taking the logarithm, Equation 4 is transformed to the following model (Equation 5). Industry and time dummies are added as in Equation 3:

$$\begin{aligned} \Delta \log LP &= \log(LP_{i,t}^{CA}) - \log(LP_{i,t}^{US}) \\ &= \theta_i + \theta_t + \lambda(\log L_{i,t}^{CA} - \log L_{i,t}^{US}) + \beta(\log K_{i,t}^{CA} - \log K_{i,t}^{US}) \\ &\quad + \mu(\log Exp_{i,t}^{CA} - \log Exp_{i,t}^{US}) \\ &\quad + \gamma(\log FDI_{i,t}^{CA} - \log FDI_{i,t}^{US}) \\ &\quad + \eta(\log ICT_{i,t}^{CA} - \log ICT_{i,t}^{US}) + \varepsilon_{i,t} \end{aligned}$$

(Equation 5)

Equation 5 is the second model to estimate. The advantage of this model is that it controls for unobserved factors that can affect the productivity of the copyright-based industries. It should be noted that Equations 4 and 5 assume that the copyright industries of Canada and the United States can be modeled by the same production function. Under this assumption, the difference in the labor productivity of the two countries is attributed to the differences in labor, capital, exports, FDI, and ICT expenditures of the copyright sector of the two countries.

Empirical Results

Equations 3 and 5 are the main equations to estimate. There are significant data issues with both models. First, exports, FDI, and ICT expenditures of the core copyright-based industries are not publicly available at the 3 and 4 digit-level NAICS for Canada. To run Equation 3, the logarithms of exports and FDI of the core copyright-based industries are proxied by the exports and FDI intensities of the industries represented by NAICS 51 and 54 for their respective sub-industries.

More specifically, the exports are proxied by the intensity of the receipts of copyrights and related rights of “Information, culture and arts” (NAICS 51 and 71) and “Professional, scientific and technical services” (NAICS 54) (Statistics Canada’s CANSIM Table 376-0109). The logarithm of the ICT expenditures is proxied by the ICT production intensity of the service sector. Intensity is defined by the share of the variable in GDP. It should be noted that while these variables are the closest publicly available data to the core copyright-based industries, they may not reflect the behavior of the copyright industries correctly.

Second, this study uses physical investment to calculate capital. There is a large body of literature that shows companies invest in intangible assets as much as in tangible and physical assets, and that investment in intangible assets may not be captured correctly by statistical agencies. This problem is probably more profound in the copyright sector that relies significantly on intangible assets.

Table 5 presents the econometric results of Equation 3. The estimations include a panel (longitudinal data) of eight copyright-based industries from 2007 to 2017. The generalized method of moments (GMM) and system GMM are used to estimate the model. Both methods are designed for situations with few time periods and many individuals, independent variables that are not strictly exogenous and may be correlated with past and current error terms, fixed effects, and heteroskedasticity and autocorrelation within individuals. The GMM, also called difference GMM, attempts to remove the potential source of omitted variable bias in estimation by first-differencing the equation. System GMM is an augmented version of GMM that includes both the levels and the first difference equations to improve the use of lagged and differenced variables as instruments. The advantage of using the GMM estimator is that it addresses the endogeneity problem of the variables and the possible unit roots issue. Roodman (2009) explains the applications and differences between these two estimators.

Table 5. *Determinants of the Labor Productivity of the Copyright-based Industries, Canada*

Labor productivity (log)	GMM	System GMM
Labor (log)	-0.366 ^d	-0.354 ^d
	(0.226)	(0.226)
Capital (log)	0.192 ^a	0.194 ^a
	(0.062)	(0.061)
Exports intensity	509.882 ^c	510.861 ^c
	(300.243)	(297.968)
FDI intensity	-12.150	-12.237
	(12.305)	(12.256)
ICT intensity	-14.908	-18.175
	(24.251)	(20.809)
Constant		12.266 ^a
		(1.872)
Observations	80	88

Eight copyright-based industries from 2007 to 2017 (NAICS 71A excluded). Standard errors in parentheses. a: $p < 0.01$, b: $p < 0.05$, c: $p < 0.1$, d: $p < 0.15$. The estimations assume labor, value added, trade, FDI and ICT expenditures are endogenous.

In this study, estimations are done using the `xtabond2` command of Stata. It should be noted that since the time dimension is small (trade data are available only from 2007 to 2017), the system GMM results are more reliable. The coefficients of labor and capital in Table 5 are consistent with the literature, but slightly lower for capital. According to this results, exports intensity of copyright-based industries had a positive and statistically significant impact on the labor productivity of the copyright sector.

Table 6 presents the econometric results of Equation 5. The estimations are based on a panel of eight copyright-based industries from 2008 to 2017. Besides the data issues that explained above, Equation 5 suffers from an additional issue: the investments of many of the core copyright-based industries of the United States are not publicly available. As indicated in Table 4, the closest available data was used to for the physical capital of the industries. For this reason, the estimations are presented with and without capital. Exports and FDI of the copyright-based industries of the United States are proxied by the exports and FDI of “information” (NAICS 51) and “professional, scientific, and technical services” (NAICS 54) industries for their respective sub-industries.

Table 6 suggests that the difference in capital and FDI intensity, and to some extent in labor, exports intensity, and ICT intensity, could explain the difference in the labor productivity of the core copyright-based industries of Canada and the United States.

Table 6. *Determinants of the Difference between the Labor Productivity of Copyright Industries between Canada and the United States*

Difference in labor productivity	GMM 1	GMM 2	System GMM 1	System GMM 2
Difference in labor	-0.100 (0.079)	-0.240 ^b (0.113)	-0.152 (0.114)	-0.164 (0.111)
Difference in capital	0.169 ^a (0.049)		0.134 ^b (0.062)	
Difference in exports intensity	-0.003 (0.057)	0.124 (0.105)	0.053 ^b (0.022)	-0.043 (0.070)
Difference in FDI intensity	0.162 ^b (0.067)	-0.015 (0.125)	0.072 ^c (0.042)	0.159 ^b (0.077)
Difference in ICT intensity	0.351 (0.371)	1.184 ^c (0.714)	0.258 (0.616)	0.350 (0.565)
Constant			0.570 (1.710)	-0.222 (1.841)
Observations	39	42	46	52

Copyright-based industries from 2008 to 2017 when data available, excluding NAICS 711AS. Standard errors in parentheses. a: $p < 0.01$, b: $p < 0.05$, c: $p < 0.1$, d: $p < 0.15$. The estimations assume labor, value added, trade, FDI and ICT expenditures are endogenous.

Conclusion

The objective of the paper was to compare the economic variables of the core copyright-based industries of Canada with those of the United States and develop a model to explain the factors behind the productivity gap between Canada and the United States in these industries. This question deserves attention considering that the service sector is by far the largest sector of the economy and that the copyright sector is a fast-growing sector of the service sector in many countries (WIPO 2015, Nikzad and Solomon 2019).

The paper suggests that there is a significant gap between the value added, employment, and labor productivity growth of the core copyright-based industries of Canada and those of the United States. The study proposes an empirical framework to better understand the factors behind this gap. The empirical findings suggest that the exports intensity of the copyrighted products has a positive impact on the labor productivity of the copyright-based industries, and that the differences in the exports, ICT, and FDI intensities of the copyright-based industries of Canada and the United States could explain their gap in labor productivity. However, the results of the empirical models should be interpreted with caution due to data issues.

In particular, there are two data specific issues. First, disaggregated industry data at the 4-digit NAICS are not publicly available for some Canadian copyright-based industries and for many U.S. copyright-based industries. This issue can be resolved by accessing available, but non-public disaggregated data. Second, the study used physical investment to measure investment and capital in the copyright-based industries. However, a large part of investment in copyright-based industries probably consists of intangible assets, and that it is possible that intangible assets and value-added are not reflected correctly in industry statistics. This issue can be resolved in the future as statistical agencies try to better capture the value of intangible assets.

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Virtue Ethics and Ubuntu in Leadership towards the Promotion of Ethical Organisational Operations

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The objective of the conceptual literature study is to assess virtue ethics as a viable ethical leadership theory in African countries, more explicitly South Africa. We pinpoint some deficits in ethical leadership, which could be addressed through adopting a virtue ethics driven ethical organisational climate in order to positively enhance business practices and service to the community and society in general. This paper supports the notion of virtue ethics as being the suitable one for the purpose of motivating an ethical climate which leads to sustainable business. Leaders need to assume core responsibility for promoting ethics and should reinforce the notion of morally correct behaviour at all times through their demonstrable ethical conduct. This necessitates that leaders' must exhibit virtue and possess particular qualities and know how to apply these to workplace situations. Virtue ethics as one of numerous ethical theories, certainly has a role to play in the contemporary discourse in which corruption is rife. In addition, it aligns in many ways with the notion of Ubuntu. We argue that ethical leadership behaviour based on virtue and an Ubuntu spirit, is critical in supporting an ethical climate in any organisation and it promotes sustainability. The study employed an interpretivistic expository methodology of textual analysis based on extant literature. Thus, it is to an extent hermeneutic in nature and leads to insights supporting the notion of using Virtue ethics and Ubuntu to inform practice in African organisations and society.

Keywords: *virtue ethics, Africa, organisations, Ubuntu, sustainability*

Introduction

The purpose of the research conducted in this literature study was to consider the value of virtue ethics as postulated by Aristotle, in the context of efficient business leadership, sound stakeholder relationships and developing a desirable positive ethical climate in which African employees at all levels of organisational hierarchy can operate effectively. Obtaining excellence in the desired virtues is often a life-long task and it is developed over time. Virtue ethics is considered to be an important theory which promotes effective and efficient leadership since an efficacious leader is for the most part an ethical and an effective leader (Nicolaides 2019). Irrespective of the type or size of organisation that one leads, a leader is a critical role player (Ciulla 2004), and should also be a role model in driving the ethical climate the organisation.

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A leader that has ideal character traits has these based on natural internal propensities, but still needs to nurture them so that they become established (Yukl 2013, Nicolaides and Duho 2019). Virtue can be either moral or intellectual, but one should strive for a middle path of obtaining the 'golden mean'. Every organisational environment needs to embrace open and honest communication and especially that relating to ethical issues (Duho and Nicolaides 2015). Where there are ethical lapses and misdemeanours, those responsible must be held accountable and wrongs should be redressed. Virtue ethics is needed in all spheres in the gamut of all African business, where one is called to be of service to others in society.

Key sections of the paper that follow include a brief discussion on Aristotle's virtue ethics; what ethical leadership ought to entail; the issue of organisational culture; Ubuntu culture and its importance in organisational advance; the links between Ubuntu and Virtue Ethics; followed finally by recommendations and conclusions.

Literature Review

Aristotelian Virtue Ethics

The Aristotelian notion of virtue ethics is a significant one when it comes to tackling a plethora of ethical issues in the world of business. Aristotle (384-322 BCE) in his *Nicomachean Ethics* maintained that virtuous and morally upright character allows one to wisely assess situations encountered and to thus apply rules to meet the challenges posed while best serving the common interest of society (Aristotle 2014). Applying virtuous actions leads to the achievement of good societal values which are necessary for effective and apposite relationships between individuals and others as well as between organisations and their wide range of stakeholders. Younkings asserts that one's situation in business is strengthened when virtue ethics is embedded in the organisational DNA since virtuous principles, strategies, and actions will for the most part result in an organisation realizing its values including its mission, purpose, profit potential, and additional objectives (Younkings 2012). The virtues are qualities, which are instrumental and also have intrinsic value most of which are moral based.

Aristotle proposes that all actions should seek to add some value so that the purpose of anything must be to do good and there are numerous things that are good. People need to seek to conduct themselves well as they are driven by their moral values, but this is not always an easy task. However, virtue grows through the habitual practice of seeking to do good all the time and thus striving for excellence as a moral being (Aristotle 2014). The objective of virtue ethics is to realize happiness (*eudaimonia*) or a state of completeness and fulfilment. Leaders need to adopt the cardinal virtues of justice, courage, *phronesis* (practical wisdom) and restraint which are critical in arriving at *eudaimonia*. Organisational success and personal flourishing result where a human being lives well and does well as a matter of course (Whetstone 2001). *Eudaimonia* is the primary and definitive good

which is desirable for its own sake and not for the sake of anything else (Aristotle 2014).

To Aristotle virtue is thus a state of character which makes a person good and drives him or her to work fittingly. In the pursuit of virtue either intellectually or from a moral vantage point one should seek out through reason, sharpened by education the 'golden mean' or 'the middle way' mentioned earlier so that an excess or deficiency are not desirable in any sense. The cultivation of an excellent character or *arete* makes one inclined to always do the right thing and in a suitable manner. Virtue ethics proposes that what is considered to be the right or wrong thing to do should be grounded on what a 'virtuous agent' would do in any given set of circumstances (Oakley 1996).

The desirable character traits of a person said to be virtuous would include *inter-alia*, integrity, compassion, temperance, empathy, friendship, uprightness, courage, kind-heartedness, resilience and generosity. A non-virtuous person would have vices and traits such as *inter-alia*, selfishness, covetousness, manipulation, arrogance, abusive behaviour, exploitation, deceitfulness, malice, and thievery (Timmons 2002, Tanner et al 2010, De Hoogh and Den Hartog 2008).

Yukl et al. claim that the germane principles of ethical leadership include honesty and integrity with consistent behaviour based on espoused values; behaviour which constantly communicates and enforces ethical standards; impartiality in decision-making and in the distribution of any rewards; kindness, compassion, and concern for the needs and feelings of others (Yukl 2013). The world of business is volatile, complex, ambiguous and uncertain and workplaces should allow one to develop humanity through opportunity and training to use one's reason (Reynolds et al. 2020). It is for this reason that we require values and ideals to guide us in our daily activities (Sakellariou 2015). The virtues that we require are necessary for living a happy life and doing it well and therefore a life of virtue is important. People select their virtues and act on them, thus making them good habits. A morally sensitive person also has integrity and the courage of their convictions guide them to have a conscience and display genuine care for other human beings and carefully consider their feelings and human rights. The virtues can be rationally demonstrated since they are good for people and mankind in general and they need to a good life (Gini and Marcoux 2012).

In South Africa there has been a huge increase in unethical conduct by employees of at all levels of the organisational hierarchy and moral norms are absent as is evident in regular media announcements of corruption in all types of workplaces. This invariably has major adverse effects and repercussions on communities (Van Zyl 2012). These adverse effects *inter alia* include job losses and diminished reputations of individuals and also organizations that lose their credibility, general morale declines and of course huge productivity declines, and financial loss. Employees may become anxious and feel helpless, display low job satisfaction and loss of trust in their leaders, along with a range of other negative consequences for private lives of employees – these all are the products of unethical leadership (Nicolaidis 2016a, 2019, 2017).

In Aristotelian terms, such activities demonstrate a lack of practical wisdom (*phronesis*) which is the principal virtue that directs the rest and allows one to

remain on an ethical course. Ethical behaviour is required for organisations and society to remain sustainable (Mayer et al. 2010). Brown et al. (2005) stress that ethical leadership is sorely needed from a normative ethics perspective so that leaders role model individual ethical conduct and the desired ethical interpersonal relationships in their words and actions (Brown et al. 2005). Virtue ethicists believe that virtues are a wide range of intrinsic goods that one ought to strive for (Oakley 1996). Virtue ethics accepts virtues that balance motives and reasons and sees them as a variety of intrinsic good. There is no singular predominant principle which can be considered the definitive guide by which we should live which may largely compromise any other values in our daily life (Engelbrecht et al. 2017). LaFasto and Larson (2001) propose that a virtuous employee will have the following characteristics namely sound ethical experience, they will be productive problem solvers, open, supportive people who take personal initiative and have a positive attitude.

It is generally the case that modern business for the most part, do not provide a suitable environment in which employees can develop virtues and it is thus incumbent on the leaders to promote a virtuous workplace and virtuous stakeholder relationships. A virtuous corporate character is evident in an organisation that engage in all activities in a spirit of excellence and in which there no corrupting powers of other institutions with which it engages in pursuit of its own telos (Moore 2005).

Virtue theory states that an ethical stance is an integral part of all business and that it is essential to incorporate moral theory into management practices. Thus, the role of the virtues in an organisation is to direct and motivate ethical behaviour towards sustainability (Nicolaidis 2014, 2015, 2019). Acculturation mechanisms are required to at least constrain unethical conduct given that individuals are often ego-centrally driven in their decision making and this leads too highly questionable corporate activities. It is indeed an indictment on many corporations that they give hardly any thought to developing a moral corporate culture within which the employees can act in an ethical manner. The truth of the matter is that unethical conduct that is perpetrated in many organisations is based on systemic failure, although it can also be argued that in many cases unethical conduct is the result of having some proverbial 'rotten apples in the barrel'. It is thus essential for organisations to interrogate whether or not their operational structures and functions are systemically sound when it comes to desired ethical behaviour in dealing with all stakeholders. How virtue and morality assist in making a business 'virtuous' and relate to quality management and quality service provision as well as sustainability are critical considerations (Nicolaidis 2015). The many negative outcomes of unethical behaviour necessitate that stress be placed on the things that possibly effect ethical conduct (Engelbrecht et al 2014). To develop an ethical culture in any organisation, the leader should play a substantial role in advancing an operational ethical strategy. The virtues link ethics to business in a positive way and deliver a firm rational grounding for business ethics to flourish. Virtue ethics supports happiness in life is developed over time and is required before and also complements moral reasoning and it drives one to strive for excellence through behaving in a virtuous manner (Whetstone 2001). This also provides a sense of

pride in having done the right thing (Mintz 1996). Virtue ethics enforces the notion that every employee can add value to an organisation however the virtues that are embraced must be reality-based, non-contradictory, integrated, and comprehensive (Younkins 2012).

A traditional literature review which adopted a critical approach was undertaken in which the researchers reviewed apposite literature on the themes of virtue ethics, Ubuntu and ethics and organisational culture. The information was gathered from credible academic articles and studies of relevance, which were both important and valid, and this allowed for the rationale for the study to emerge and the relationships between key ideas, dynamics and variables became evident. The following data bases were utilised: Web of Science, Scopus, DOAJ and EBSCO. The article makes a contribution to the current debate on ethical leadership and ethical practices in organisations.

Ethical Leadership

Ethical culture can be defined as a set of experiences, assumptions, and expectations of managers and employees about how the organization encourages them to behave ethically or unethically. Organisations require quality leadership cognisant of the need for ethical practices in all undertakings related to their missions if they seek to improve their productivity. They thus need to integrate ethics in their daily decision making and taking. Virtue ethics provides a moral underpinning for normative ethical decision-making for both individuals and organisations and should this be embraced in business traditions. It promotes sustainable business activities and is supportive of an ethical climate in the workplace (Nicolaidis 2014).

Authentic leaders are those who are perceived to be sincere, or 'real' and they have a sense of purpose (Nicolaidis 2016a), and sense that they know what they are about and where they want to go (Northouse 2016). George (2010) stresses that the authenticity of a leader, and not their style, is the most important aspect. He posits that the fundamental characteristics that define an 'authentic leader' are knowing themselves, practicing their values and principles, leading rationally at all times and do so with benevolence, establishing lasting relationships and self-discipline. The authentic leader is also ardent, enthused and intrinsically motivated to care about what they do (Northouse 2017). Schein (2004) and also Nicolaidis and Manyama (2020) asserts that culture and leadership are interconnected and co-exist.

Leadership must offer suitable guidance and also orientate employees with the organisational culture. Adam Smith, in his ground-breaking *The Theory of Moral Sentiment*, expressed the opinion that one cannot purport to be human without having a strong moral sense (Young 2001). An organisational leader has the capability to motivate, produce, and role-model the desired culture in an organisation (Keyton 2005) in order for employees become exemplars of the desired actions and mindsets (Nicolaidis 2019). Small and Dickie (1999) contend that leaders who exhibit values such as ethical practice and integrity, as well as

trust and impartiality, become immensely valuable to an organisation in the medium to long term.

Organisational leaders need to assume the responsibility for cultivating ethics in the workplace through ethical leader role-modelling behaviour and by creating a suitable ethical climate in which operations are conducted on an ongoing basis. Effective leaders play vital roles in defining desired ethical employee behaviour (Nasir and Bashir 2012). Ethical leadership offers many benefits in organisations as it plays a role in forging a happy workplace, reducing misconduct such as corruption, employee absenteeism and a range of other misdemeanours that are perpetrated on a regular basis (Piccolo et al. 2010, Mafunisa 2008).

The ethical leader inspires employees to work as a team and this enhances performance and allows objectives to be reached and furthermore promotes a positive workplace (Yukl 2013). Ethical leaders are critical to organisational success (Nicolaidis 2016b, Conrad 2013), and by driving a virtue ethics approach they can promote the concept of *eudaimonia* in their organisations and can thereby drive the notion of the *telos* of business presence as being value-based and serving the interests of stakeholders in society (Nicolaidis 2015). An ethical leader influences their underlings positively through their ethical acts and general demeanour (Flynn 2008, Yukl 2008) and obtain the attention of their underlings by being virtuous and demonstrating ethical decision making in a constant fashion.

An Ethical Organisational Culture

An ethical organisational culture can be defined as experiences, assumptions, and expectations of both managers and employees as to how their organization encourages them to either behave ethically or unethically. It thus relates to aspects such as for example, values, leadership and recognition (Nicolaidis and Duho 2019). It is incumbent on the leader in an organisation to communicate the desired ethical stance and thus an effective and operational code of conduct and leading by example are important issues to be addressed. The leader needs to stress aspects including accountability, responsibility, transparency and adherence to set guidelines and related procedures (Naidoo 2012). Crafting a code of ethics is an important prerequisite in creating an ethical organisation. Once this is in place the code should be backed up by effective communication and the necessary oversight and enforcement of desired behaviours through workshops and other training provided to all employees. A code of ethics or conduct, should not be a mere tick-box exercise but rather serve as a living and working document which requires training and regular review. The desired organisational rules and its responsibilities and values as well as its philosophy and what employees should do and not do when dealing with stakeholders needs to be stressed in the document (Nicolaidis and Duho 2019). There are some minor differences between Codes of Conduct and Codes of Ethics, and yet both guide proper ethical decisions and conduct. Codes of Conduct are inclined to address the values of an organisation and how those values reflect the values of society and often comprise appropriate actions and behaviour in most situations. They are generally linked to the mission of an

organisation. Codes of Ethics, conversely, are commonly more universal statements about operational values and beliefs that define an organisation (Brandl and Maguire 2002). The majority of leaders who act ethically are considered to be transformational and charismatic role models and they tend to inspire their underlings to participate in moral practices systems (Brown et al. 2005, Tanner et al. 2010).

The document should also clearly explain that illegal or unethical actions are unacceptable and sanctionable. The rules of desired conduct must be clearly spelt out. A code of conduct should highlight any unacceptable practices such as corruption, bribery, unacceptable accounting practises, use of company resources and other possible problematic areas. Clearly not all unethical actions can be captured in a code of conduct and thus some important issues may be omitted. This is because there will always be some grey areas where individual employees should use their discretion.

The code of conduct should provide a carefully crafted set of guidelines to assist employees in making ethical decisions (Tassiopoulos and Nicolaidis 2017). Ethics, by its very character, is part of the discretionary behaviour of individuals and organisations and deals with a hierarchy of values and how individuals and groups may comply with them. The values of organisations must be passed on to all employees if ethical business conduct is to prevail and all employees need to know the consequences of unethical conduct (Nicolaidis 2015). An organisation that conducts itself ethically is differentiated from others by its stakeholders and is able to gain a strategic competitive advantage in its operational space by not only communicating its values to its stakeholders but also by its authentic ethical behaviour (Small and Dickie 1999). Employees should thus be encouraged to adopt and embrace a virtue ethics approach to life. This aligns with the African philosophical notion of Ubuntu in which individuals must act with integrity and be responsible for their actions while supporting the general community in which they operate.

Employees must believe that the organisation will stand behind them when making important decisions which should of course align with the organisation's ethos. An efficacious leader is an ethical leader and he or she should role-model desired behaviours and attitudes so as to forge a strong ethical climate in an organisation (Sims and Brinkman 2002, Nicolaidis 2014). The leader plays a huge role in whether or not their business operates ethically. In Socrates Republic, the "Guardians" are the leaders who tend to view their status and high office in terms of their ethical stance. It is mandatory for them to serve society by endorsing ethical practices (Gini 1996).

Aristotle strongly proposes in his *Nicomachean Ethics* that morality is not merely learned by reading about it, but by perceiving the behaviour of a morally sensitive person who operates as a role-model worth emulating (Aristotle 2014). However, on its own, and from a philosophical perspective, role-modelling is simply inadequate to satisfy the basic needs of an ethical business at either the normative or descriptive levels. Jean-Paul Sartre posits that all people are by definition morally bound because they share the planet with others whom they need to contemplate in the daily choices and decisions made (Sartre 1960). The

principal paradigm of evaluation is always the self in relation to others. People should then be basically always acting on the behalf of the interests of others as Aristotle suggest (Gini 1996), and this also aligns with Ubuntu, but sadly this is not the case. According to More and Webley (2003) there is a widening gap between the presence of company ethics and what transpires according to the media reports and the embedding of ethical practice ideas and values into the 'blood stream' of an organization. Virtue is undoubtedly a gradually developed disposition that endorses distinction in how one acts actions. To behave well and to justify behaviour and decisions made, one must live a virtuous life based on a rational activity of the soul in harmony with virtue (Timmons 2002).

The Enron fiasco established that ethical transgressions soon become cataclysmic events which can bring any major organisation to its knees if not checked (Salter 2004). Consequently, many organisational leaders are now adopting clearly formulated Codes of Conduct in their workplaces and making these part and parcel of their ethos and culture. Organisations are morally bound to engage in activities beyond the bottom-line and serve society ethically as they consider all their stakeholders, environmental care, the welfare of employees and above all acting ethically in all their business activities (Nicolaides 2017). Global media increasingly features reports describing fraud, corruption and other criminal activities emanating from a wide range of public and private organisations (Nicolaides 2015). Clearly then, attaining desired virtues takes practice and one needs to absorb how to best act in given circumstances. Some writers argue that ethical codes of conduct are unlikely to stop unethical behaviour and that it is in fact better to indoctrinate employees with ethical attitudes and virtues for guiding their conduct as they are faced with a myriad of challenging situations which test their ethical astuteness on a daily basis (Raga and Taylor 2005).

Accountability and transparency must be articulated in the body of any Code of Conduct based on the vision of an organisation. Leaders and also employees at lower levels in the hierarchical matrix of an organisation must be accountable and responsible for their behaviour in the workplace. Each of them must be driven by their own internal sets of values and their virtuous actions and communal spirits are important to develop via a code of conduct. Thus, common set of values must be implanted in employees and introduced via comprehensive programmes and documentation such as a Code of Conduct or a Code of Ethics (Lovitsky and Ahern 1999).

The ethical climate of an organisation is what sets the tone for valuable work-related behaviour and it has the effect of safeguarding an organisation against a range of challenges that seduce employees to behave in an unethical manner (Smith and Hume 2005, Eisenbeiss 2012). The ethical climate provides information to employees on the policies, practices, and procedures that are required to be adhered to. Ethical leaders set the tone for their organisation's pervading ethical climate (Schminke et al. 2005). A leader needs to be consistent in how they operate and should never seek to place organisational profits over values while communicating desired norms to their stakeholders (Simha and Cullen 2011). Employees must be given the opportunity to comply with desired operational

norms, identify with them through training and codes of conduct workshops, and finally internalise them (Kelman 1958).

Ubuntu Culture and Organisational Advance

The key question to pose is a metaphysical one. Do people in a society live in self-sufficiency or do they invariably depend on their relationships with others in order to realise their ambitions? (Gyekye 1987). Ubuntu is an African worldview which promotes the notion of group consciousness in people. It accepts the notion that people are by nature social beings (Mafunisa 2008). One is called upon to take a firm stand for other people in the community by demonstrating empathy for them and their plight through a sense of duty which reveals a higher level of consciousness. The virtues which need to be expressed and demonstrated include *inter alia* respect, loyalty sympathy sociability, munificence, conviviality, hospitality and patience (Prinsloo cited in Coetzee and Roux 2000). One cannot disagree that these virtues align with those posited by Aristotle. Community life promotes a rational and moral sense of behaviour and indeed universal brotherhood through which people are treated with due respect (Mbigi 1992). In such a mindset participatory management is promoted and employees are encouraged by organisational leaders to participate and express their opinions on how especially problematic aspects of operations could be solved. The key aspect is cooperation and integration of the basic cultural attitudes of employees into the core principles of managing an organisation. This enables employees to better identify with the vision and mission of an organisation and it nurtures a collaborative environment in which harmonious relationships and sustainability are promoted.

The main traits required of leaders and their followers, according to Mbigi (1992) include trust, credibility, sharing, caring, cooperation, participation and a striving for continuous improvement of everything in the organisation by all stakeholders on an ongoing basis (Coetzee and Roux 2000). Epistemically speaking, for Ubuntu to be of relevance in a modern Africa in a globalised world, African organisations need to be able to at least to an extent, assimilate with western notions having similar values and conceptualisations, and yet strive for pragmatic and rational Afrocentricity. In Western societies a leaders strengths lie in things such as technical innovation, and planning and control based on rational analysis while in Africa there is a great stress on the solidarity of people. It is important to integrate these elements so that leaders are able to define and mould reality for employees while simultaneously seeking to meet their culturally diverse needs and display genuine cultural sensitivity.

Transformational leaders are required in an African context, as they are conscious of the need to uphold principles of human dignity and worth, human rights, good social values, and individual and socio-political transformation (Mwambazambi and Banza 2014). They can also distinguish and supplement the needs and demands of their followers (Burns 1978).

Compatibility between Ubuntu Principles and Virtue Ethics

The Aristotelian teleological approach in philosophy in general and in this instance of virtue theory in particular, makes it more compatible with Ubuntu ethical theory. The Aristotelian major work in ethics, *Nicomachean Ethics*, opens with a line, “Every art every inquiry and similarly every action and pursuit is thought to aim at some good” (Aristotle 2014). While several moral philosophers would say being moral rests largely in abstinence, that is, when one abstains from engaging in certain action or activities is being moral (Locke 1990, Rawls 1972, Gauthier 1986). For Aristotle, exercising virtues or acting in the virtuous manner is not merely moral, but it leads to happiness or flourishing or achieving in the Aristotelian term ‘*eudaimonia*’ which we touched on at the outset. This ties in well with the Kantian Categorical imperative formula of the end-in-itself (Kant 1990). According to the Kantian formula of the end-in-itself, it states that one should never treat another as a mere means. Treating another as a mere means is equivalent to using a person in question as an object for one’s gain or benefits. Kant holds that an action is right if and only if it is universalizable. Van Zyl (2013) seems to maintain a position that virtue ethics theory fails to account for our actions towards others. Both the virtue and Ubuntu theories can be universalizable. However, there appears to be a difference in accountability for our actions towards others with virtue theory, while Ubuntu broadly spells out specific actions to avoid and practices to engage in to become a person.

The ethically conducive environment for an organisational climate in which there is a smooth functioning and good relations among employees may require an ethical culture that is grounded in each of the mutually compatible Aristotelian virtue and Ubuntu moral theories. The Kantian categorical imperative does not sharply contrast with what the Aristotelean virtue ethics and Ubuntu offer in the ethical culture or climate of organisations. The Aristotelian contribution to the ethical organisational culture and climate would be to exercise virtues, or to put it bluntly, serve as an exercise in virtues that model an ethically ideal organisational climate of good conduct. The Aristotelian notion of virtue is agent focused (Van Zyl 2013). This means that a virtuous agent in the character of a manager or leader can but only inspire virtues in his or her team. The ideal state of a virtuous spirit amongst workers, managers or leaders, hinges largely in the team’s collective efforts to behave in such a manner that each individual team member is virtuous (Van Zyl 2013). A virtuous agent, for example, would encourage others to develop traits for flourishing (Van Zyl 2013). These traits might be embedded in such values as caring for another, optimism about one another’s efforts, respect and celebration of diversity, promotion of a friendly spirit of oneness within an organisation and with stakeholders or as the organisation’s context determines.

In a similar vein, Ubuntu theory is founded on the similar principles to those espoused in Aristotelian virtue theory. A simple understanding of Ubuntu would start off with the prevalent literal interpretation of the Ubuntu principle or maxim, that is, ‘*Umuntu ngumuntu ngabantu*’ (A person is a person through other people). To be conceptually, philosophically and contextually proper, Ubuntu is intertwined with African personhood in the sense that Ubuntu is something one

achieves rather than a given that each human being would have by merely being born into the human species (Tempels 1959, Mbiti 1970, Menkiti 1984, Kaphagawani 1998, Matolino 2014, Molefe 2019). It is the same with personhood in which one becomes a person as an achievement of one's ethical or moral behaviour within the community. Metz (2007, p. 331) views the Ubuntu maxim as "a call for a person to develop personhood". The interplay between Ubuntu and personhood may deserve attention in the African philosophy literature since one is not exactly the other. Mbiti (1970, p. 141) says, "I am because we are and since we are, therefore I am". While this captures the essence of Ubuntu, it equally expresses the African conception of reality. Thus, it borders Ubuntu and personhood. It 'straddles the horse' and underpins the significance of Ubuntu in human relationships within the community. Ubuntu informs what those relationships ought to be. This view of African reality from Tempels to Mbiti is highly criticised by contemporary philosophers who tend to dismiss it as being less rigorous, less analytical, less critical and at worse, philosophy viewed from the colonial perspective. Matolino (2014) holds that view. This view may overlook the certain fundamental elements of what it is to be an African especially when it totally ignores that Africans too are individuated creatures who may achieve certain dreams and ambitions which are independent of the community, and equally hold views that may not entirely be that of the community. Nonetheless, it would be wrong to dismiss this view in its entirety as some aspects of it even though they may be exaggerated notions of African reality, remain a reality in that an African child raised within an African community tends to cultivate and develop aspects of this view into adulthood.

It cannot be disputed that Africans are individuated creatures who from time to time evolve to espouse new ideas. Wiredu (1996, p. 157) states that, "through the possession of an *okra*, *mogya*, and *sunsum* a person is situated in a network of kinship relations that generate a system of rights and obligations". Ubuntu and personhood are epitomised in the exemplary leadership of Nelson Mandela as both an oppressed prisoner and a liberating state president. Mandela's ethical values were developed and cultivated within an African community in which he was to play a critical part. At the Rivonia trial, he espoused and defended his individuated ideals of democracy and unity, that were non-existent in any of the African communities that raised him. These are ideals he was prepared to lay down his life for. This has a long-term implication for forging of ethical climates and cultures in organisations. The possession of the *okra* is, "God's spark that serves to link the individual with the rest of mankind (sic)" (Matolino 2014, p. 29). This spark generates feelings of obligations towards all of humankind (Matolino 2014). The interrelationship between Ubuntu and personhood that we draw on in the discussion of ethical organisational cultures and climates seems to lean more heavily on the normative conception of personhood.

There is a very old debate in African philosophy of personal identity between leading philosophers of liberal and communitarian persuasion in the West. This debate centres around the question, how much of a role does the community play in socialising and developing a personal identity? (Molefe 2019). The liberals tend to see the role of social relationships as being insignificant while the

communitarians value social relationships, and the terms and concepts, they use tend to highlight this fact (Molefe 2019). Mbiti (1969) and Menkiti (1984) believe that one is a product of one's environment which safely locates them within the radical communitarian group of scholars. While Gyekye (1992), Matolino (2014) have adopted either a moderate or limited communitarianism in which human rights have a special place in their moral perspectives. Human rights are a centre of primary focus between radical and moderate or limited communitarianism. The radical communitarians see no relevance or place for human rights in the distinctly African notion of personhood. While the moderate or limited communitarianism attempt to feature human rights for reasons of their global relevance and dominance (Molefe 2019).

Ubuntu and virtue ethics share values of the common good. They both present a sharp contrast to the theories that, Lutz (2009) argues, miscomprehend the common good of our human nature due to their self-centred individualistic nature. These are stakeholder and social contract theories which are mainly driven by owner-wealth maximisation (Lutz 2009). For Lutz (2009) not even the contemporary contribution to the social contract tradition by Rawls, seems to succeed in rehabilitating the moral goodness common to our human nature by the serious welfare consideration of those worse off amongst us. However, Lutz's attempts to consolidate the virtue traditions of Africa, Asia and Europe to produce a global management theory consistent with the common good of our humanity as a whole. Lutz succeeds in opening up a debate to broaden an all-encompassing virtue globally relevant that can lead to efficient, effective management. As for the Ubuntu virtues for organisations, they are personified in the iconic exemplary personality and leadership of Nelson Mandela who embraces both contesting positions in personhood and Ubuntu debate positions in his person and vision of a democratic South Africa in which all South Africans would rather be in a democratic state rather than an authoritarian one in which the majority meekly submits to the dictatorship rule. This thinking offers us great value when considering how leaders ought to serve their organisations.

Imparting the Spirit of a Code of Conduct/Ethics

In order to set the desired ethical tone it is imperative for organisations to develop and implement a code of ethics or conduct - terms are used interchangeably. When crafting a code of ethics there should be a very careful interrogation of the range of attitudes that are desired relating to each of the roles that employees play in serving an organisation and its stakeholders. First and foremost, the employees should concern themselves with always operating within the ambit of the laws of the country strive to serve in such a manner that the basic moral rules of society are not transgressed through corrupt activities, deception, theft or any other unacceptable behaviour (Piccolo et al. 2010). Such issues need to be clearly spelled out in the code of conduct which should manifest a desire for employees to serve in a virtuous way as they safeguard their interests and those of all stakeholders (Tassiopoulos and Nicolaidis 2017). It must be stressed that egocentric goals are

unacceptable. It is specifically the role of senior employees to promote ethics in the workplace as well as to strive for an ongoing ethical climate. The leaders of the organisation at different levels of the organisational hierarchy are the ones who ultimately set the tone for virtue ethics in the workplace (Flynn 2008). There is no place for ambiguities in the code of conduct we should clearly state the organisations core values and ethical observances that all employees are expected to follow. As stated earlier, it is imperative for the leader echelon to model desired ethical behaviour.

Having a code of conduct is not good enough unless there are workshops or other carefully developed strategies to promote ethics in the workplace. It is only through regular training sessions that the organisations expected standards of conduct can be effectively promoted and actioned by attendees. In any training that is undertaken it is important to present case studies that relate to ethical dilemmas that may arise from time to time in a range of operational areas (Kelman 1958). If employees are to ultimately make virtuous ethical decisions at work, they need to know when and to whom the code of conduct is applicable and what the organisations core values or ethical standards are. When employees have their annual performance appraisals these should include assessments of how their actions measured up against the organisation's code of ethics. What is needed is transformational organisational leaders who are authentic that can drive such initiatives (Zhu et al. 2011).

There must of course also be formal processes which permit employees to examine ethical dilemmas and through which they can report unethical behaviour without fear of any sort of malicious backlash or admonishment. This is where having ombudsmen/women or ethical officers is important.

We have formulated some basic questions for a virtue driven employee to ask in daily activity which could include *inter alia*:

- How can I act today in a manner which promotes service quality excellence?
- Does my behaviour comply with relevant national laws and regulations and does it align with the organisations mission as expressed in the code of ethics and any other internal policies?
- Does my actual or intended behaviour truly reflect the organisation's core values or ethical guidelines?
- Does what I am considering in my decision-making respect the rights and happiness of other stakeholders?
- Do I know who to speak to if I am uncertain about what to do in certain tricky situations?
- Do I strive to demonstrate sound ethics in all of my role/s based on being objective, sensible, and logical?
- Do I maintain personal and interpersonal connections that are crucial for a 'good' life?
- Are my actions a good moral guide and do they have a positive influence on my co-workers?
- Do I develop value-generating goals and endeavour to realize them?
- Do I possess the needed virtues of honesty, compassion, fairness, trust, transparency, openness, and courage that are important in the workplace?

Is virtue ethics the moral foundation of my work activities and am I realistic in what I do or intend to do?

Do I demonstrate a commitment to co-create value with my colleagues?

Am I a responsible individual that is proud of what I have achieved?

Conclusions and Recommendations

The purpose of all organisations should be to make all stakeholders happy by producing quality products and through the provision of service excellence. Virtue ethics is an important ethical approach to possess in forging an ethical organisational climate towards sustainability of an enterprise and ultimately in making for happy individuals more effective in their workplace and private endeavours. It requires morally astute individuals with ethically sound characters who operate in terms of the organisations strategic focus. A virtuous organisation will gain greater esteem and financial value in the eyes of its stakeholders.

Ubuntu and virtue ethics undoubtedly share common good values. Each offers a contrast to the theories that, Lutz (2009) argues, misinterpret the common good and which are based on narcissistic worldviews of ‘me, myself, I’ and what are self-centred individualistic ambitions. Wealth maximisation may be important but not at the expense of communities and broader society such that unethical practice becomes an operational norm. The lawful, governance related, and economic responsibilities of leaders should always be buttressed by ethical principles which support responsible conduct and illustrate how individual values can play a critical role in effective leadership. Leadership remains an ongoing and often gradual developmental process of human maturity which guides organisations and changes them so that they are able to attain excellent accomplishments. However, for this to happen, all management decisions must be based on virtues that are helpful and which sustain an organisation’s *telos*. A virtue driven employee carefully considers their actions and places right conduct in the forefront of decision-making. He or she drafts plans which are carefully integrated into their actions so as to add value to all stakeholders. While the ethics of altruism regards others in society, we should nonetheless not disregard the value of an individual either such that ethical egoism has a place. Within this place, leaders should operate in their organisations and with all stakeholders with beneficence, benevolence and fairness while keeping their promises and being truthful. In a nutshell, leaders need to observe the biblical Golden Rule and “do unto others” because if they do, others will be more likely to “do unto them.” Each person’s happiness is equally important to consider, all the time.

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Assessing Governance Structures in State-owned Enterprises using Transaction Cost Economics' Dimensionalisation

By Adeyemi Adebayo*

This paper illustrates how Transaction Cost Economics' (TCE) dimensionalisation, a governance structure comparative analysis tool, may be used in assessing corporate governance structures. To illustrate, this paper assesses the governance structures of state-owned enterprises (SOEs) in South Africa and Singapore, two countries deploying different governance structures for organising SOEs. A proposition was developed in line with dimensionalisation to assess the organising models. The proposition is that SOEs organised using a bilateral governance structure are expected to perform better than those organised using a unified governance structure – since the attributes and characteristics of transactions/contracts are semi-strong in the bilateral structure, according to TCE. Findings appear to support the proposition, indicating that SOEs organised in a bilateral governance structure perform better relative to those that are organised under unified governance.

Keywords: *dimensionalisation, organising models, ownership models, state-owned enterprises, transaction cost economics (TCE)*

JEL: *L, M*

Introduction

Focusing on dynamic, complex, and interconnected settings today shows that inter- and intrafirm networks, in all its forms, are becoming more crucial for helping businesses improve coordination and innovation to obtain a competitive advantage (Yaquib et al. 2020, Koch and Windsperger 2017, Windsperger et al. 2019). Despite this clear benefit, networks are not without problems due to the abundance of role players in this organisational sector (such as public and private role players), particularly when it comes to public-private collaborations (Windsperger et al. 2019, Colasanti et al. 2019). In order to explain formal and informal governance structure issues (for the purposes of this study ownership, organising, incentives, and control) of these networks, new theoretical perspectives on designing intra- and interfirm network governance are required (Gibbons 2020a, 2020b, Grandori 2017). This study discusses and exhibits the application of TCE's dimensionalization in evaluating the governance structure of SOEs, a type of network, particularly if they are partially owned, as a contribution to this expanding subject (Adebayo and Ackers 2022, Musacchio et al. 2017).

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In this context, it has been shown that governance problems are the primary issue afflicting SOEs worldwide (Daiser et al. 2017). Since Aharoni (1981) reintroduced SOEs as socioeconomic policy tools, observers have been searching for solutions to the myriad corporate governance issues that SOEs face. The World Bank Framework on Corporate Governance of SOEs and the OECD (2005) Guidelines on Corporate Governance of SOEs appear to be the only two recognised frameworks to date for evaluating corporate governance in SOEs. Over the years, these frameworks have helped interested SOEs engage in excellent corporate governance practises. The way of owning and governing SOEs is one of the identified strong corporate governance practises that are incorporated into these frameworks. Hence there is a need for tools that can be used to examine these practises. This paper bridges this gap.

There have been continuous discussions over the effectiveness of various ownership and governance arrangements that apply to SOEs (Bird 2020, Hafsi 2020, McDonald 2020, World Bank 2014, OECD 2005). The decentralised, centralised, dual, and holding company models of governance structure are the available governance structure models. Traditional ownership types include decentralised, centralised, and dual structures, whereas the holding company model is more recent. Top countries that use these methods to organise SOEs must be chosen in order to compare these governance structure models utilising dimensional analysis through their SOEs. Thus, this paper assesses the governance structures of SOEs in South Africa, a top country utilising the decentralised, centralised and dual models (USA 2020, World Bank 2014) and Singapore, a top country utilising the holding company model (OECD 2005). By contrasting the organisational structures of SOEs in South Africa and Singapore, this research aims to show how dimensionalisation – while established in the private sector – is also useful to evaluating governance structures in the public sphere.

Research on corporate governance has been conducted in a variety of ways and on a variety of issues (Hafsi 2020, Willner and Grönblom 2020, Aguilera and Crespi-Cladera 2016) and spans a wide range of disciplines (Papenfuß 2020, Okhmatovskiy et al. 2021). The Singapore Code of Corporate Governance's definition of corporate governance demonstrates the subject's multifaceted nature. It highlights how crucial structure is as a part of the corporate governance process (Singapore 2018). People and procedures are essentially internal factors in this setting, whereas structure includes both internal and exterior components. The two most significant external structural aspects of corporate governance of SOEs appear to be ownership and organising methods. Good corporate governance procedures of SOEs are said to depend on their ownership and organisational structures (World Bank 2014). As a result, to correctly structure SOEs to carry out their missions, an understanding of ownership and organisational models is essential.

Even before the recent COVID19 Pandemic, which seems to have crippled most economies, particularly developing economies, hurting the provision of public goods and services, SOEs in the majority of countries typically require state bailouts due to their inefficiency and ineffectiveness (Bird 2020). Ironically, because of their socioeconomic relevance, the number of SOEs continues to rise

globally despite their inefficiency and ineffectiveness (Cardinale 2020, Grossi et al. 2015). Since most SOEs are significant and frequently operate in vital state sectors (PwC 2015, Stan et al. 2014), owning states are frequently willing to step in and help SOEs in need. The majority of public sector employees are employed by SOEs and other organisations outside of the core central government (Rentsch and Finger 2015). Additionally, SOEs manage approximately 75 percent of the value of public sector investments, with a debt-to-equity ratio that is frequently higher than that of the central government (Bernier et al. 2020, Del Bo et al. 2017, Grossi et al. 2015). Additionally, SOEs in many nations use a sizable portion of the national resources of their owning nations, either increasing or depleting these resources. As a result, their effectiveness and efficiency play a significant role in determining the economic performance and competitiveness of the states they belong to (Kloviene and Gimzauskiene 2016, Grossi et al. 2015). Owning states, observers, and society as a whole cannot ignore these state enterprises in light of their importance, which has already been established.

Informed by the above, this paper makes four contributions. The first situates SOEs as networks and demonstrates the applicability of TCE to SOEs. The second demonstrates how dimensionalisation works in TCE by applying it to the organising models of SOEs in Singapore and South Africa. The third highlights the critical dimensions by which governance structures are analysed in relation to the attributes and characteristics of transactions/contracts useful for reforming organisations and establishing new organisations. The fourth expands the discourse on public entrepreneurship by opening up new debates and research areas on networks, governance, and corporate governance of SOEs.

Following the introduction, this paper proceeds by presenting TCE in the context of its applicability to public enterprises, as background. Thereafter it briefly reviews TCE, before describing dimensionalisation. Following these, this paper demonstrates the applicability of dimensionalisation by assessing the organising models of SOEs in South Africa and Singapore. This paper then concludes by discussing its implications for theory, policy, and practice and providing avenues for further research.

Background

The transaction cost approach to the study of economic organisation regards the transaction as the basic unit of analysis and holds that an understanding of transaction cost economising is central to the study of organisations. Applications of this approach require that transactions be dimensionalised and that alternative governance structures be described. Economising is accomplished by assigning transactions to governance structures in a discriminating way. The approach applies both to the determination of efficient boundaries, as between firms and markets, and to the organisation of internal transactions, including the design of employment relations The approach has been applied at three levels of analysis. The first is the overall structure of the enterprise. This takes the scope of the enterprise as given and asks how the operating parts should be related to one another. Unitary, holding

company, and multidivisional forms come under scrutiny when these issues are addressed (Williamson 1981, pp. 548–549).

TCE's dimensionalisation is a comparative analysis tool applicable to organising structures. Ménard (2021) notes that the most important contribution of TCE is the provision of conceptual tools for identifying and exploring the variety of forms that the organisation of transactions may take, going far beyond markets and the price mechanism. Hence, TCE is useful in assessing different forms of organising, and ownership models for structuring new organisations or reforming existing ones. The importance of TCE to organisational analysis is sustained since governance is a central theme and may be considered as a grand theme in contemporary socioeconomic organisation and management theory (Grandori 2017). Thus, it is a critical theme in the study of organisations.

Dimensionalisation in TCE, a comparative assessment tool, is a useful tool for assessing governance structures generally and applicable to SOEs. In a dimensional analysis, one form of organising or contracting is compared with another form (Williamson 1985). In this way, in using the dimensional approach for assessing governance structures in SOEs, it is important to understand the dimension of transactions and/or contracts in which these enterprises are usually involved. This is also essential in understanding the variations between simple and complex contracts. In this context, Williamson (2005) submits that transactions differ according to the attributes of uncertainty, frequency, and the degree of asset specificity.

Many observers have questioned the relevance of these attributes to public management, citing that they were developed in the context of private sector enterprises (PSEs) (Dagdeviren and Robertson 2016, Ruiters 2005). Some of these authors have argued that probity, low-powered incentives, and protective employment relations should be analysed instead of the above attributes (Dagdeviren and Robertson 2016, Ruiters 2005). Others have argued that these attributes can be applied with modification (Brown and Potoski 2003) as opposing authors have argued against the relevance of TCE in the context of core public service provision, which differs from public enterprises. In this instance, as a way of modifying the attributes for the purposes of analysing governance structures in SOEs, it is better to discuss these attributes from the angle of the transactions and/or contracts to which SOEs are subjected, which is in line with public ordering (Williamson 2009), rather than from the angle of seller–buyer relations as in private ordering. In this way, uncertainty is concerned with the limited ability of enterprise to fully ascertain environmental and behavioural issues in unforeseen circumstances. It is accepted that their occurrence and significance are intermediate compared to frequency and asset specificity, with uncertainty in organisations being either high or intermediate. While the frequency dimension is strictly concerned with buyer activity in PSE settings, for the purposes of this study it is concerned with the frequency with which the transactions that are necessary for delivering SOEs' mandate recur, which in turn has a bearing on the volume of contracts entered and the level of uncertainty. The investment dimension in terms of asset specificity is a supplier activity within PSEs; as such, the degree to which organisations invest in

specialised assets is also relevant to SOEs without modification, since SOEs are taken as suppliers of public goods where relevant (Williamson 1999).

Transaction Cost Economics

Transaction cost economics (TCE) came into existence in 1937 in the work of Coase on 'The nature of the firm' (Coase 1937). Coase (1937) argues that firms arise as a result of the quest for a reduction in transaction costs (TCs) (Ketokivi and Mahoney 2017). TCE is an interdisciplinary approach to the study of organisations that encompasses economics, organisation theory, as well as aspects of contract law (Williamson 1981). The idea is that if the costs associated with organising transactions within the market are exorbitant, then these transactions can be organised within the firm in order to gain behavioural, social, and economic benefits (Vining and Laurin 2020, Jones and Hill 1988). Thus, TCs entail costs that are associated with running an economic system (Arrow 1969). Put differently, TCs are costs associated with negotiating, monitoring, and enforcing exchanges between two or more parties (Jones and Hill 1988). Since TCs are associated with running an economic system, it therefore follows that the main focus of TCE is on a firm's efficiency (De Schepper et al. 2015). This is because TCE views the organisational problem as that of contracting (Williamson 1985). Along these lines, the problem is posed as the accomplishment of a particular task that can be carried out using different modes of organising. The issue that then arises is estimating the likely cost of each organising form. Hence, a point of departure for TCE from traditional economic analysis is that the unit of analysis in TCE is the organisation itself, and not the commodity traded by the organisation. Hence, TCE regards the firm not as a production function but as a governance structure necessary to govern a series of contracts (Williamson 1998). In this way, the focus is usually on assessing the ability of different governance structures, firms, markets, hybrids, and others to minimise TCs (in the case of SOEs, the cost of gathering information about private role players; the cost of political interference; the cost of corruption; the cost of socioeconomic development; the cost of private goods to citizens; government taxation; the cost of soft-budget constraints; the cost of free-rider and the cost of conflicting objectives) (Williamson 1981). This is done in order to determine efficient boundaries in a continuum of governance structures that starts with the market and ends with firms (Williamson 1981). This implies that organisational forms matter (Williamson 1985), following Commons's (1932) observation that governance is the means through which order is infused as a way of mitigating conflicts to realise mutual gains. As such, governance structures should be aligned to the specific needs of each type of transaction (Williamson 1981).

There are variants of TCs. Williamson (1981) recognised two types of TCs, ex-ante and ex-post. Ex-ante TCs emanate from efforts in the pre-contract and contract phases to prevent the failure of a transaction as regards asset specificity, and when opportunism (individuals' propensity to cheat and lie) meets the absence of alternative exchange partners. Ex-post costs, on the other hand, are the post-

contract phase costs related to adjusting contracts. Consequently, it becomes clear that TCE combines issues of incomplete contracting, holdup problems, bounded rationality, and opportunistic behaviour in explaining the existence of firms (Hart 1995, Kállay 2012). In this way, these ex-ante costs are the costs of setting up contracts (drafting, negotiating, and protecting agreements) and governance structures. The costs of altering contracts and of monitoring and evaluating contracts, especially as a result of errors, omissions, and unforeseen disturbances, are ex-post costs that add up to the normal production costs, thereby resulting in market failure owing to the additional costs of goods or services, that is, the cost of running an economic system (Boston et al. 1996). Market failures also occur when rationally bounded individuals are confronted by ex-ante heightened complexity and uncertainty. Jones and Hill (1988) classified these issues into six categories: bounded rationality, opportunism, uncertainty and complexity, a few trading relationships, information asymmetry, and asset specificity. These factors, taken as a whole, cause specific transaction issues (Jones and Hill 1988).

The close examination of ex-ante and ex-post costs described above indicates that these costs are difficult to quantify. One way of curtailing this is by a comparative institutional analysis. Williamson (1981) referred to this as 'dimensionalising transactions'. In a comparative institutional analysis through dimensionalising transactions, a form of organising or contracting is compared with another form of contracting or organising (Williamson 1985). Williamson (1985) contends that although TCE understands the importance of ownership and technology, ownership and technology alone do not determine economic organisation. Hence, the study of economic organisation must encompass an investigation of incentives and governance. This is because when a transaction is removed from market mechanisms and organised by a firm, three events occur: ownership changes, incentive changes, and governance structure also changes.

TCE is important for organisational studies because of asset specificity, information asymmetry, formal and informal governance apparatus, uncertainty, and incentives. TCE is very important for public sector analysis because the public sector is characterised by a great deal of uncertainty (Subramanian 2015, Aharoni 1981). Along these lines, Williamson (1981) observes that the TCE approach to organisational studies can be applied at three analysis levels: the overall enterprise structure, the operating parts, and the manner in which human assets are organised. Further, in this context, Arrow (1969, p. 2) contends that:

The identification of transaction costs in different contexts and under different systems of resource allocation should be a major item on the research agenda of the theory of public goods and indeed of the theory of resource allocation in general. The 'exclusion principle' is a limiting case of one kind of transaction cost, but another type, the costliness of the information needed to enter and participate in any market, has been little remarked. Information is closely related on the one hand to communication and on the other to uncertainty (Arrow 1969, p. 2).

The focus of the overall enterprise structure is on how to relate operating parts to one another. As such, when these issues are analysed, multidivisional, unitary, and holding company forms are scrutinised. The main issue addressed by the operating

parts is the determination of efficient boundaries. Hence, this entails an analysis of the activities that should be performed within and outside the firm. The focus of the way human assets is organised is to align internal governance structures with the personal aspirations of work groups within a firm. In a particular analysis, it may be difficult to separate the first two levels, the overall enterprise structure and the operating part. This is because they inform each other. The determination of an efficient boundary informs the organising structure and vice versa. Further, when considering the role of incentives in aligning internal governance structures with the goals of work groups, it may also be argued that the three levels are inseparable. This is because superior performance entails the establishment of an ideal fit between strategy and structure (Jones and Hill 1988).

The main early application of TCE was to demonstrate that not everything can be organised within the market (Chang 2007). However, just as there are benefits associated with internalising transactions, there are also associated costs. It was as a result of these bureaucratic costs that the agency theory approach emerged (Jones and Hill 1988). Agency theory advocates that internalising transactions rather than letting the market control these transactions does not simply eradicate TCs. This is because there are certain conditions, such as managers' propensity to cheat and lie, just as in market transactions, that cannot be guaranteed maximally. In linking these arguments to SOEs, it can be argued that SOEs exist to economise on TCs (Peng et al. 2016), in addition to correcting market failure, as well as the other arguments in support of SOEs. In this context, Farazmand (2012) observes that TCs provide an economic stance on the idea of "big is beautiful" if big government is efficient and able to limit TCs. The idea here is that states can do other things apart from providing public goods if TCs are low. However, in economising on TCs, SOEs must consider that TCs can only be economised to the extent that a particular SOE is not too big, as transactions thereby become too large, and it becomes difficult to contain costs. As in PSEs, there is a boundary at which the transactions carried out will be like if they were carried out in the market. In this case, bureaucratic costs will rise compared to when there are a smaller number of transactions. Thus, even though the initial idea of TCE was based on a comparison between the market and the firm as a single entity, TCE has been extended to compare different organising models under the firm approach.

Dimensionalising Transactions

Recall from earlier discussion at the introductory stage that transactions differ according to the attributes of uncertainty, frequency, and the degree of asset specificity (Williamson 2005). Even though of these three attributes, it appears that uncertainty and frequency are the key attributes in determining suitable governance structures, Williamson (1999) and Perrow (1986) have argued that it is the degree of investment that matters most. Thus, considerable emphasis when undertaking a study of governance falls on investment differences, which are more often related to the frequency of transactions than to the level of uncertainty. In summary, there is a relationship between asset specificity, uncertainty, and

transaction frequency (Williamson 1979). Asset specificity is basically concerned with the degree to which an asset that is used to support a transaction can be redeployed for alternative uses and users without loss of productive value (Flingstein and Feeland 1995, Perrow 1986). This understanding is in line with the notion that highly specific investments give rise to a condition of bilateral dependency, where parties to a transaction/ contract make substantial commitments in the form of investment in support of each other. Although it is the degree of investment that matters most, uncertainty and frequency are also relevant. Accordingly, uncertainty presents the need for adaptation in situations of bilateral dependency and where there is incomplete contracting that leads to the problem of maladaptation (see below) (Williamson 1979). Further, frequency is also a relevant dimension in that recurrent transactions normally support the setup costs of specialised governance, hence, possessing features of better reputation effect.

In operationalising uncertainty, high and intermediate variables are used (Williamson 1979). Non-specific, mixed and idiosyncratic investments are used in operationalising the degree of investment and transaction frequency is varied as one-time, occasional and recurrent (Williamson 1979). Non-specific investments involve purchasing the standard equipment or materials necessary for delivering mandates. Mixed investments involve the purchase of customised equipment and materials, whereas idiosyncratic investments are those that are highly specific in the sense that they cannot be easily used for transactions other than the one for which they were purchased without losing a significant portion of the investment made on them (Williamson 1979). These investments involve constructing a plant and/or site-specific transfer of intermediate product/machinery across successive stages or delivery areas. One-time transactions are often on-the-spot transactions and are not usually relevant in determining transaction frequency. Hence, occasional and recurrent transactions are relevant in this context. Occasional transactions are those transactions that involve purchasing standard and customised equipment as well as constructing a plant, while recurrent transactions are those concerned with purchasing standard and customised material for producing a component as well as site-specific transactions (Williamson 1979).

Since it has been established that it is the degree of investment in assets that matters the most, it follows that an important aspect of tracking operating efficiency is tracking the way in which enterprises utilise their assets. In this way, property, plant, and equipment in conjunction with working capital (inventories, trade receivables, and payables) become important elements in tracking operational efficiency. The inclusion of working capital takes into account the operating capital employed in relation to revenue. This shows how efficiently and effectively enterprises utilise their property, plant and equipment and working capital. In this way, ascertaining the asset turnover by taking into account property, plant, and equipment only presents a good picture of an enterprise's operations. While most authors use profit before tax, interest and total assets in order to obtain asset turnover, McKenzie (2014) submits that revenue in relation to operating capital employed (property, plant, and equipment as well as working capital) should be used in obtaining operational efficiency (asset turnover). McKenzie's (2014) assertion appears appropriate as the elements used can be further analysed into the

operational parts of property, plant, and equipment or fixed asset turnover, and the working capital ratio. In confirming McKenzie's (2014) stance, Esplin et al. (2014) assert that separating financial information into operating and financing activities is useful since operating activities mainly drive firm value. Taken together, property, plant, and equipment or fixed asset turnover, as well as asset turnover, which takes into account working capital, are useful elements for comparing the efficiency of an investment in assets necessary to deliver on a mandate. Since some SOEs are not expected to be profit-making, these fixed assets and asset turnover are only useful in detailing the operational efficiency and effectiveness of these enterprises, and they are equally important for firms in capital-intensive sectors (Bansal 2014). These measures are a subcategory of profitability ratios and are most useful when comparing enterprises' past performance or enterprises within the same industry (The Risk Management Association 2014, Bashir et al. 2013) since they are free from the effects of financing and taxation (Beyer and Hinke 2018). In this regard, since the use of assets differs between industries, operational efficiency and asset turnover differ substantially across various industries (The Risk Management Association 2014). Thus, the operational efficiency and asset turnover of manufacturing sector is expected to be considerably lower than that of the service, financial, and wholesale sectors since manufacturing sectors are usually asset-heavy (The Risk Management Association 2014). The basic rule is that the higher the turnover, the better (Bansal 2014). However, the Risk Management Association (2014) has noted that when these are abnormally high, three events are likely to be taking place. The first is that the company may need additional assets in order to deliver its mandate. The second reason is linked to assets depreciating faster compared to the industry average, while the third is because the company uses an inventory accounting method in which inventory is understated in relation to the industry average. When results are abnormally high, it is mandatory to compare them with the industry average to uncover the likely reasons for such discrepancies. When comparing to the industry average, the basic rule is that a low turnover compared to the industry average means that assets aren't being used as well as they could be. On the other hand, an abnormally high turnover compared to the industry average could mean that something is wrong.

As a reminder, three governance structures may be distinguished according to the TCE, namely, markets, hybrids, and hierarchies (firms, bureaus). Consequently, the two relevant governance structures for our purposes in terms of SOEs are unified governance and bilateral governance. Since SOEs, are in most cases, publicly owned, market governance does not often apply to SOEs, with the exception that it is the more relevant governance structure for SOEs in the financial sector. An analysis of organisational structures must match the transaction attributes with the critical dimensions of analysing governance structures as well in order to determine the governance structures that are suitable for different kinds of transactions/contracts. In this context, the market governance structure is characterised by strong incentives, weak administrative control, and a legal rule system that is suitably geared to autonomous adaptations but weakly geared to cooperative adaptations (see Table 1) and strong contract law (Williamson 1979). Unified governance is characterised by weak incentives, strong administrative control, weak autonomous

adaptation, strong cooperative adaptation, and strong contract law. Bilateral governance, which lies in the middle between markets and hierarchies, is characterised by a set of complementary attributes describing hybrids in that they possess semi-strong incentives, semi-strong administrative control, semi-strong autonomous and cooperative adaptations, as well as semi-strong contract law (Williamson 1991). Thus, it may be argued that the hybrid mode works well since it is a middle path. However, its efficacy depends on credible commitments and discipline on the part of the parties involved, as well as the level of information disclosure, sanctions and penalties for default, monitoring and verification mechanisms, and the capacity of the dispute settlement mechanism in place.

Table 1. *Transaction Cost Economics Framework*

		Investment Characteristics		
		Non-specific	Mixed	Idiosyncratic
Frequency	Occasional	Purchasing standard equipment	Purchasing customised equipment	Constructing a plant
	Recurrent	Purchasing standard material	Purchasing customised material	Site-specific transfer of intermediate product/plant/machinery across successive stages
Governance Structures Alignment	Occasional and recurrent	Market governance	Bilateral governance	Unified governance
			Relational Contracting	
Critical dimensions on which governance structures are analysed in relation to the attributes and characteristics of transactions/contracts	Incentive intensity	Strong	Semi-strong	Weak
	Administrative controls	Weak	Semi-strong	Strong
	Autonomous adaptation	Strong	Semi-strong	Weak
	Cooperative adaptation	Weak	Semi-strong	Strong
	Contract law	Strong	Semi-strong	Weak
	Information context	Strong	Semi-strong	Weak
	Decision-making context	Strong	Semi-strong	Weak
Governance Structures		Market	Hybrid	Hierarchy

Source: Authors' own compilation with insight from Williamson (1979).

While the critical dimensions of these different governance structures are self-explanatory, it is important to elaborate on the importance of contract law in relation to the governance structures, not only because it does not lend itself to self-explanation as do the other dimensions, but also because issues related to contracts are also important in public ordering, just as in private ordering (Williamson 1979). The contract law associated with markets is one based on legal rules, in which parties are more likely to go their separate ways after the court has pronounced in favour of one of the parties and in which the losing party is to pay

or has paid the necessary damages. Thus, participants in this case are usually not interested in continuing such transactions because of the arm's length nature of their dealings. The bilateral mode uses a framework as a form of contract. This framework encourages cooperation, within limits, because of its elasticity in relation to contracts. Transactions are organised under the unified mode when the limits under the hybrid mode are surpassed. Since hierarchy entails more internal organisation, there are usually few or no contractual dilemmas as compared to markets and hybrids. However, when there are internal disputes, the court may likely refuse to hear these disputes between parties in the same organisation; thus, the contract law under the unified mode is usually that of forbearance, in which the parties are inclined to settle disputes internally with less recourse to the court of law. Thus, contract law under unified governance is usually weak in terms of external assessment but strong in terms of internal workings and supports cooperative adaptations (Williamson 1991).

Another important dimension is adaptation. This adaptation entails the ability of organisations to adapt to or respond successfully and quickly to disturbances of all kinds, especially those that are as a result of business and environmental uncertainties. Autonomous adaptation involves spontaneous acts of individuals and/or organisations directed towards reducing the risk posed by resource scarcity as well as changes in prices as a result of fluctuations in demand and supply (Forsyth and Evans 2013). Cooperative adaptation, on the other hand, is a kind of intentional cooperation brought about by the conscious, deliberate, and purposeful coordination of organisations (Williamson 1993). These attributes and characteristics of transactions/contracts, governance structures and critical dimensions of analysis of governance structures vis-à-vis attributes and characteristics of transactions/contracts are summarised in Table 1 above.

Demonstrating Dimensionalisation

To demonstrate dimensionalisation, two countries utilising different models for organising SOEs are used. In line with the ongoing debate on the efficacy of different governance structures noted earlier, theoretical sampling (Adebayo and Ackers 2021) was employed in selecting relevant countries using different models. The theoretical arguments that guided country selection are that SOEs should be organised in such a way that commercial objectives are separated from social objectives and, thus, these SOEs should not be organised under state ministries (see Keynes (1926) for this argument). Singapore, a country that uses the holding company model for organising (Huat 2016) SOEs, is a top country regarding this argument, thus selected. An opposing argument would be that SOEs should be organised under the state to provide a form of competition necessary to curtail the evils of private ownership (see Marx 1887 (1967) for this argument). South Africa is a top country (United States of America Department of State 2020) that uses the more traditional models – decentralised, centralised and dual – thus selected.

Although Singapore and South Africa are at different stages of economic development, they are both developing countries. In this regard, the United

Nations (UN) (2021), in its World Economic Situation and Prospects 2021 based on the report prepared by the Economic Analysis and Policy Division (EAPD) of the Department of Economic and Social Affairs of the United Nations Secretariat (UN/DESA) has categorised both countries as developing economies.

The grouping of SOEs in Singapore is used as it clearly groups SOEs relative to the grouping in South Africa. Thus, SOEs are grouped into Transportation and Industrials; Telecom, Media and Technology; Energy and Resources as well as Financial sectors. As a result of space limitation, relevant SOEs from only the first two sectors – Transportation and Industrials; and Telecom, Media and Technology – are employed in demonstrating dimensionalisation.

Investment Characteristics of State-Owned Enterprise Sectors

Investment Characteristics of the Transportation and Industrials Sector

Considering the discussion on governance structures as per TCE, Transportation and Industrials usually require substantial investments in physical assets (Williamson 1979). Substantial sunk investments are required in this sector. Sunk investments in this context are investments requiring large capital and/or costs (Cruz and Marques 2013), and whose recoup period spans over several years (Medda 2007), if at all recoverable. In addition, temporal specificity is also present in this sector, although more in industrials than in transportation. This is because sites often require the timely response of on-site human assets. Hence, human specificity is also key, as some aspects of operations require specific skills, especially in industrials, which operators acquire by performing such tasks. Most of the investments needed in this sector are highly specific in the form of site-specific transfer of intermediate product/plant/machinery across successive stages (Williamson 1979). In addition, substantial occasional investments, in the form of plant/track construction, are also required, especially in industrials and land transportation. This in effect means that, in this sector, transaction frequency is usually both occasional and recurrent, depending on the mandates of the enterprises (Williamson 1979). In this case, enterprises in this sector that fall under land transportation generally erect and maintain the track necessary for providing rail transportation, while those in sea transportation will have to erect and maintain loading and docking ports. The enterprises that fall under industrials will have to construct the plants required to operate, and some will also have to maintain different stations; thus, site-specificity becomes relevant as well. Furthermore, enterprises involved in air transportation will have to purchase customised equipment in the form of aircraft in order to operate. In this way, this sector also requires substantial sunk investments. Since specialised physical and human assets become more specialised for a single use and thus less transferrable to other purposes, there is no incentive for trading in such investments, unless on the proceeds that can accrue from these investments (Williamson 1979). Thus, the choice of governance structure is usually one with superior adaptive cooperative features. In addition, the critical dimensions to which governance structures are matched with attributes and transactions/contracts also matter in assessing

governance structures. In this sector, TCE favours bilateral governance (hybrid) for some SOEs, especially those involved in transportation, and unified governance (hierarchy) for others, especially those involved in industries, as is the case in the telecom, media, and technology sector discussed below. Enterprises for which unified governance is advanced by TCE require a great deal of strong administrative controls as well as cooperative adaptation. This will be at the expense of weak incentive intensity, autonomous adaptation, contract law, and information and decision-making contexts. However, bilateral governance cuts across market, and hierarchy, thus incentive intensity, autonomous adaptation, contract law, and information and decision-making contexts can be both semi-strong (if hybrid is favoured) or weak (if hierarchy is favoured). Accordingly, cooperative adaptation and administrative control can also be semi-strong (if hybrid is favoured) or strong (if hierarchy is favoured) (Williamson 1979).

Investment Characteristics of the Telecom, Media and Technology Sector

Considering the discussion on governance structure above, in the context of this study, the Telecom, Media and Technology sector generally requires substantial investments in specific physical assets in order to deliver on their mandates (Williamson 1979). Although the media does require substantial investment, it does not require the substantial investments in physical assets that telecom and technology require; rather, it often requires site-specific investments. In addition, temporal specificity is also present in telecom, media, and technology, in that sites often require the timely response of on-site human assets. It is thus clear that human specificity is also key, as some aspects of operations require specific skills which operators acquire by performing such tasks. Much of the investment needed in this sector is highly specific in the form of site-specific transfer of intermediate product/plant/ machinery across successive stages (Williamson 1979). Accordingly, enterprises in this sector usually erect the transmitters necessary for broadcast and service provision in terms of communication services. Since this sector requires such recurrent investment, the ideal governance structure is a relational contract in the form of unified governance (hierarchy). This is because specialised physical and human assets become more specialised for a single use, thus less transferrable to other purposes (Williamson 1979). In addition, in terms of disposal, there is no incentive for trading in such an investment, unless on the proceeds that may accrue from such an investment. Thus, the choice of governance structure is usually one with superior adaptive cooperative features. Hence, vertical integration, in which an enterprise owns the parties with which it transacts in terms of the components needed to deliver on its mandate, is usually necessary for those enterprises that fall under unified governance. This is essential because the firm does not have to enter into some form of incomplete contract that requires revision and consultation (Williamson 1999). Taken as a whole, since there is little incentive for trading, parties to such a transaction may be satisfied with whatever accrues from their relational dealings. In this context, telecommunications often requires substantial investments as well, as a result of erecting transmitting plants in several locations.

Table 2. Analysis Based on TCE

Company	Organised as per TCE		Critical dimensions for analysing governance structure in relation to transactions according to the governance structure in use						
	Yes	No	Decision-making context	Incentive intensity	Administrative control	Autonomous adaptation	Cooperative adaptation	Contract law	Information context
TELKOM SA		X	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong
SINGTEL		X	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong
PRASA	X		Weak	Weak	Strong	Weak	Strong	Weak	Weak
SMRT	X		Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong	Semi-strong

Source: Authors' own compilation with insights from Williamson (1979, 1991, 1993, 1998, 2005).

Dimensionalisation

Relevant SOEs, under the two groups above, in the two countries are matched together to facilitate a dimensional analysis. Since TCE argues that it is the degree of investment that matters, TCE favours different governance structures for different classes of transactions. In this context, the central argument in this study is that, in line with TCE, SOEs organised using a bilateral governance structure are expected to perform better than those organised using a unified governance structure – since the critical dimensions on which governance structures are analysed in relation to the attributes and characteristics of transactions/contracts will be semi-strong (Vining and Laurin 2020). It then becomes important to compare enterprises within these structures in order to establish which of the structures is ideal for governing SOEs (McDonald 2020). In this case, Munyo and Regent (2016) have confirmed that ownership and organising structure have an impact on enterprise performance. Further, Mbo and Adjasi (2017), in their study of drivers of organisational performance in SOEs, also confirmed that both ownership and board structure influence enterprise performance. Hence, a proposition in line with TCE's dimensionalisation arguments guides this analysis. The proposition (*P*) is that SOEs that are organised through a holding company and through part ownership (a combination of public and private role players) are more likely to perform better relative to those that are fully owned and under the state's ministry or ministries.

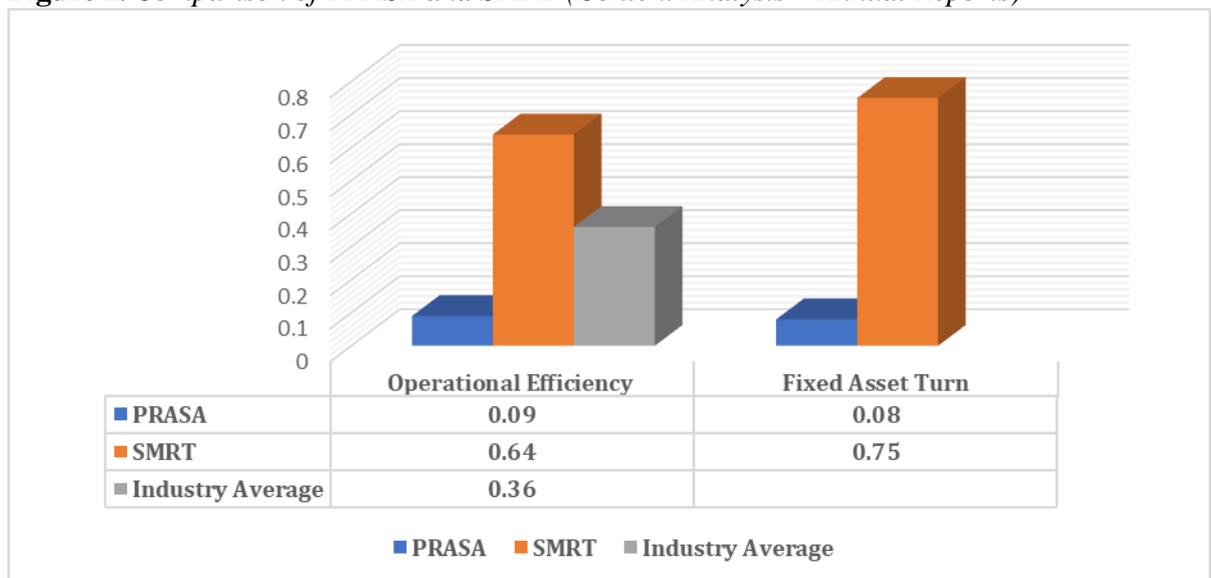
Since it has been established that it is the degree of investment in assets that matters most, it follows that an important aspect of tracking operating efficiency is tracking the way in which enterprises utilise their assets. In analysing these organisations, the annual reports of the SOEs were used. The data for computations was collected from the three years' annual reports of SOEs between 2016/17-2018/19 considering that a three-year period is enough to demonstrate dimensionalisation. The study used 2018/2019 as the apex year as this was the last period SMRT, one of the SOEs in the study's sample, published an annual report. SMRT has subsequently been publishing the SMRT Review, which does not contain financials. Thus, the same period was used for all SOEs in the sample. To determine the difference in performance of the different structures, the operational efficiency and the fixed asset turnover of these enterprises were computed as these are the relevant computations since it is the degree of investment that matters the most under TCE. Because the average three-year CSI Market industry average (CSI Market n.d.) was used for comparison purposes, only the operational efficiency was used in the analysis, as this is what is available based on the CSI Market's industry average computations.

Transportation and Industrials Sector

South Africa's PRASA and Singapore's SMRT were compared under the Transportation and Industrial sector. Both enterprises are appropriately structured according to TCE (Table 2). TCE argues that the governance structure ideal for enterprises involved in recurrent transactions of idiosyncratic asset specificity is a relational contract in the form of unified governance. PRASA is a schedule 3B

national government business enterprise (NGBE) wholly owned by the South African government through the Department of Transport. Its mandate is to deliver commuter rail services in the metropolitan areas of South Africa, as well as long-distance rail and bus services within, to and from the borders of the country. It is non-profit oriented, but it is expected that its revenue will cover expenses. In this regard, PRASA has been loss-making and often requires bailouts from the state. Transactions required to deliver on its mandates are recurrent in the form of the site-specific transfer of intermediate products or machinery across successive stages; there is mid-level uncertainty; and investments in specific assets are usually substantial and idiosyncratic. Decision-making context, information context, contract law, incentive intensity, and autonomous adaptation are usually weak, while administrative control and cooperative adaptation are usually strong (Table 2; Williamson 1979). With regard to SMRT, its mandate is similar to that of PRASA in that it is a premier multi-modal land transport provider involved in rail, bus, taxi, and automotive service operations. It is expected to operate profitably and thus operate like a private enterprise. In this context, SMRT has been operating profitably. Attributes are similar to PRASA in that the transactions required to deliver on its mandate are recurrent, with an intermediate level of uncertainty. Investments in specific assets are usually substantial and idiosyncratic (Williamson 1979). Since SMRT operates under a holding company structure, it is expected that incentive intensity, autonomous adaptation, contract law, information and decision-making context, autonomous adaptation, and administrative control will be semi-strong. Incentive intensity is stronger in SMRT compared with PRASA in that management and directors are better remunerated and are allowed share ownership as a way of aligning management’s and shareholders’ interests. As summarised in Figure 1, the operational efficiency of PRASA (0.09) in terms of asset turnover was lower than that of SMRT (0.64). SMRT’s fixed asset turnover (0.75) was also higher than that of PRASA (0.08).

Figure 1. Comparison of PRASA and SMRT (Content Analysis – Annual Reports)

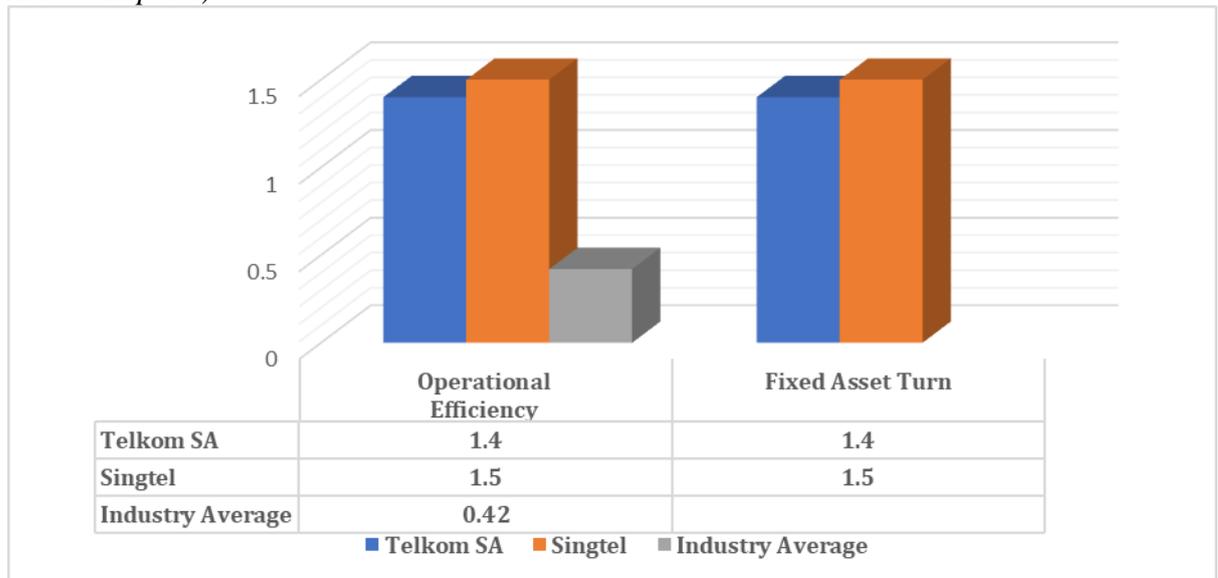


With regard to TCE, the ideal governance structure for enterprises involved in recurrent transactions of idiosyncratic asset specificity (PRASA, SMRT) is a relational contract in the form of unified governance. For enterprises where TCE supports unified governance, PRASA and SMRT were compared. Both enterprises are wholly owned by their various governments, thus appropriately structured according to TCE (Table 2). While SMRT falls under a holding company, PRASA falls under the decentralised structure under a state ministry. Pictured, in Figure 1, the operational efficiency of PRASA (0.09) was significantly lower than that of SMRT (0.64); also, the fixed asset turnover of both enterprises was in line with their operational efficiencies, with that of SMRT being higher than that of PRASA, thus appearing to confirm the proposition that SOEs that are organised through a holding company and through part ownership by public and private role players are more likely to perform better relative to those that are fully owned and under the state's ministry or ministries. Comparison with the industry average (0.36) also indicates that SMRT performed better, while the operational efficiency of PRASA was significantly lower.

Telecommunications, Media and Technology Sector

Telkom SA and Singapore Telecom (Singtel) were compared under the Telecommunications, Media, and Technology sector. These enterprises are both partly owned; thus, they are not appropriately structured according to TCE (Table 2). They are both profit-oriented and have both been profitable. The South African government, through the Department of Telecommunications and Postal Services and the PIC, owns about 51% of the shares in Telkom SA, while the Singaporean government, through Temasek and the CPF (managed by the GIC), has a 57.46% share in Singapore Telecom. These enterprises engage in recurrent transactions to discharge their duties. There is an intermediate level of uncertainty and investments in idiosyncratic assets. Incentive intensity, administrative controls, autonomous and cooperative adaptations, contract law, information context, and decision-making context are semi-strong (Table 2). Singapore Telecom directors are allowed company share ownership as a way of aligning directors' and shareholders' interests. Since Telkom SA is also listed on the JSE, Telkom SA's middle management and bargaining unit employees are permitted to purchase company shares through the employee share ownership plan on the open market, which is designed to motivate long-term sustainable performance and align the interests of management with those of the shareholders. The difference in incentives is that while the share plan for Singapore Telecom is for management and directors, certain qualifying Telkom SA employees are allowed share ownership. As illustrated in Figure 2, the operational efficiency of Telkom SA (1.4) in terms of asset turnover was slightly lower compared with that of Singapore Telecom (1.5). Singapore Telecom's fixed asset turnover (1.5) was also slightly higher than that of Telkom SA (1.4).

Figure 2. Comparison of Telkom SA and Singapore Telecom (Content Analysis - Annual Reports)



Following the arguments of TCE, in this sector, the hybrid structure (bilateral) is deemed better than the other structures considering that the critical dimensions against which governance structures are analysed in relation to attributes and characteristics are semi-strong, combining the strengths and weaknesses of the market and hierarchy governance structures. In this sector, TCE favours unified governance for enterprises involved in telecommunications and media, and bilateral governance for enterprises involved in technology. Thus, for enterprises involved in technology and media, the ideal governance structure would be the unified model in which the partly owned enterprises would be some sort of subsidiary needed for carrying out the activities of SOEs.

There was no observed significant difference between the operational efficiency of Telkom SA (1.4) and Singapore Telecom (1.5) (Figure 2). Compared with the industry average (0.42), both enterprises operated efficiently. Also, the fixed asset turnover of both enterprises was normal in relation to their operational efficiency. Since both enterprises are organised according to the proposition, the results appear to confirm the proposition when compared to the result under the Transportation and Industrials sector considering that both Singapore Telecom and Telkom SA have similar results since they are organised in a similar way in line with the proposition compared to PRASA and SMRT, with a notable difference in results, with SMRT organised in line with the proposition and PRASA is not.

Conclusion, Implications and Further Research

This paper has demonstrated dimensionalisation by comparing SOEs in Singapore and South Africa. In addition, the paper developed a TCE framework detailing different forms of organisation structures, investment characteristics, as well as critical dimensions by which governance structures are analysed in relation

to the attributes and characteristics of transactions/contracts. Thus, a particular important point, as seen in Table 1, about dimensionalisation in TCE, is that it makes clear the strengths and weaknesses of each of the various forms of organisation structures, especially regarding the critical dimensions by which governance structures are analysed in relation to the attributes and characteristics of transactions/contracts. Dimensionalisation is very useful in determining structures for reforming not just PSEs and SOEs but as well as in establishing new organisations. This paper has shown that both TCE and TCE's dimensionalisation are useful organisational tools that can be applied to various organisational analysis at various levels.

Following from the above, this paper has implications for theory, policymakers, standard setters/regulators and practitioners involved in SOEs and public sector management. It further reinforces the importance of TCE as a theory and its relationship with other theories of the firm, especially the agency theory. The results of this paper will assist policymakers, standard setters/regulators and practitioners involved in SOEs and public sector management by improving their understanding of the impact of governance structures applicable to SOEs and other state agencies and their strengths and weaknesses. Therefore, this enables them to make informed decisions on how they could use a particular structure or a combination of structures to organise SOEs. Thus, they are to ensure that they come up with policies that will support utilising a good governance structure in structuring SOEs and other state agencies, which is key in mitigating fruitless and wasteful expenditure by SOEs and in increasing taxpayers' confidence in the ability of political agents to manage taxpayers' money effectively and efficiently. This paper, therefore, has important strategic and operational management implications that states and their entities, enterprises, and agencies should consider.

Like any study of this nature, there are bound to be limitations, providing avenues for further research. In this regard, it is clear from the above discussion and analysis that TCE may be applied in a number of different ways to analyse socioeconomic organisations, especially with regards to structure – ownership, and organising. This study has only described the process of dimensionalising as applicable to SOEs. Future studies could explore further ways in which dimensionalisation could be used for analysis in organisational studies aside from the one described in this study. Such studies could explore other aspects of TCE not considered in this study. Future studies could also explore in detail the characteristics of other SOE sectors not considered in this paper as a result of space limitation. Further, future studies could also explore other aspects of TCE related to technology as observed in the above discussion. Future research could also extend this study by using a large dataset to explore dimensionalisation. Using a large dataset may also allow for quantitative analysis of observations, taking the elements of operational efficiency as variables. It is also possible to extend dimensionalisation to other organisations, such as non-profit organisations.

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The Role of Country-pair-related News Sentiment in Foreign Exchange

*By Stephan Unger**

This article explores the relative, explanatory contribution of country-pair-related political and financial news to foreign exchange rates. Contributing political factors are measured through the sentiment scores of published news while contributing financial factors are measured through various economic indicators such as price and volume of USD and CNY oil futures, the Russian IMOEX Index, and corresponding interest differentials. The results show that news sentiment plays a minor role in exchange rate determination while other factors such as prices and traded volumes in oil future contracts and interest differentials are significant contributing factors to the exchange rate determination. Nevertheless, the quality and quantity of news coverage of geo-political or economic events seems to play an important role when it comes to the impact of news on exchange rates. Among the sentiment-analyzed currency pairs, EUR/USD exhibits by far the highest sensitivity to political and economic news, followed by EUR/RUB, RUB/CNY, EUR/CNY, USD/CNY, and USD/RUB.

Keywords: *foreign exchange, news sentiment analysis, text mining, geo-political sentiment*

JEL-Codes: *F31, E71*

Introduction

As international trade relationships differ very often from political relationships, the geo-political and economic events and developments which are being reported in the news, it is very hard to assign one score which measures the status of the relationship between two countries. Even though political and economic factors are heavily intertwined, the focus and main contribution of this paper is the investigation of the role of news and media in the exchange rate development. For this purpose an appropriate measure to quantify the relationship between two countries needs to be developed. One way to measure the relationship between two countries is to measure the sentiment score of reported news associated with this country pair. The relationship status of two countries can be subsumed under one numeraire, the sentiment score, in order to reflect the developments in the economic as well as political spheres.

Geo-political developments are often the main driver of exchange rate fluctuations which then utilize financial markets as instruments to achieve its political goals. In other cases, geo-political developments are a result of movements in the financial markets. In general, the interaction between political

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decisions and financial market is reciprocal. The reaction of one party is a time-lagged function of the other party. For example, an increase in consumer prices might be due to the political decision to print more money in order to finance high debt levels. The high debt levels might be a reflection of negative trade balances with other countries with who the country of origin might sustain good relations. The country of origin thus, chose through a political decision by instrumentalizing the financial markets to sustain a certain economic condition through the imposition of a certain trade relationship. This relationship will most likely exhibit in general a positive sentiment.

If for certain reasons, e.g., financial reasons, economic conditions in the partner country deteriorate, and the partner country politically decides to scale back exports, this would indeed negatively affect the country of origin and thus, be reflected in the country pair's sentiment. It would be hard to trace back the causality for this negative sentiment change as it is unclear if this sentiment change should be categorized as a political or economic reason. However, the political decision, respectively financial markets reaction will be measurable through news by calculating the sentiment score of the corresponding news article. Furthermore, the political decision will be reflected in the movements of the financial markets, which can again be measured. There are certain economic factors, e.g., trade-related indicators, which reveal the status of a relationship between two countries. A very suitable indicator to measure the financial relationship between two countries are foreign exchange rates since they subsume political as well as economic differences between two countries.

Economic factors which determine the exchange rates, such as trade relationships and interest rate differentials could also be categorized as political decisions as it is up to the political and governing decision body to set up and maintain consensual agreements or set the cost of money in their country. By setting the interest rates in their own country, governments can implicitly change the sentiment relationship towards a partner country since the interest differential influences the exchange rates. This can make exports or imports for the partner country cheaper or more expensive, and thus, also influence politically the situation in the partner country.

Political attitude towards a partner country can look differently though, than the economic relationship. A very good example for a diverging relationship between political and economic sentiment between two countries or regions is the relationship between the European Union and Russia. While maintaining a distorted but still functioning economic relationship with Russia, as reflected by the constant agreements on EU gas imports from Russia over decades, the political relationship has been rather shuttered as the EU has been imposing sanctions on Russia over the same time period.

Another factor that plays an important role is the relative divergence of sentiment in different time dimensions. Long-term country relationships might differ from short term country relationships, even though they might be highly auto-correlated with expansion of time. The reason for an increasing auto-correlation might be attributed to the characteristics that the long-term development of the sentiment between two countries is a function of short-term developments.

However, the time threshold at which short-term sentiment coincides with long-term sentiment is unknown. A convergence may even never occur, which makes the time-dependent perspective of sentiment valuation a paradoxon. The reason for this behavior might be due to separation of economic and political interests. Divergent interests of acting partners within a country may determine different policies and therefore cause short-term sentiment developments diverge from long-term sentiment values. Nevertheless, to find out if or when a convergence of the time-dependent sentiment differential occurs is subject to further research. The ultimate flip, respectively convergence of a sentiment differential may occur when some trigger event happens, resources are exhausted, or agreements are reached or breached.

Literature Review

Sentiment analysis has been widely adapted in foreign exchange forecasting and a vast amount of research has been conducted in order to understand the power of news on financial markets.

This article focuses on the purely marginal contribution of news media on geo-political and economic events and developments on the foreign exchange rates. The difference to existing literature is the focus on country-pair related sentiment scores and their correspondence and investigation of their explanatory power on the corresponding exchange rate, which hasn't been considered in the literature yet. While most of the literature analyzes non-systematically news, social media postings or tweets, they don't relate the calculated sentiments scores to corresponding country-pairs. That's the novelty of this research paper. Moreover, a lot of research works on a high-frequency time scale, the focus of this paper is to analyze the contribution of news sentiment on the FX rate movements on a daily basis besides other, market determining factors. By using end-of-day closing prices we filter automatically intraday noise and allow at the same time other market-determining factors to take effect which allows to extract the net-effect of sentiment scoring on the FX rates.

Considering the utilization of social media platforms, such as Twitter, Zhao et al. (2022) gather network social media data in order to predict foreign exchange rates generated during the new round of trade war between China and the United States. They use a nonlinear model LSTM based on machine learning is used to model and predict the high-frequency exchange rate sequence. They show that the accuracy of the exchange rate forecasting model with the sentiment factors of public opinion is improved.

Komariah et al. (2016) perform a study on efficient market hypothesis to predict exchange rate trends using sentiment analysis of Twitter data. They take daily Twitter sentiments using the hybrid approach of the lexicon-based approach and the naive Bayes classifier to analyze the currency exchange rate movement of Indonesia Rupiah vs US dollar as a way of testing the Efficient Market Hypothesis. They find that public information provided by Twitter sentiment correlates with changes in the exchange market trends.

Also Plakandaras et al. (2015) find evidence for the violation of the efficient market hypothesis by utilization of sentiment data. They take investors' sentiment on a given exchange rate as a possible predictor of its future evolution. As a proxy of investors' sentiment they use StockTwits posts, a message board dedicated to finance. Their empirical findings reject the Efficient Market Hypothesis even in its weak form for all four exchange rates. They find evidence that investors' sentiment as expressed in public message boards can be an additional source of information regarding the future directional movement of the exchange rates to the ones proposed by economic theory.

Most of the literature concerns the sentiment analysis of stock prices. There exists a vast amount of research dealing with the predictive power of news in stock prices. Even though stock prices are not the subject of this research here, the predictive power of sentiment analysis in financial markets can be stressed. Chowdhury et al. (2014) apply a predictive model to predict sentiment around stock prices. Their results result shows an average accuracy score for identifying correct sentiment of around 70.1%. The comparison between positive sentiment curve and stock price trends reveals 67% co-relation between them, which indicates towards existence of a semi-strong to strong efficient market hypothesis.

In latest developments, the relationship between news sentiments and new asset classes such as crypto currencies is being increasingly subject to research. Georgoula et al. (2015) use time-series and sentiment analysis to analyze the relationship between Bitcoin prices and fundamental economic variables, technological factors and measurements of collective mood derived from Twitter feeds. They conduct a series of short-run regressions which show that the Twitter sentiment ratio is positively correlated with Bitcoin prices while the value of Bitcoins is negatively affected by the exchange rate between the USD and the Euro. Rognone et al. (2020) use high frequency intra-day data to investigate the influence of unscheduled currency and Bitcoin news on the returns, volume and volatility of the cryptocurrency Bitcoin and traditional currencies over the period from January 2012 to November 2018. They find that unlike traditional currencies, Bitcoin reacts positively to both positive and negative news.

Xing et al. (2020) also analyze news sentiment in a high-frequency context of the foreign exchange market. Their model outperforms alternative sentiment analysis approaches and confirms that news sentiment alone may have predictive power for Forex price movements.

In a very direct-politics-related research, Colonescu (2018) analyzes the effects of Donald Trump's tweets on U.S. financial and foreign exchange markets. He finds a correlation between various moving average window lengths of tweet content and the DJI index. Some short term and lasting effects are also detected on U.S. -Canada and U.S. composite exchange rates.

Lee et al. (2019) perform a currency exchange rate prediction with long short-term memory networks based on attention and news sentiment analysis. They use the Australian dollar (AUD) against the U.S. dollar (USD) as a case study and study the prediction AUD rate for next day, week, two-week, and month. Their results show that adding sentiment score of the news articles and matching keywords of "up/increase" can reduce prediction error by at least 15%.

Chethan and Sangeetha (2020) take available tweets on social media about USD/INR exchange rate, BSE Sensex, NSE Nifty and calculate a sentiment score for each of the sentences where any twitter feeds using the keywords: USD/INR, #USD/INR, #BSE, #Sensex, #NSE are mentioned. They show that Sentiment analysis can be used effectively by investors to make a prediction of what direction the price will realize based on the sentiment prevailing in the market. They only classify sentiment into positive, negative, or neutral, whereas the model used in this article here calculates a sentiment score between -1 and +1 by utilization of the tanh function. Details on the sentiment calculation can be found in Shukla and Unger (2022).

Data and Methodology

The directional causality of the political and financial determinants of the FX rate is not subject of this article but could be subject to further research. What we are interested in this paper is to test empirically to which extent news on geo-political and economic developments translate into the exchange rate between two countries. For this purpose the news sentiments of several exchange rate pairs, representing country or regional pairs, are being calculated. Then, the corresponding country or region pair exchange rate is regressed on several independent variables such as the calculated sentiment score, the price and volume of the corresponding oil or stock market index future, as well as the corresponding interest differential. The main countries or regions which also exhibit the most important and impactful news are USA, European Union, Russia, and China. The corresponding currency pairs of interest are all combinations of all cross-country pairs: EUR/USD, EUR/RUB, RUB/CNY, EUR/CNY, USD/CNY, and USD/RUB.

The data we use for measuring geo-political news is being retrieved from google news and calculated by using an own model for sentiment analysis. Through utilization of a web-scraper we perform high-performance text mining using latest, state-of the art machine learning tools which are capable of identifying relevant news articles, screening of these news articles, identifying relevant keywords and associations with country names, respectively relevant country pairs, and calculation of a sentiment score for the associated country pairs.

The underlying learning model is BERT (Bidirectional Encoder Representations from Transformers) which is also used by the google search engine. (Alammar 2019) For the named entity recognition (NER), which can identify person, location, and organization from a news and relate it to a country, a deep learning model Peters et al. (2018) is used. For further details the reader might refer to the article by Shukla and Unger (2022).

The time-horizon we use is as long as free google news archive allows to retrieve and download news backwards, which is usually not longer than 5-9 months. The most accumulated news is usually available in the recent history, i.e., last couple of weeks.

The financial data we use are being retrieved from Bloomberg. The following data and time frames are used correspondingly for exchange rates and news

sentiment, Sent: EUR/USD (07/16/2021-05/23/2022), EUR/RUB (12/09/2021-05/23/2022), RUB/CNY (11/25/2021-05/23/2022), EUR/CNY (09/08/2021-05/23/2022), USD/CNY (08/12/2021-05/23/2022), USD/RUB (01/28/2022-05/23/2022).

For the same corresponding time frames the following financial indices for each currency pair are used: Price and volume Brent crude oil future contracts (Brent_p, Brent_v), price and volume WTI crude oil future contracts (WTI_p, WTI_v), Russia stock market index price and volume (IMOEX_p, IMOEX_v), oil price and volume Shanghai crude oil future contracts (SCPA_p, SCPA_v), EUR/USD 1y forward rate (EURUSD_Fwd), EUR/RUB 1y forward rate (EURRUB_Fwd), RUB/CNY 1y forward rate (RUBCNY_Fwd), EUR/CNY 1y forward rate (EURCNY_Fwd), USD/RUB 1y forward rate (USDRUB_Fwd), USD/CNY 1y forward rate (USDCNY_Fwd).

The forward rate premium is being calculated following the standard formula to calculate the interest rate differential:

$$p = \frac{1+i_f}{1+i_h} - 1, \quad (1)$$

where p is the 1 year forward rate premium, i_f is the 1 year interest rate of the foreign currency, and i_h is the 1 year interest rate of the home currency. The first denominated currency in the exchange rate is considered to be the home currency, e.g., in case of EUR/USD, EUR would be the home currency, and USD would be the foreign currency.

The following interest rates were used for the corresponding currencies:

EUR: 12m EURIBOR, USD: 12m USD-LIBOR, RUB: Bank of Russia key rate, CNY: China 1y lending rates.

The dates used for the analysis are contingent on the available news sentiment score on the particular day. Not every country pair or associated representations, like head politicians, are mentioned every day in the news. Besides that, due to the limitation of freely available news sources in the google archives, more weight is being put on recent news than older news. This causes a rather fragmented time series where certain dates within the above-mentioned time frames are not available and thus, cause gaps. Nevertheless, the available data points give an indication where the sentiment score moved, e.g., within several weeks. The analyzed time series of the currency pairs are therefore of different length.

The Models

The multiple regressions used for each currency pairs are the following:

$$USDRUB = \alpha + \beta_1 Sent_{USDRUB} + \beta_2 WTI_p + \beta_3 WTI_v + \beta_4 IMOEX_p + \beta_5 IMOEX_v + \beta_6 USDRUB_{Fwd} + \epsilon_i \quad (2)$$

$$USDCNY = \alpha + \beta_1 Sent_{USDCNY} + \beta_2 WTI_p + \beta_3 WTI_v + \beta_4 SCPA_p + \beta_5 SCPA_v + \beta_6 USDCNY_{Fwd} + \epsilon_i$$

(3)

$$EURUSD = \alpha + \beta_1 Sent_{EURUSD} + \beta_2 Brent_p + \beta_3 Brent_v + \beta_4 WTI_p + \beta_5 WTI_v + \beta_6 EURUSD_{Fwd} + \epsilon_i$$

(4)

$$EURRUB = \alpha + \beta_1 Sent_{EURRUB} + \beta_2 WTI_p + \beta_3 WTI_v + \beta_4 Brent_p + \beta_5 Brent_v + \beta_6 IMOEX_p + \beta_7 IMOEX_v + \beta_8 EURRUB_{Fwd} + \epsilon_i$$

(5)

$$RUBCNV = \alpha + \beta_1 Sent_{RUBCNV} + \beta_2 IMOEX_p + \beta_3 IMOEX_v + \beta_4 SCPA_p + \beta_5 SCPA_v + \beta_6 Brent_p + \beta_7 Brent_v + \beta_8 RUBCNV_{Fwd} + \epsilon_i$$

(6)

$$EURCNV = \alpha + \beta_1 Sent_{EURCNV} + \beta_2 SCPA_p + \beta_3 SCPA_v + \beta_4 Brent_p + \beta_5 Brent_v + \beta_6 WTI_p + \beta_7 WTI_v + \beta_8 EURCNV_{Fwd} + \epsilon_i$$

(7)

By regressing the exchange rates on the news sentiment score as well as on the corresponding financial indicators it is possible to determine the influencing capability of each regressor. Our particular interest lies in the explanatory power of the sentiment score, or in other words, in the influencing capability of news to have an impact on exchange rates.

Results

Table 1. Estimation Results of USDRUB

USDRUB	Coefficients	P-value
Intercept	48.8381	0.1949
Sent_USDRUB	0.4060	0.9734
WTI_p	-0.0547	0.8278
WTI_v	0.0000	0.8432
IMOEX_p	0.0019	0.7067
IMOEX_v	0.0000	0.1615
USDRUB_Fwd	615.6902	4.93E-07

Table 2. Estimation Results of USDCNY

EURUSD	Coefficients	P-value
Intercept	1.2185	3.62E-08
Sent_EURUSD	-0.0167	0.1923
Brent_p	0.0052	0.2509
Brent_v	-1.021E-07	0.0266
WTI_p	-0.0062	0.1318
WTI_v	1.865E-07	0.0089
EURUSD_Fwd	-4.9207	0.2129

Table 3. Estimation Results of EURUSD

USDCNY	Coefficients	P-value
Intercept	5.6375	2.43E-09
Sent_USDCNY	0.0060	0.9049
WTI_p	0.0036	0.5391
WTI_v	-2.219E-07	0.0015
SCPA_p	0.0009	0.4289
SCPA_v	5.8095E-07	0.1492
USDCNE_Fwd	7.6922	0.3526

Table 4. Estimation Results of EURRUB

EURRUB	Coefficients	P-value
Intercept	-116.3777	0.0404
Sent_EURRUB	2.6483	0.6753
WTI_p	-3.2035	0.0201
WTI_v	-6.489E-06	0.7195
Brent_p	4.1033	0.0072
Brent_v	1.9345E-05	0.2681
IMOEX_p	0.0217	0.0148
IMOEX_v	-1.363E-11	0.5861
EURRUB_Fwd	198.2203	1.97E-05

Table 5. Estimation Results of RUBCNY

RUBCNY	Coefficients	P-value
Intercept	0.0860	0.2986
Sent_RUBCNY	0.0015	0.6779
IMOEX_p	-6.38796E-06	0.5867
IMOEX_v	-8.90655E-14	0.0050
SCPA_p	0.0001	0.1122
SCPA_v	6.47239E-08	0.0239
Brent_p	0.0003	0.6133
Brent_v	-2.76817E-08	0.0013
RUBCNY_Fwd	8.3755	0.1154

Table 6. Estimation Results of EURCNY

EURCNY	Coefficients	P-value
Intercept	8.8392	1.36E-13
Sent_EURCNY	-0.0156	0.7302
SCPA_p	-0.0019	0.2193
SCPA_v	-5.31726E-07	0.0987
Brent_p	-0.0189	0.1512
Brent_v	-1.31873E-07	0.4672
WTI_p	0.0164	0.1600
WTI_v	1.11999E-07	0.4973
EURCNY_Fwd	-2.6311	0.4241

Summary Statistics

Table 7. Currency Pair Statistics

Currency	Corr	p-value
EURUSD	-0.28388	0.192312
EURRUB	-0.09167	0.67526
RUBCNV	0.152867	0.677922
EURCNV	-0.19559	0.730206
USDCNV	0.179593	0.90489
USDRUB	-0.20627	0.973429

Tables 1-6 report the estimation results of all currency pairs regressed on the financial indicators.

Table 1 provides the estimation statistics of the aggregated U.S. - and Russian-related news sentiment score and related financial indicators used as parameters to explain the USD/RUB exchange rate. We can see that the only factor that exhibits a significant explanatory power at a 95% confidence level is the interest differential, measured through the USD/RUB forward rate premium. The U.S. -and Russian-related news sentiment score does not exhibit any significant explanatory power to explain the USD/RUB exchange rate.

Table 2 presents the estimation statistics of the aggregated U.S. - and Chinese-related news sentiment score and related financial indicators used as parameters to explain the USD/CNY exchange rate. We can see that the traded volume in the WTI crude oil future contracts exhibit a significant explanatory power at the 99% confidence level, followed by the traded volume in the SCPA crude oil future contracts at a 85% confidence level. The U.S. and Chinese-related news sentiment score doesn't exhibit any significant explanatory power to explain the USD/CNY exchange rate.

Table 3 shows the estimation statistics of the aggregated U.S. - and European-related news sentiment score and related financial indicators used as parameters to explain the EUR/USD exchange rate. We can see that the WTI volume also explains the EUR/USD exchange rate at a 99% confidence level, followed by the Brent volume at 97%, and the WTI price at 87%. The U.S. and European-related news sentiment score exhibits a significant explanatory power to explain the EUR/USD exchange rate at a 80% confidence level.

Table 4 reports the estimation statistics of the aggregated European- and Russian-related news sentiment score and related financial indicators used as parameters to explain the EUR/RUB exchange rate. Highly significant explanatory can be found in the EURRUB forward rate at 99.99% confidence level, the Brent price at 99%, followed by IMOEX price at 98% and WTI price at 97%. The European- and Russian related news sentiment score does not exhibit any significant explanatory power to explain the EUR/RUB exchange rate.

Table 5 outlines the estimation statistics of the aggregated Russian- and Chinese-related news sentiment score and related financial indicators used as parameters to explain the RUB/CNY exchange rate. Highly significant explanatory can be found in the IMOEX volume and Brent volume at a 99% confidence level, and the SCPA volume at 98%. The Russian- and Chinese-related news sentiment

score doesn't exhibit any significant explanatory power to explain the RUB/CNY exchange rate.

Table 6 delineates the estimation statistics of the aggregated European- and Chinese-related news sentiment score and related financial indicators used as parameters to explain the EUR/CNY exchange rate. The only weak significant explanatory can be found in the SCPA volume at 90% at a 99% confidence level. The European- and Chinese-related news sentiment score does not exhibit any significant explanatory power to explain the EUR/CNY exchange rate.

Table 7 summarizes and ranks the estimation res and provides an overview of the associate Pearson correlation factors between the exchange rates and corresponding news sentiment scores. We can see that the EUR/USD news sentiment score exhibits the only existing weak explanatory power to have an effect on the exchange rate, while no significant relationship can be found in the other country pairs' sentiment score and their corresponding exchange rates.

The correlations are all very weak, but the sign of the correlations can mostly be attributed to the risk-on ad risk-off behavior in financial markets. A positive correlation means that when the sentiment score is positive, that the first denominated currency in the pair is getting stronger due to high demand of the currency, and vice versa. Therefore, the correlation reveals a lot about in which direction money flows when the sentiment between two countries gets better or worse. A negative correlation in EUR/USD means that a positive news related to Europe and the USA will weaken the EUR and strengthen the USD. The reason for this might probably be the import dependency of the U.S. on the EU. We can see the same effect with USD/CNY. A negative correlation in USD/RUB might indicate that negative news related to the U.S. and Russia will strengthen the USD due to the flight to safety. The negative correlation in EUR/RUB and EUR/CNY may be probably mostly attributed to the same reason. The positive correlation in RUB/CNY favors the Russian Rubel in case of positive news coverage involving Russia and China, probably because Russia is exporting a vast amount of natural resources to China and thus, strengthen its currency.

In general, certain financial indicators such as the traded volume in oil future contracts seem to impact the exchange rate more than other indicators. Since most of the corresponding news sentiments do not exhibit a significant explanatory power, it seems that news sentiment does not capture the events and developments in the financial markets sufficiently. The reason for this might be under-reporting or misinterpretation of geo-political and financial news. One conclusion that can be drawn from the results is that better news coverage leads to more awareness among market participants and therefore a higher tendency to consider new in currency trading. The higher coverage ratio of news is an indication for the provision of more liquid, and thus, more efficient markets.

Therefore, the provided ranking here can also be seen as a ranking on quantity of news coverage, respectively market participants' tendency to incorporate news coverage into the valuation of or speculation on the corresponding currency pairs, and thus, provides an insight in the efficiency of the corresponding currency, resp. financial markets.

Factors that need to be taken into consideration of this conclusion are of political nature. Since political considerations are play an important role in news coverage, the results might be heavily skewed, but still reflect the news sentiment as it is published. Also, language barriers and system-adversarial conditions might prohibit a better news coverage.

Moreover, scattered time-frames and time-availability of news data restrict the analysis to certain dates which might not be a representative population. Nevertheless, the results provided in this paper can serve as a sample which provides interesting insights into the relationship and contribution of news sentiment to exchange rate determination and efficient markets.

Conclusion

This article investigates the relative contribution of news sentiment to the foreign exchange rate determination. While political and financial factors are undoubtedly determining the exchange rates between countries, the question arises if the mapping and measurement of these processes through news media explains fully or at least partially FX developments as well. While it is possible to find unique measures for each category, they both can be subsumed in the calculation of a sentiment score of the news publishing the political and or economic developments. The following 6 currency pairs are being investigated: EUR/USD, EUR/RUB, RUB/CNY, EUR/CNY, USD/CNY, and USD/RUB. Correspondingly, the news sentiments of the associated country pairs are being calculated for each currency pair to find out the contribution of each news sentiment on the exchange rate development. Further indicators such as the price and aggregated volume of the WTI, Brent and SCOA crude oil future contracts, the IMOEX Russian stock market index, and the corresponding interest rate differential, measured through the 1-year currency forward rate premium, are included as well.

It is found that only the European - and U.S. - news sentiment score exhibits a weak impact on the EUR/USD exchange rate, while the other country pair news sentiment scores do not exhibit any relevant impact on their corresponding exchange rates. What can be further seen, is that most currency pairs are very dependent on the traded volume in their corresponding oil future contracts. This result is not surprising, since the demand and supply of oil future contracts requires the purchase or sale of the corresponding currency. Since oil future contracts are now not only denominated in USD, but also CNY, it is interesting to see that the impact of CNY-denominated oil future contracts on CNY-involved currency pairs is still secondary after WTI or Brent contracts.

The correlations between the news sentiments and corresponding currency pairs indicate the flow of money in risk-on and risk-off situations when sentiment turns negative or positive. It can be seen that the sentiment scores capture the existing global trade and political structure between the biggest players.

A ranking of the significance reveals which country pair is covered best by news media. The implications are not far-fetched, as a higher ranking implies a better news coverage, which in turn reflects a higher awareness of market

participants to consider news in their currency evaluation and provides thus, a measure for the efficiency of the corresponding currency, resp. financial markets.

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Appendix

Table 8. Regression Statistics for USD/RUB

SUMMARY OUTPUT USD/RUB

<i>Regression Statistics</i>						
Multiple R	0.877584896					
R Square	0.770155249					
Adjusted R Square	0.717114153					
Standard Error	6.956134643					
Observations	33					

<i>ANOVA</i>						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	6	4215.537889	702.59	14.51997229	3.24699E-07	
Residual	26	1258.083038	48.3878			
Total	32	5473.620928				

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	48.83808868	36.70804089	1.33045	0.194923374	-26.61637002	124.2925474
Sent_USDRUB	0.406049267	12.07412552	0.03363	0.973429286	-24.41267119	25.22476972
WTI_p	-0.054737841	0.249173248	-0.21968	0.827837674	-0.566920786	0.457445105
WTI_v	2.24018E-06	1.12147E-05	0.19975	0.843226553	-2.08119E-05	2.52923E-05
IMOEX_p	0.001946398	0.005116308	0.38043	0.706716461	-0.008570323	0.012463119
IMOEX_v	2.3513E-11	1.63178E-11	1.44094	0.161537131	-1.00287E-11	5.70547E-11
USDRUB_Fwd	615.6902088	92.8416751	6.63161	4.92617E-07	424.8514125	806.5290051

Table 9. Regression Statistics for USD/CNY

SUMMARY

OUTPUT

USD/CNY

Regression Statistics						
Multiple R	0.804418313					
R Square	0.647088822					
Adjusted R Square	0.550840319					
Standard Error	0.101895558					
Observations	29					

ANOVA						
	df	SS	MS	F	Significance F	
Regression	6	0.418824102	0.069804017	6.723105317	0.00037813	
Residual	22	0.228419503	0.010382705			
Total	28	0.647243606				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	5.637507735	0.585959581	9.62098396	2.42682E-09	4.42230194	6.852713529
Sent_USDCN	0.005982379	0.049493726	0.120871451	0.904890017	-0.096661328	0.108626085
Y	0.00358024	0.005738264	0.623923958	0.539093824	-0.008320191	0.015480671
WTL_p	0.00358024	0.005738264	0.623923958	0.539093824	-0.008320191	0.015480671
WTL_v	-2.21881E-07	6.14173E-08	-3.612681826	0.001543565	-3.49253E-07	-9.45095E-08
SCPA_p	0.000874738	0.001085381	0.805926882	0.428910845	-0.001376205	0.00312568
SCPA_v	5.80945E-07	3.88721E-07	1.494504547	0.149249938	-2.25213E-07	1.3871E-06
USDCNE_Fwd	7.692150032	8.099588124	0.949696443	0.352583563	-9.105367641	24.4896677

Table 10. Regression Statistics for EUR/USDSUMMARY EUR/US
OUTPUT D

Regression Statistics						
Multiple R	0.972114246					
R Square	0.945006107					
Adjusted R Square	0.897868485					
Standard Error	0.015773331					
Observations	14					

ANOVA						
	df	SS	MS	F	Significance F	
Regression	6	0.029927127	0.004988	20.04781	0.000442304	
Residual	7	0.001741586	0.000249			
Total	13	0.031668712				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.218487901	0.047742275	25.5222	3.62E-08	1.105595359	1.331380443
Sent_EURUSD	-0.016668845	0.01155381	-1.44271	0.192312	-0.043989265	0.010651575
Brent_p	0.005202024	0.004155886	1.251724	0.250875	-0.004625084	0.015029132
Brent_v	-1.02088E-07	3.64807E-08	-2.7984	0.026585	-1.88351E-07	-1.58245E-08
WTI_p	-0.006173401	0.00361898	-1.70584	0.131805	-0.014730928	0.002384127
WTI_v	1.86498E-07	5.20484E-08	3.583168	0.008938	6.34232E-08	3.09573E-07
EURUSD_Fwd	-4.920682502	3.590343723	-1.37053	0.212851	-13.41049634	3.569131336

Table 11. Regression Statistics for EUR/RUB

SUMMARY OUTPUT		EUR/RUB				
Regression Statistics						
Multiple R	0.896143802					
R Square	0.803073714					
Adjusted R Square	0.753842143					
Standard Error	11.00447318					
Observations	41					
ANOVA						
	df	SS	MS	F	Significance F	
Regression	8	15803.02444	1975.378	16.31217	2.68129E-09	
Residual	32	3875.149759	121.0984			
Total	40	19678.1742				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-116.3777438	54.48772776	-2.13585	0.040441	-227.3656133	-5.38987433
Sent_EURRUB	2.648286685	6.263494703	0.422813	0.67526	-10.11003452	15.40660789
WTI_p	-3.20346334	1.309652883	-2.44604	0.020123	-5.871138966	-0.535787713
WTI_v	-6.48853E-06	1.79079E-05	-0.36233	0.719488	-4.29657E-05	2.99886E-05
Brent_p	4.103262678	1.429118981	2.871183	0.007196	1.192242574	7.014282781
Brent_v	1.93447E-05	1.71637E-05	1.127068	0.268095	-1.56167E-05	5.4306E-05
IMOEX_p	0.021717761	0.008427736	2.576939	0.014783	0.004551024	0.038884498
IMOEX_v	-1.36283E-11	2.47778E-11	-0.55002	0.586124	-6.40991E-11	3.68424E-11
EURRUB_Fwd	198.2203359	39.62709477	5.002142	1.97E-05	117.5025852	278.9380865

Table 12. Regression Statistics for RUB/CNY

SUMMARY

OUTPUT RUB/CNY

Regression Statistics	
Multiple R	0.925383568
R Square	0.856334747
Adjusted R Square	0.810361866
Standard Error	0.0073883
Observations	34

ANOVA					
	df	SS	MS	F	Significance F
Regression	8	0.008134314	0.001016789	18.62695418	9.65987E-09
Residual	25	0.001364675	5.4587E-05		
Total	33	0.009498989			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	0.086048294	0.081055282	1.061600089	0.298565609	-0.080888183	0.252984772
Sent_RUBCNY	0.001539436	0.003663499	0.420209331	0.677922332	-0.00600568	0.009084553
IMOEX_p	-6.38796E-06	1.15987E-05	-0.550749026	0.586694152	-3.02759E-05	1.75E-05
IMOEX_v	-8.90655E-14	2.8962E-14	-3.075249638	0.005035851	-1.48714E-13	-2.94171E-14
SCPA_p	0.000101406	6.16022E-05	1.646144252	0.112249603	-2.5466E-05	0.000228278
SCPA_v	6.47239E-08	2.69073E-08	2.40544173	0.023877659	9.30732E-09	1.20141E-07
Brent_p	0.000256204	0.000500579	0.511815111	0.613272032	-0.000774757	0.001287165
Brent_v	-2.76817E-08	7.66805E-09	-3.610010372	0.001338554	-4.34744E-08	-1.18891E-08
RUBCNY_Fwd	8.375501204	5.135454153	1.630917336	0.115443364	-2.20116461	18.95216702

Table 13. Regression Statistics for EUR/CNY

SUMMARY						
OUTPUT	EUR/CNY					
Regression Statistics						
Multiple R	0.877983875					
R Square	0.770855685					
Adjusted R Square	0.700349742					
Standard Error	0.115643086					
Observations	35					
ANOVA						
	df	SS	MS	F	Significance F	
Regression	8	1.169705918	0.14621324	10.93320153	1.31339E-06	
Residual	26	0.347706408	0.013373323			
Total	34	1.517412326				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	8.839188854	0.632964764	13.96474078	1.35708E-13	7.538111148	10.14026656
Sent_EURCNY	-0.01558727	0.044715519	-0.348587471	0.730206024	-0.107501336	0.076326796
SCPA_p	-0.00188232	0.001495291	-1.25883146	0.219277064	-0.004955934	0.001191295
SCPA_v	-5.31726E-07	3.10533E-07	-1.712300475	0.098745234	-1.17004E-06	1.06584E-07
Brent_p	-0.018920255	0.012793593	-1.478885231	0.151185396	-0.045217862	0.007377351
Brent_v	-1.31873E-07	1.78708E-07	-0.737925166	0.467168474	-4.99213E-07	2.35467E-07
WTI_p	0.016395213	0.011334523	1.446484674	0.159990201	-0.006903232	0.039693658
WTI_v	1.11999E-07	1.62691E-07	0.688414176	0.497289019	-2.22417E-07	4.46415E-07
EURCNY_Fwd	-2.631062885	3.239616993	-0.812152452	0.424078035	-9.290190984	4.028065215

Asymmetric Effect of External Debt and Foreign Capital Flows on Economic Growth: New Evidence from Nigeria¹

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This research examines the asymmetric nexus between external debt and foreign capital flows on economic growth in Nigeria. The paper employed the non-linear autoregressive distributed lag (NARDL) methodology to investigate the asymmetrical effect of external debt on real Gross Domestic Product (GDP) growth in Nigeria. The estimated long-run parameters for positive and negative shocks of external debt are -1.08 and 3.09, respectively. The outcome indicated that a percentage increase in external debt will result in a 1.08 decrease in real GDP growth and that a one percent decrease in external debt will result in a 3.08 increase in economic growth. This illustrates that the receptiveness of real GDP growth to positive values of external debt is different to that of negative values of external debt. The reaction of real GDP growth to negative values of external debt is larger than to positive value of external debt. This suggests that it is imperative for Nigeria to have manageable external debt and fiscal sustainability as this would bolster its real economic growth as well as urge the fiscal authority to make concerted effort towards curbing corruption and reducing inefficiency to the barest minimum, as these will enhance growth.

Keywords: Nigeria, external debt, economic growth, asymmetry, foreign capital inflows

JEL Classification: C22, E62, F43, O11

Introduction

Foreign capital flows and external debt will continue to remain a subject of interest and concern among academia, policy makers and fiscal and the monetary authorities. The reasons adduced for this are quite apt especially its contribution to economic growth, volatility and other macroeconomic consequences. Foreign capital inflow is encouraged in developing countries to supplement domestic savings for investment and growth, and to bring in capital and technology. It contributes to filling the resource gaps where domestic savings are inadequate to finance the required investment. Capital flows are classified into debt, private and official flows. Private capital flows comprise mainly FDI, foreign portfolio investment (FPI) in the form of bonds and equity and commercial bank loans, while official capital flows include Overseas Development Assistant (ODA) and grants. In investigating the effect of capital flows on economic growth, FDI and

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¹The views expressed in this paper are those of the authors and do not in any way represent the position of the Bank or WAMI.

portfolio equity are different from each other since FDI involves ownership and control while FPI is not while foreign debt is a liability that must be paid (Lensik and Morrissey 2001, Klein and Olivei 2008, Ekeocha et al. 2012, Coccia 2017).

In 2016, total external inflow to Africa was US\$197.33 billion, a 25.4 percent decrease from \$264.51 billion in 2015. It thereafter dropped by 16.01 percent to US\$165.7 billion in 2017 and maintained a steady increase of 2.93 and 3.42 percent, respectively to US\$170.6 billion and US\$176.4 billion in 2018 and 2019. Following the outbreak of corona virus disease (COVID-19) pandemic in 2020, resulted in lockdown and travel restriction lead to moderation in total external inflows by 0.34 percent to US\$177.0 billion in 2020 and increased by 3.64 to US\$183.5 billion in 2021. Foreign Direct Investment has nosedived in Africa over the last decade from a rise of 5.23 percent of the total inflows in in the last decade 2002 - 2011 (US\$262.9 billion) and declining to about 34.47 percent in 2021 (US\$183.48 billion) (UNCTAD 2019, 2018, World Bank 2021, Chih et al. 2022). Conversely, portfolio inflows fell in 2021 and accounted for only 32.7 percent of total financial inflows compared to 5.23 percent in 2002-2011 occasioned by investor's risk averse to shocks in the global economy (Adeniran and Sidiq 2018, World Bank 2021).

Foreign capital flows have been defined as the movement of financial resources from one country to another. In a broader term it includes different kinds of financial transactions such as investment in equities; lending by governments and international organisations; bank lending; short and long terms; investment in public and private bonds and direct investment in productive capacity. Each of these has different implications for economic growth and development (see, Obadan 2004). International capital flows offer benefits to financially integrated countries and at the same time countries with some degree of financial openness share income risk, smoothen their consumption path and bridge saving-investment and foreign exchange gaps. They also face shocks transmitted through capital flow volatility which induces domestic instability (see also, Reinhart et al. 2016, Fernández et al. 2015, Reinhart and Reinhart 2009, Levine, 2001, Chenery and Strout 1966).

The 2008/9 global financial crises and its aftermath coupled with the recent decline in global commodity prices has necessitated a re-assessment of the effects of the recent developments especially in the context of financial integration and capital flows volatility on economic growth in Nigeria. For several years, Capital flows into the Nigerian economy have been largely in form of FDI. It is more beneficial for growth because it brings in the needed capital, technology and know-how, managerial skills, jobs creation and stimulation of economic growth. However, the sustainability of these flows was affected by the global financial crises and its aftermaths including the recent fall in global commodity prices (Adeniran and Sidiq 2018, Omondiale 2018, Orji et al. 2021).

Nigeria net foreign direct investment (FDI) inflows have oscillated significantly in recent years, as it has the tendency to expand through period 1980-2021. Net foreign direct investment (FDI) flows to Nigeria stood at US\$2.4 billion in 2020. This represents a slight increase of 3.5 percent, from the level in 2019 (US\$2.3 billion), notwithstanding the global economic catastrophe sparked by the

novel corona virus disease (COVID-19) pandemic (UNCTAD 2018, 2019, World Bank 2021).

In Nigeria, the build-up in portfolio investment, especially during 2005-2007 was largely due to the consolidation of the financial sector and the liberation of the money market which allowed foreign investors to invest in treasury bills with a tenor of at least one year. This notwithstanding, portfolio inflows which stood at US\$360.2 million in 2006 but declined to US\$319.4 million in 2020, due to capital reversal in the Nigerian Capital Market (Obayagbona and Igbinovia 2021).

Since the external debt relief from Paris club, the Nigeria's external debt component had remained relatively stable from US\$3.5 million in 2006 to US\$3.9 million in 2009. It however increased from US\$4.5 million in 2010 to US\$9.7 million in 2014, and further increased to US\$10.7 million in 2015. The stock of external debt as at end-December 2017, increased by 65.8 percent, 33.9 percent and 9.5 percent, respectively, above the US\$11.4 million, US\$18.9 million and US\$25.3 million in 2016, 2017 and 2018. The country stock of external debt stood at US\$38.4 million in 2021. This represents a marginal increase of 38.6 percent, from the level in 2019 (US\$27.7 million), occasioned the advent of the global economic devastation created by the novel corona virus disease (COVID-19) pandemic and the need to fund health and other critical infrastructure in Nigeria (UNCTAD 2018, 2019, Adekunle et al. 2021, World Bank 2021).

In the light of above and given the heterogeneous nature of external debt and capital flows, financial integration and the volatility in crude oil prices during the 2008/9 global financial crisis and its aftermath, the benefits of external debt need a re-assessment especially in developing countries. Several studies have attempted an empirical investigation on the effects of external debt on macroeconomic variables, especially, its effect on economic growth yet no consensus has been reached. The results in the literature on effects of debt on economic growth have been found to be both positive and negative and some studies had recorded no significant effect on growth of the receiving country (See Boltho and Carlin 2013, Coccia 2017, Lau et al. 2019, Edo et al. 2020, Alexandre et al. 2021, Mosikari and Eita 2021, Sharaf 2021). There have been other studies on the effect of capital flows on output growth without unanimity in conclusions, due to the differences in the methodologies and samples used (see: Klein and Olivei 2008, Kohlscheen, 2010; Reinhart and Rogoff 2011, Murshid and Mody 2011, Driffield and Jones 2013, Reinhart and Reinhart 2015, Levine, 2001).

In Nigeria, several studies including Obiechina and Ukeje (2013), Adeniyi et al. (2012), Olusanya (2013), Umoh et al. (2012), Ekeocha et al. (2012), investigated on the effects of capital flows and external debt on economic growth but the results had no consensus as they were mixed. Our study, therefore, set out to investigate the asymmetric effects of external debt and capital flows (FDI, FPI) on economic growth in Nigeria considering the aftermath of the global financial crisis and the decline in commodity prices that led to economic recession in Nigeria.

Despite the explosion of theoretical and empirical literature, studies that clarifies our understanding of the effect of the threesome- external debt, FDI and FPI - after the global 2007/8 global financial crises is lacking. Filling this research

gap is extremely important given the policy conundrum that confronted countries during the crises, due to portfolio reversal and external debt overhang. In Nigeria currently, FDI is contracting, while FDI and increasing external debt stock are increasing. What is the effect of increasing external debt stock and FPI, and decreasing FDI on economic growth? What are the possible new theoretical lens that are influencing economic managers decision to accumulate external debt stock, increase inflow FPI, during decline in FDI? To provide answers to these questions, the rest of the paper is structured as follows: next section presents the theoretical framework and review of related literature and then some stylized facts on the Nigerian macro-economy are presented. Methodology and data sources are following, then the analysis of the results, and finally come the conclusions that proffer policy recommendations.

Theoretical and Empirical Review

Theoretical Literature

Numerous theories have been publicized by academics and researchers attempting to describe the subject of debt and capital flows on growth. An eclectic synopsis of some of these theories will be discussed here. The theory of capital flows is anchored on the concept of capital markets. The theory assumes that the capital market is efficient. The modern portfolio theory provided explanations for risk-averse financiers to allocate their properties in an efficient capital market. Here, risk-averse stakeholders have identical expectations concerning the mean, variance, and covariance of their returns to assets, as such, they make the most of their expected satisfaction when creating investment choices. The concept of risk aversion is an upshot from the expected utility theory (EUT). The EUT describes the decision creating procedure of financiers in the existence of risk while depending on the stakeholder wisdom. Export-led growth theory (EGT), stresses the significance of trade on economic growth; focusing on different variables like openness, foreign exchange rate, capital flows, tariffs, terms of trade and export performance to justify the proposition that open economies grow faster than closed economy (Udah 2008). Trade offers a poor country the opportunity of recovering domestic shortages to overcome the diseconomies of the small size of its domestic market (Nyong 2005). The proponents of the export-led growth theory, therefore, argue that trade is one of the major determinants of the growth of the Asian Tigers (Taiwan, Korea Republic, Hong Kong and Singapore). The importance of this theory to our study is that opening our economy to foreign competition would lead to faster growth as well as provide an opportunity to overcome the diseconomies in its domestic market (see: Shan and Sun 1998, Shirazi and Abdul Manap 2005, Malhotra and Kumari 2016).

Empirical Literature

An earlier study by Metwally and Tamaschke (1994) developed and tested a simultaneous equation model (two-stage least square) to examine the relationship between debt servicing, inflow of foreign capital and economic growth using three heavily indebted North African countries – Algeria, Egypt and Morocco. The result suggests that servicing and capital reversals in these countries worsens their debt problem. This finding is consistent with Odhiambo (2011).

Çifligu (2018) in a survey investigated the relationship between public debt and economic growth in Albania in the post dictatorship periods and concluded that external debt has a negative effect on economic growth for debt /GDP over 35-40 percent. Laina (2011) studied the relationship between public debt and economic growth in the United States for the period 1959-2010 using a SVAR time series model. According to the impulse response function and forecast error variance decomposition analysis, the effect of government debt on economic growth is positive in the short term and negative in the long term.

Balassone et al. (2011) analyzed the relationship between public debt and economic growth, looking at the effects of both domestic and external debt on the economy over a long period of 1861 to 2010 in Italy. The study applied both the endogenous growth model and heteroskedasticity. The result showed a negative correlation but bigger influence on external debt. Baharumshah and Thanoon (2006) employed a dynamic panel analysis to quantitatively evaluate the weight of several forms of capital flow on the growth process of the East Asian countries. Their result showed that domestic savings had positive effect on economic growth. They also observed that FDI is growth enhancing, thus, its effect is felt both in the short- and long- run and held that the effect of FDI on growth is much higher than home savings and concluded that countries that are effective in enticing FDI can finance more investments and grow faster than those that dissuade FDI.

While Obadan (2004), observed that capital flows have played critical roles in the economies of both developed and developing countries. But opined that it has brought about some undesired effects and difficulties in the developing countries, thus, posing severe challenges for policy makers. This notwithstanding, he held that if foreign capital is channeled into the productive sectors of the economies, contrary to consumption, can be highly desirable, as it will bring about the much needed economic growth and development. Calvo et al. (1996), in analyzing the principal causes, facts, and policies that have described capital inflows into Asia and Latin America, perceived that foreign investment are inclined to repeated booms and busts. They concluded that the aim of policy in Asia and Latin America countries was to reduce the vulnerability of capital inflows as such policies have proved useful in protecting these economies from the vagaries of international capital flows.

To Malik et al. (2010) external debt is a significant source of income for developing countries and this was accountable for the heavy reliance of Pakistan on external resources for development that was uncontrollable in late 1980s. Their study found that external debt and debt servicing negatively and significantly affected on economic growth and led to its decline. Therefore, they concluded that

as debt servicing grew, there will be less prospects for economic growth. Adelegan (2000), surveyed the effect of foreign direct investment inflows on economic growth in Nigeria from 1970 to 1995 by adopting seemingly unrelated model. He also observed negative and significant linkage foreign direct investment inflows - growth in Nigeria. He therefore, attributed this to the none channeling of FDI to productive use but rather for consumption, substitute for saving and devoted to the importation of consumer goods and services at the expense of investments that will aid exports.

Using panel of forty-five countries, Bordo et al. (2010) evaluated the effect of foreign currency debt on currency and debt crisis and its indirect short- and long-run effect. They discovered that financial crises, driven by acquaintance to foreign currency were responsible for significant and permanent output losses. They arrived at this, by looking at the risk posed by high levels of foreign currency liabilities in Eastern Europe in late 2008. They concluded that foreign currency debt increased the risks of financial crisis and was responsible for the East Asian crisis in the late 1990s.

Hermes and Lensink (2010) evaluated the nexus between financial system, FDI and economic growth, using panel data for sixty-seven countries. Narayan (2013) using the pair-wise Granger causality test, examined the casual relationship between foreign capital inflows and economic growth in India. The pair-wise Granger causality test shows that long-run equilibrium relationships exist between the following variables economic growth and Foreign Direct Investment (FDI) and economic growth and Foreign Portfolio Investment (FPI).

Aurangzeb and Haq (2012) investigated the effect of foreign capital inflows on economic growth of Pakistan for the period of 1981 to 2010. The study employed a multiple regression analysis and the results indicated that the all the variables were positive and significant in their relationship with economic growth (GDP). The Granger-Causality test confirms the bidirectional relationship between remittances and external debt, gross domestic product and external debt, foreign direct investment and external debt, and foreign direct investment and remittances. The Study concluded that the foreign capital inflows are very significant to the growth of any economy.

Obiechina and Ukeje (2013), using time series data from 1970-2010 investigated the effect of capital flows (foreign direct investment), exchange rate, export and trade openness on economic growth of Nigeria as well as the causal long-run relationship among the variables. Using Engle-Granger 2-Step procedure, it was observed that all the variables, except the FDI are statistically significant and influence economic growth in the short-run dynamic equilibrium model. Exogeneity test confirmed that FDI has weak exogeneity with economic growth. In addition, the Pairwise Granger causality revealed the existence of uni-directional causality between economic growth and FDI, and uni-directional and bi-directional causality among some of the variables.

In 2011, Adeniyi et al. (2012) examined the causal relationship between foreign direct investment (FDI) and economic growth - in Cote' d'Ivoire, Gambia, Ghana, Nigeria and Sierra Leone - with the financial development accounted for over the period 1970-2005 within a trivariate framework that applies Granger

causality tests in a vector error correction (VEC) model. Three alternative measures of financial sector development - total liquid liabilities, total banking sector credit and credit to the private sector - were employed to capture different aspects of financial intermediation. The results supported the view that the extent of financial sophistication matters for the benefits of foreign direct investment to have influence on economic growth in Ghana, Gambia and Sierra Leone depending on the financial indicator used. Nigeria, on the other hand, displays no evidence of any short- or long-run causal flow from FDI to growth with financial deepening accompanying.

Olusanya (2013) examined the effect of foreign direct investment inflow and economic growth in a pre-and post-deregulated Nigerian economy, using a Granger causality test between 1970 and 2010. The analysis also dis-aggregated the data into three periods; 1970 to 1986, 1986 to 2010 and 1970 to 2010, to test the causality between foreign direct investment inflow (FDI) and economic growth (GDP). The result indicated that there is causality relationship in the pre-deregulation era that is (1970-1986) from economic growth (GDP) to foreign direct investment inflow (FDI). This implies that GDP causes FDI, however, but there is no causality in the post-deregulation era of (1986-2010) between economic growth (GDP) and foreign direct investment inflow (FDI). This implies that GDP causes FDI. The result showed that from 1970 to 2010 there is a causal relationship between economic growth (GDP) and foreign direct investment inflow (FDI) and vice versa.

Umoh et al. (2012) opined that there is endogeneity relationship between FDI and economic growth in Nigeria. Using a single and simultaneous equation system, the study examined the relationship between FDI and economic growth in Nigeria. The results indicated that FDI and economic growth are jointly determined in Nigeria and there is positive feedback from FDI to growth and from growth to FDI. Fambon (2013) investigated the effect of foreign capital inflows (foreign aid and foreign direct investment) on economic growth in Cameroon. The study employed an autoregressive distributive lag approach to the co-integration and time-series data for the period 1980-2008. The study revealed that the domestic capital stock and foreign direct investment have positive and significant effects on economic growth in the short and long terms, as that of labour force on growth was significantly negative in both terms. This was attributed to the fact that there is unlimited supply of labour in Cameroon as is in most developing country with its detrimental effect on economic growth.

Ekeocha et al. (2012) investigated the long run determinants of foreign portfolio investment (FPI) in Nigeria and suggested that appropriate policies should be pursued to attract same in the long run. FPI has grown recently in proportion relative to other types of capital inflows to Nigeria before the wake of global financial crisis. The study tried to add to the existing literature by modelling the long-run determinants of FPI in Nigeria using quarterly data for the period of 1981-2010. The study employed variables such as market capitalization, real exchange rate, real interest rate, real gross domestic product and trade openness. The result revealed that FPI has a positive long-run relationship with market capitalization, and trade openness in Nigeria.

Ezeabasili et al. (2011) examined the effect of Nigeria's external debt and economic growth, from 1975 to 2006. The study revealed that external debt has negative effect on economic growth in Nigeria. Also, from the pairwise Granger Causality test it was found that uni-directional causality exists between external debt service payment and economic growth at the 10 percent significance level. More importantly, external debt granger caused external debt service payment at the 1 percent significance level, as there exists statistical interdependence between external debt and economic growth.

Chigbu et al. (2015) examined the effect of capital inflows on economic growth of developing economies using Nigeria, Ghana and India as case studies from 1986-2012. The study employed Augmented Dickey Fuller unit root test to evaluate the stationarity of the data, while Johansen Co-integration was used to estimate the long-run equilibrium relationship among the variables. The casual relationship was tested using Granger Causality, and the Ordinary Least Square method was used in the model estimation. The findings from the study revealed that capital inflows have significant effect on the economic growth of the three countries. In Nigeria and Ghana, foreign direct and portfolio investment as well as foreign borrowings have significant and positive effect on economic growth. Workers' remittances significantly and positively related to the economic growth of the three countries. The study recommended an enabling environment to encourage more inflow of foreign investments and workers remittances as it will help in bridging the savings-investment gap and encourage economic growth.

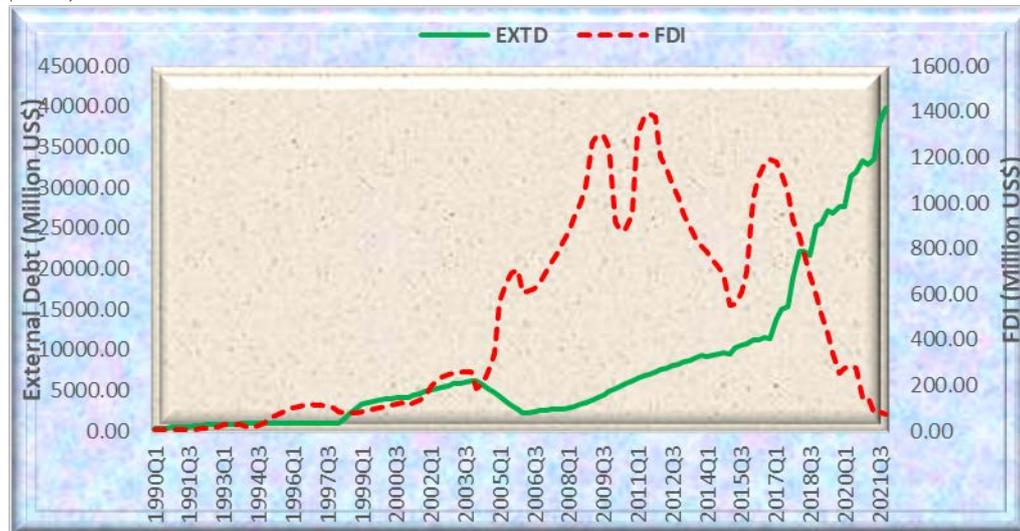
Several scholars have employed the non-linear autoregressive distributed lag (NARDL) methodology to evaluate the asymmetrical effects of debt on economic growth in other clime and concluded that the responsiveness real GDP growth to positive and negative shocks of debt is significantly different (see: Boltho and Carlin 2013, Suliková et al. 2015, Coccia 2017, Lau et al. 2019, Alexandre et al. 2021, Mosikari and Eita 2021, Sharaf 2021). To the best of our knowledge, this is the first time it is applied in this area in Nigeria.

Stylized Facts on Capital Flows, Public Debt and Economic Growth in Nigeria

The movement between external debt (EXTD) and foreign direct investment (FDI) is presented in Figure 1. Figure 1 revealed that between 1990Q1 and 2006Q1, EXTD was higher than the FDI with the later been relatively volatile. Conversely, between 2006Q2 and 2012Q3, FDI was higher than EXTD with the latter continued to be more volatile. From 2012Q4 to 2018Q4, EXTD was higher than the FDI. The country's total debt profile has continued to shower by about 90 per cent the value in 2015 quarter 4 (US\$2,467.44) to US\$9,608.90 in 2018Q4 according to data from Debt Management Office (DMO). Within the same period, the FDI have remained volatile while debt is rising and FDI is declining. Provisional data from the Debt Management Office (DMO) indicated that Nigeria's total external debt profile has continued to experience an upsurge of about 57.7 percent US\$39,856.43 million, when compared to the level in 2018Q4 (US\$25,274.36) while within the same period, the FDI have continued to show a

steady downward trend as it decreased by 88.0 percent to US\$0.72 million in 2021Q4, from US\$0.598 million in Q4 2018. The analysis shows that while 200debt is total external debt has been rising since 2006Q2, that of FDI indicates a volatile declining trend (CBN 2019, 2020, 2021, DMO 2018, 2020, 2021).

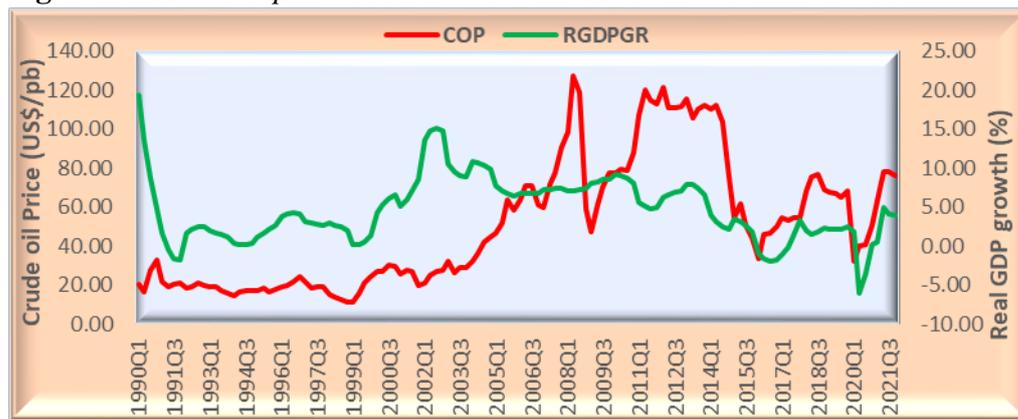
Figure 1. *The Nexus between External Debt (EXTD) and Foreign Direct Investment (FDI)*



Source: Authors compilation.

The relationship between crude oil price (COP) and real GDP growth rate (RGDPGR) is presented in Figure 2. The Figure showed that the movement in COP and RGDPGR was in the same direction throughout the period 1990Q1 and 2018Q2. The global oil price in 2011Q2 stood at US\$119.89 per barrel, though it plunged relatively, it was stable at US\$103.41 per barrel in 2014Q2. Thereafter, it declined sharply to US\$33.37 per barrel in 2016Q1 before increasing marginally to US\$76.61 per barrel in 2018Q3 and then decreased to US\$68.90 in 2018Q4. The positive Real GDP growth rate between 1992Q2 – 2002Q4 was attributable to high oil price in the world market, while the period 2003Q1 to 2018Q4 witnessed a sharp and continued decrease in RGDPGR as due to a decline in oil output in Nigeria as result of youth restiveness and militancy activities in the Niger thus its revenue. The mixed performance of Real GDP growth rate between 2019Q1 – 2020Q3 was attributable to the period of low oil price in the world market, and advent of COVID-19 pandemic that effected negatively on the Nigerian economy while the period 2020Q4 to 2021Q4 witnessed a marginal and continued improvement in RGDPGR as due to an increase in oil price in the international market and the opening of the economy to normalcy following the relaxation of COVID-19 restriction (DMO 2018, 2020, 2021, NBS 2019, 2020, 2021).

Figure 2. Relationship Between Crude Oil Price and Real GDP Growth

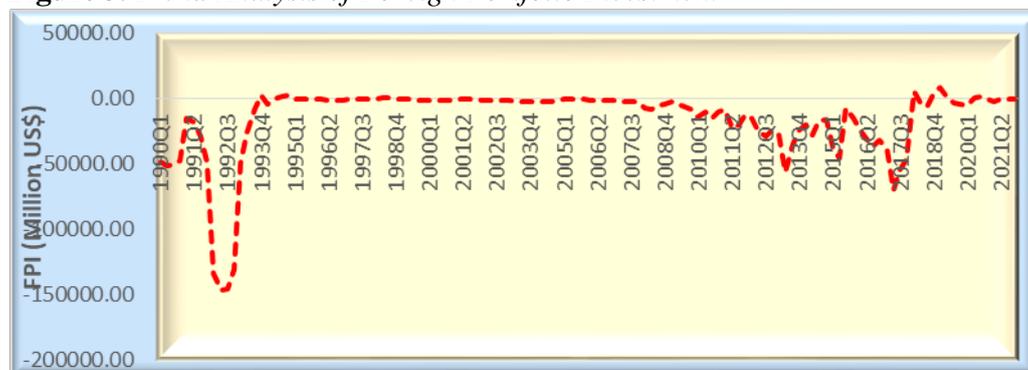


Source: Authors compilation.

A trend analysis of quarterly Nigeria’s foreign portfolio investment for the period 1990Q1 – 2018Q4 is presented in Figure 3. The foreign portfolio investment that stood at US\$-48,484.31 million in 1990Q1 improved marginally to US\$-14,857.07 million in 1991Q1 before contracting sharply to US\$-146,435.96. Thereafter, the FPI maintained a steady positive improvement and stood at US\$3,169.27 million in 1993Q4. From 1994Q1 to 2007Q4, it remained relatively stabled as it hovered between US\$-4,331.31 and US\$-2,293.72 and from 2008Q1 it maintained an undulating negative downward trend and peaked at US\$-56,079.90 million in 2013Q2, before improving marginally to US\$-15,239.62 million in 2015Q4 then decreased sharply to US\$69,614.35 million in 2017Q2, it then improved sharply to US\$5,700.40 million in 2018Q1 and US\$9,111.15 million in 2019Q1 (CBN 2019, 2020, 2021, NBS 2019, 2020, 2021).

Thereafter, it decreased marginally to US\$-3,788.36 million and US\$-5,529.51 million, respectively, in 2019Q4 and 2020Q1. FPI experienced a steady increase in quarters’ 2 and 3 of 2020 to US\$0.68 million and US\$1,742.40 million, respectively and since then it has continued to maintain a steady decline and stood at US\$-0.60 million as at 2021Q4. This abysmal trend is attributable to the adverse effect of COVID-19 on the economy (CBN 2019, 2020, 2021, NBS 2019, 2020, 2021).

Figure 3. Trend Analysis of Foreign Portfolio Investment



Source: Authors compilation.

Data, Models and Methods of Non-linear ARDL

Data

The paper employs quarterly data spanning the period of 1990 to 2021. This study utilizes quarterly data on real economic growth (RGDPGR), external debt (EXTD), crude oil price (COP), foreign direct investment (FDI) and foreign portfolio investment. The data for this study were sourced from the Nigerian National Bureau of Statistics, Debt Management Office and Central Bank of Nigeria Statistical Data base. Except RGDPGR and FPI, all other variables are expressed in natural logarithmic form.

Models and Methods of Non-linear ARDL

This paper attempts to capture the effects of selected macroeconomic variables on the Nigerian real gross domestic product growth rate (RGDP). The study employs semi log-linear model with the dependent parameter as the RGDP growth rate while external debt (EXTD), crude oil price, foreign portfolio inflow (FPI) and foreign direct investment (FDI) are the independent variables. For the initial examination, equation (1) will follow a semi-log linear long-run model specification of Bahmani-Oskooee and Fariditavana (2016, 2015) and Bahmani-Oskooee et al. (2016) thus:

$$RGDPgr_t = \beta_t + \gamma LEXTD_t + \omega FPI_t + \eta LCOP_t + \phi LFDI + \mu_t \quad (1)$$

Here, $RGDPgr_t$ is real GDP growth rate. FDI_t is foreign direct investment. FPI_t implies foreign portfolio inflow, $EXTD_t$ represents external debt and L is natural logarithms. An increased inflow in these variables reflects increase in Nigeria's real GDP growth rate in real terms and vice versa. The coefficient of FDI and FPI is expected to have a positive effect as an increase is expected to have favorable effect on $RGDPgr_t$ in long run. EXTD is expected to have either a positive or negative influence on real GDP growth rate. This is in consonant with the views of Okonjo-Iwela et al. (2013), Obadan (2004) and Pattilo et al. (2001), who opined that at a small debt level, debt exert positive effects but when it is above the desired threshold, it begins to have a negative effect on growth. Therefore, an increment in debt is expected to decrease Nigeria's GDP and thus real GDP growth rate will worsen and vice versa. In addition, a situation where the price of crude oil in the international market declines, the Nigerian GDP is likely to have negative effect as it is likely to increase capital flight outflows and consequently $RGDPgr_t$ will be worsened.

The foregoing discussion of equation (1) is symmetrical in nature as foreign direct investment is a solitary variable, but it can be decomposed into two variables (positive and negative). The positive variable is the fractional sum of the positive changes in external debt, while the negative variable emanates as a result

of a negative movements. These two positive and negative variables of EXT_t are algebraically represented in equation (2) thus:

$$\left. \begin{aligned} P = \text{LEXTD}_t^+ &= \sum_{j=1}^t \Delta \text{LEXTD}_j^+ = \sum_{j=1}^t \max(\Delta \text{LEXTD}_j, 0), \\ &\text{and} \\ N = \text{LEXTD}_t^- &= \sum_{j=1}^t \Delta \text{LEXTD}_j^- = \sum_{j=1}^t \min(\Delta \text{LEXTD}_j, 0) \end{aligned} \right\} \quad (2)$$

These parameters as represented in equations (2), defines a linear ARDL model, but Shin et al. (2014) converted this linear ARDL to a non-linear or asymmetrical ARDL model. Thus, the non-linear ARDL model for equation (1) can be econometrically written as follows:

$$\begin{aligned} \Delta \text{RGDPgr}_t &= \beta_t + \pi \text{RGDPgr}_{t-1} + \varphi^+ \text{EXTD}_{t-1}^+ + \varphi^- \text{EXTD}_{t-1}^- + \sigma \text{LCOP}_{t-1} \\ &+ \tau \text{FPI}_{t-1} + \rho \text{LFDI}_{t-1} \\ &+ \sum_{i=1}^p \delta_i \Delta \text{RGDPgr}_{t-1} \\ &+ \sum_{i=0}^r (\partial_i^+ \Delta \text{EXTD}_{t-1}^+ + \partial_i^- \Delta \text{EXTD}_{t-1}^-) + \sum_{i=0}^q \phi_i \Delta \text{LCOP}_{t-1} \\ &+ \sum_{i=0}^q \vartheta_i \Delta \text{FPI}_{t-1} + \sum_{i=0}^q \gamma_i \Delta \text{LFDI}_{t-1} \\ &+ \alpha_t \end{aligned} \quad (3)$$

Equation (3) will be used to test for a cointegration. *where: $\pi = \sigma^+ = \sigma^- = 0$* . This indicates the absence of cointegration, as such it can be tested for bound test. In bound test, if the expected $F_{\text{-statistics}}$ value is found to be greater than the upper critical bound value then the null hypothesis is rejected. Preceding the cointegration, the long run effects is estimated by standardizing the coefficients of EXTD_{t-1}^+ , EXTD_{t-1}^- , FPI_{t-1} and LFDI_{t-1} , standardized by coefficient of RGDPgr_{t-1} . Therefore, the positive and negative effects of EXTD_{t-1}^+ and EXTD_{t-1}^- are estimated like a symmetrical model. The effect of real GDP growth rate will be measured as symmetrical, if the predictable coefficients of EXTD_{t-1}^+ and EXTD_{t-1}^- conveys the same signs and degrees but a change in sign or size of the coefficients can be seen as evidence for asymmetrical effects. From the foregoing, we can also test for short run asymmetry by employing an error correction model [ECM(-1)] of the non-linear ARDL. The ECM(-1) model is shown in equation (4):

$$\begin{aligned}
\Delta RGDPgr_t = & \sum_{i=1}^p \delta_i \Delta RGDPgr_{t-1} \\
& + \sum_{i=0}^r (\partial_i^+ \Delta EXT D_{t-1}^+ + \partial_i^- \Delta EXT D_{t-1}^-) + \sum_{i=0}^q \vartheta_i \Delta LCOP_{t-1} \\
& + \sum_{i=0}^q \omega_i \Delta FPI_{t-1} + \sum_{i=0}^q \varphi_i \Delta LFDI_{t-1} + \pi ECM(-1)_{t-1} \\
& + \varepsilon_t
\end{aligned} \tag{4}$$

We introduced positive (+) and negative (-) in Equation (2, 3 and 4) to create non-linearity. Using Pesaran et al. (2001) methodology, Shin et al. (2014) was able to institute a corresponding process to assess a non-linear ARDL model. The proposition to asymmetric effect of foreign portfolio investment (FPI) will maintain the same consequence. Equation (4) provided proof of short-run adjustment asymmetry, if Δ^+ and Δ^- parameter establishes different lag orders. Also, the short-run asymmetric effects would be determined from the sign and magnitude of ∂_i^+ is different than the magnitude of ∂_i^- at each lag i . This will be ascertained through the Wald test if $\partial_i^+ \neq \partial_i^-$. However, the long-run, asymmetric is approved if $\frac{\partial_i^+}{\tau} \neq \frac{\partial_i^-}{\tau}$; this also requires Wald test.

The coefficients of variables of the lagged differences parameters, captures the short run effects in (4). However, if measurements of $PEXTD_{t-1}$ and $NEXTD_{t-1}$ are evaluated to be different in signs or degree then we accept that short run asymmetry. Econometrically, the short run correlation and a speed of adjustment must be a negative parameter of electroconvulsive treatment and this situation is expected to hold in the long run as well if it is not found with bound test.

Analysis of Results

All macroeconomic time series are prone to the problem of a unit root, hence, the need to test for the stationarity of such series. The stationarity test result determines the appropriate procedure to ascertain the long-run association. Nonetheless, ARDL has the benefit to adopt combination of decision except stationarity at second difference. We have confirmed that none of our macroeconomic series was tested for second difference since all our variables were either stationary at levels or at first difference. In the light of the foregoing discussion, we preceded with our analyses without the presentation of the stationarity tests. However, we conducted the bound test on real GDP growth rate as well as the application of the needed diagnostic tests to validate our results.

Therefore, we examine the unit root test properties for the variables at level by including constant and time trend, as well as including only constant at first difference using ADF, KPSS and Ng-Perron tests. The outcome is presented in Table 1. The result of ADF test confirms that the RGDPgr, COP and FDI were stationary after they converted to first difference, indicating that the variables are I(1), whereas it reveals that the series EXT D and FPI contains unit root at level.

Most importantly, the findings of KPSS test, which have more power compared to ADF test, appears to support the stationarity of the three variables (RGDPgr, EXTND and COP) at first difference, while Ng-Perron supports stationarity of FPI at levels and thus we conclude that the variables in our model are I(0) and I(1).

Table 1. Augmented Dickey-Fuller (ADF), Kwiatkowski-Phillips-Schmidt-Shin (KPSS) and Ng-Perron Tests Results for Unit Roots

Variable	ADF		KPSS		Ng-Perron	
	Level	1 st Difference	Level	1 st Difference	Level	1 st Difference
RGDPgr	-1.8958	-4.1747**	0.1055	0.2377**	-1.8005	-3.1177**
EXTD	-4.7430**	-2.3725	0.1717	0.2370**	-2.4308	-6.9134**
COP	-2.2931	-8.6645**	0.1740	2.0586**	-2.3275	-4.2689**
FPI	-3.0938**	-6.4110**	0.1750**	0.1142	-3.3796**	-1.9298
FDI	-0.5367	-4.4308**	3.2101**	0.1127	-1.0319	-3.5375**

Notes a. ***, ** and * implies significance at the 1%, 5% and 10% level, respectively.

b. ADF statistic is obtained by $\Delta y_t = \gamma_0 + \delta_0 x_{t-1} + \sum_{i=1}^k \sigma_0 \Delta x_{t-i} + \varphi$ where Δ is the difference operator, γ_0 , δ_0 and σ_0 are coefficients to be estimated, x is the variable whose time series properties are examined and φ is the white-noise error term.

c. KPSS statistic is obtained by $y_t = x_t \delta + \varphi$ where δ_0 is coefficients to be estimated, x is the variable whose time series properties are examined and φ is the white-noise error term.

d. Ng-Perron statistic is obtained by $k = \sum_{i=-2}^T (y_{t-i}^d)^2 / T^2$ where y is coefficient to be estimated and k is the variable whose time series properties are examined.

e. The lags of the dependent variable used to obtain white-noise residuals are determined using Akaike Information Criterion (AIC) for ADF, Bartlett Kernel for KPSS and AR-GLS Detrended for Ng-Perron.

f. The null and the alternative hypotheses are respectively $\delta = 0$ (series is non-stationary) and $\delta < 0$ (series is stationary).

g. As the coefficient δ_0 has a non-standard distribution, it is compared with critical values tabulated by MacKinnon (1996) ADF, Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1) KPSS and Ng-Perron (2001, Table 1).

The results of the bounds test as shown in Table 2, revealed that there is no cointegration in the linear form specification because the calculated F-statistics of 3.04 is less than the lower critical bound. Conversely, in the long-run non-linear form model, the calculated F-statistics of 7.07 exceed both the lower and upper critical bound at 5%, thus, indicating a cointegration. These results reveal that any incorrect model specification would lead to a deceptive conclusion vis-à-vis whether the selected macroeconomic variables co-move in the same direction in the long run or not.

Table 2. Bounds Test for Linear/Nonlinear Cointegration

Model Specification	F-statistics	Bound		Cointegration
		Lower bound	Upper bound	
Linear	3.04	3.23	4.35	No
Non-linear	7.07	2.86	4.01	Yes

Note: 5% significance level. The optimal lag order based on AIC.

Source: Authors' own computation using EViews 10.

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whether the selected macroeconomic variables co-move in the same direction in the long run or not.

The study adopted the general-to-specific methodology to evaluate the non-linear model in equation (3) and the results are presented in Tables 3, 4 and 5. The model permits us to measure dynamics in real GDP growth rate and its reaction to the selected macroeconomic variables, positive and negative changes in oil price. To make valid conclusion from our long-run equation, we conducted various diagnostic tests to gauge the efficacy of the adjusted R-square in the dynamic model and result is presented in Table 3. Given the adjusted R-squared value of about 0.91, indicates the high explanatory power of the regressors in explaining changes of the regressand.

In addition, the serial correlation LM test and the heteroskedasticity ARCH test indicate the absence of autocorrelation in the residuals and that the residuals have constant variance overtime. Furthermore, the Jarque-Bera test and Ramsey RESET tests, respectively reveals that the error of variables are normally normal distributed and the model is properly specified while the CUSUM and CUSUM of squares tests shows that the model is stable since the estimated model lies within the 5 per cent significance bound.

Table 3. *Diagnostics*

Test	Statistics
Serial correlation LM tests	2.876104 (0.3273)
Heteroskedasticity ARCH test	2.688891 (0.1820)
Normality test: Jarque-Bera	6.369742 (0.2228)
Ramsey RESET test	2.332799 (0.1216)
CUSUM	Stable
CUSUM sum of squares	Stable
R-squared	0.913663
Adjusted R-squared	0.907795

Probability values of the respective tests in brackets.

Source: Authors' own computation using EViews 10.

Having ascertained evidence of asymmetric cointegration in the EXT-D model (see Table 2), the next step is present the long-run and short-run factors of NARDL outcomes as shown in Tables 4 and 5. The asymmetric ARDL specification with 2, 0, 0, 2, 2 were selected based on AIC. The result from Tables 4 and 5, indicates that all the parameters conform to a priori expectation in both the long-run and short-run. The long-run and short-run asymmetric decomposition of the effects of positive external debt ($LEXTD^+$) and negative external debt ($LEXTD^-$) were significant (see 0.8037[0.0000] and 0.5198[0.0015], respectively, in Tables 4 and 5).

We presented the long-run asymmetric dynamics in Table 4. The result in Table 4 shows that all the factors employed in our analysis were statistically significant at the 5 percent level of significance. The analysis of the effect of individual parameter of the regressand indicated the coefficients of the positive (+) and negative (-) components of the solitary regressor variable adversely influenced the behaviour of the real GDP growth variable in the long-run.

A cursory look at Table 4, reveals that one percent increase in (positive or +) EXTD results in a decrease of 1.08 percent in RGDPG while a percentage decline in (negative or -) EXTD translates to a significant real GDP growth decrease of 3.08 percent. This could be explained by ineffectiveness in debt management and the level corruption in the clime. Specifically, external debt promotes economic growth when invested optimally in projects that are value creating such as intervention on roads, electricity, housing, and other tangible infrastructure. Where the fund is diverted for personal purpose, it would rather hurt growth. This explains the negative relationship between increasing debt stock and economic growth.

Table 4. NARDL Long-run Results

RGDPgr	Coefficient	Std. Error	t-Statistic	Prob.
LEXTD ⁺	-1.0801	0.4396	-2.4569	0.0068
LEXTD ⁻	3.0852	1.2276	2.5131	0.0035
W _{LR, LEXTD}	0.5198	0.1294	4.0170	0.0014
FPI	-0.0453	0.0039	-11.6154	0.0000
LCOP	-2.6827	0.2918	-9.1936	0.0000
LFDI	0.5094	0.1388	3.6703	0.0019

Table 5. NARDL Short-run Results

RGDPgr	Coefficient	Std. Error	t-Statistic	Prob.
Trend	0.6342	0.2754	2.3028	0.0097
Δ LEXTD ⁺	-0.6218	0.1519	-4.0949	0.0000
Δ LEXTD ⁻	0.5364	0.1772	3.0265	0.0009
W _{SR, LEXTD}	0.8037	0.1076	7.4695	0.0000
Δ FPI	0.0023	0.0008	-2.8750	0.0079
Δ LCOP	-0.9656	0.3020	-3.1975	0.0006
Δ LFDI	0.9207	0.2046	4.4998	0.0000
ECM(-1)	-0.1414	0.0324	-4.3697	0.0000

Note: The superscripts “+” and “-” denote positive and negative partial sums, respectively. L⁺ and L⁻ are the estimated long-run coefficients associated with positive and negative changes, respectively, defined by $\hat{\beta} = -\hat{\theta}/\hat{\rho}$.

W_{LR, LEXTD} refer to the Wald test for the null of long-run symmetry defined by $-\hat{\theta}_1^+/\hat{\rho} = -\hat{\theta}_1^-/\hat{\rho}$. W_{SR, LEXTD} refer to the Wald test for the null of the additive short-run symmetry condition defined by $\sum_{i=0}^q \gamma_{1,i}^+ = \sum_{i=0}^q \gamma_{1,i}^-$.

** Implies 5 percent significance level

Source: Authors' own computation using EViews 10.

The result is in consonance with the findings of Alexandre et al. (2021), Mosikari and Eita (2021) and Sharaf (2021) who observed that in the long-run, external debt is inimical to growth as it crowds out private investment, this is in tandem with the crowding-out effect hypothesis but disagree with Heimberger (2021) and Oyegoke and Aras (2021) assertion that there is no evidence of a consistently negative growth effect of higher external debt. In terms of the control factors, foreign portfolio investment (FPI) and crude oil price (COP) significantly contracted real economic growth by 0.05 and 2.68 percent, respectively, while if foreign direct investment increases by a percentage change, real GDP will grow by 0.51 percent. Given the Wald LR test for asymmetry of positive and negative EXTD coefficient of 0.52 (0.0014) indicates that positive (+) and negative (-) external debt shocks on real economic growth in Nigeria are significantly distinct.

The short-run result in Table 5, shows that external debt stock has a significant effect in both the positive (EXTD⁺) and negative (EXTD⁻). It can therefore be inferred that the short-run coefficient of EXTD⁺ is 0.62 indicating that a one percent rise in EXTD⁺ results in a decrease in real economic growth by 10.62 percent. Similarly, the coefficient of EXTD⁻ is 0.54 accounting for a positive change in external debt as a one percent increase in EXTD⁻, results in a decline in real growth rate by 0.54 percent. This result implies that the larger effect of EXTD is emanating from the positive changes. Our outcome is in consonance with the findings of Alexandre et al. (2021), Mosikari and Eita (2021) Oyegoke and Aras (2021), and Sharaf (2021) who opined that in both the long-run and short-run, external debt is inimical to growth as it crowds out private investment, this is in tandem with the crowding-out effect hypothesis but disagree with Heimberger (2021) assertion that there is no evidence of a consistently negative growth effect of higher external debt. We also considered the effect of the individual control variables (LCOP, FPI and LFDI) on economic growth in the short-run asymmetric form. The outcome of our analysis reveals that LCOP did not conform with our a priori expectation while FPI and LFDI conforms to our a priori expectation.

From a theoretical and empirical standpoint, large portfolio inflows promote macroeconomic vulnerabilities and stymie financial stability. Foreign portfolio investment is short-term in nature and will only remain in an economy only if the returns are consistent with expectations, or at least at a tolerable level; otherwise, the funds will be moved to a more profitable jurisdiction without prior notice. Its short-term nature seems to be blamed for instability in the financial system as witnessed in Asia, Latin America, and Russia (Henry 2003). The global shocks such as quantitative easing, tapering, US-China trade war, that confronted the small open economies during the study people would have induced the short-termism of FPI inflow and reversal, hence hurting the Nigerian economy.

However, all control parameters were significant at 5 percent level. An assessment of the short-run relationship between RGDPgr and selected variables indicates there is a significant short-run effect. In addition, Table 5 shows the outcome of Wald test with their corresponding p-values for short runs statistics are (WSR = 0.0000 < 0.01), thus, supporting the rejection of the null hypothesis in favour of the alternative. This suggests that in the short run, the positive and negative partial sum of square effects and degrees of external debt on real economic growth are different. This is correct given the widespread corruption and elevated level of inefficiency in the country.

Table 6. NARDL Causality

RGDPGR	Short- Run	p-value	Long- Run	p-value	Strong	p-value
PLEXTD	10.1677	0.0000	19.0942	0.0000	9.2587	0.0031
NLEXTD	9.9606	0.0018	19.0942	0.0000	9.2492	0.0024
FPI	20.2481	0.0000	19.0942	0.0000	19.0867	0.0000
LCOP	20.0577	0.0000	19.0942	0.0000	20.0115	0.0000
LFDI	2.3305	0.5068	19.0942	0.0000	26.0005	0.0000

Source: Authors' own computation using EViews 10.

Conclusively, the result of the Wald test offers substantial support to reject the null and support the asymmetric behaviour of the indicators. The error correction term [ECM(-1)] is properly signed as expected and the speed of adjustment is 14.1 percent. This meaning that economic growth adjusts to 14.1 percent of the changes in EXTD in the previous period. Hence, the period of complete adjustment to a given change in EXTD takes place almost within a year.

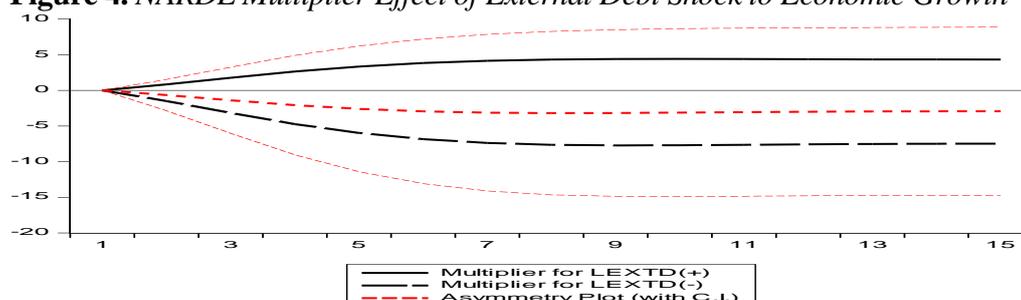
The Granger Causality test in Table 6, was implemented under the NARDL model. First, the variables were assessed at level and first difference in the ARDL framework. The lag length was automatically selected. The non-linear autoregressive distributed lag model was applied with four lag and found an absence of serial correlation. Three types of Granger causalities were applied to find the causality, namely Short-run, long-run and strong NARDL causality test. The result reveals that all the variables were significant in the three tests except LFDI that was insignificant in the short run. This implies that their convergence of the system back to equilibrium position, which satisfies equations (2 and 3). Moreover, a joint (short-run, long-run and strong) causality also exists between the selected macroeconomic variables and real GDP growth which confirms the existence of bi-directional causality between the variables. Also, the null hypothesis of Wald test for all variables to zero was rejected and the alternative accepted because the F-calculated value was statistically significant as shown in Table 7.

Table 7. *Wald Test*

Test	Statistics	Probability
F-statistic	155.7139	0.0000

Source: Authors' own computation using EViews 10.

The NARDL multiplier for the asymmetrical model is presented in Figure 4. The upper solid black line represents the cumulative dynamics of real GDP growth with respect to a per cent rise (positive shock) in EXTD while the lower dashed black solid line denotes the influence of a per cent negative shock (decrease) of EXTD hitting real GDP growth. The red thick dashed line between the 95 percent confidence intervals provides the difference between positive and negative shocks while the tiny red lines represent the bound. Figure 4 demonstrates that the negative component of EXTD is main driver of the asymmetry shocks to growth. Accordingly, the reaction of real GDP growth during periods, when EXTD expands surpasses the periods when external debt shrinks. This is shown in Figure 4 that from 1990Q1 to 2021Q4, the asymmetric response of real GDP growth was driven largely by the negative component.

Figure 4. NARDL Multiplier Effect of External Debt Shock to Economic Growth

Source: Authors' own computation using EViews 10.

Conclusion

The paper was able to provide the corroboration that a positive and significant bond of external debt, eventually exert a negative effects on real GDP growth in the country, while a slump in crude oil price has a negative effect on real GDP growth because Nigeria is a mono-economy which is heavily import demand, therefore, a decline in COP will have adverse effect on real GDP growth. Conversely, a rise in FPI and FDI would significantly influence RGDP growth. The long-run and short-run result reveals that reduction in external debt will improve RGDP growth. Short-run results show that FPI and FDI exerts a positive influence on growth in RGDP while COP had negative effect on RGDP growth. However, all the parameters had significant effect on economic growth. The negative PEXTD variable approves the presence of J-curve in the country's real GDP growth rate. Generally, increased borrowing confirms the presence of J-curve after some lag and asymmetrical influences exist in both the long- and short- runs. Consequently, we conclude that reducing external borrowing may improve the real GDP growth Nigeria and recommend that it is imperative for the country to have manageable external debt and fiscal sustainability, as this will bolster its real economic growth. Also, fiscal authority should make concerted to curb corruption and reduce inefficiency to the barest minimum, as these will enhance growth.

The findings of the study have serious implication on policy formulation. First, the effect of external debt on economic growth, do not suggest that debt financial is undesirable. The result rather reveals that the benefit of external debt is dependent on financing critical infrastructure or self-liquidating projects. More importantly, declining inflow of FDI during increase external debt stock and FPI is a pointer to the fact that the resources are not used for developmental purposes. Where the debt is used to promote political stability, reduce conflict intensity, improve processes that reduce corruption, quality of infrastructure, trade facilitation, government effectiveness, promote macroeconomic stability and the ease of doing business, FDI inflow would naturally increase. This study contributes to extant literature in using the direction of FDI and FPI to establish the anecdotal effect of external debt on economic growth. The study also represents in part, a noble effort to re-assess the external debt and economic growth nexus after the 2007/9

financial crises. This is important, given recent findings that crises alter the relationship of macroeconomic variables.

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Corporate Digital Responsibility in the Retail Industry: Cameo Case Studies of Two German Retailers

*By Peter Jones**

Digital technologies bring a wide range of new opportunities, for both retailers and consumers, but retailers face, and may have to address, several new sets of responsibility issues as they progressively introduce these technologies. These responsibilities are increasingly being captured in the concept of corporate digital responsibility (CDR) but CDR within the retail industry has received little, or no attention, in the academic literature. This paper looks to make a small contribution to addressing that gap in the literature. The paper includes some definitions of CDR, an outline of the concept and scope of CDR, two cameo case studies which provide a simple illustration of some of the ways in which the Rewe Group and the Otto Group, two of Germany's leading retailers, choose to publicly address CDR, and offers some reflections on retailers and CDR. The paper suggests that there are, potential tensions between the retailers' management of the economic and the social dimensions of CDR, and that there are issues about whose best interests are served by CDR and the difficulties involved in making such judgements.

Keywords: *corporate digital responsibility, retailing, digital technologies, case studies, Germany*

Introduction

Digital technologies are reshaping many elements of everyday life and providing a wide range of opportunities throughout the business world. The dynamic, and intertwined, impact of the digital technologies on the both the social and the corporate is clearly epitomised in the world of retailing. The dynamic impact of the digital technologies is clearly illustrated in the retail sector of the economy. In unveiling its digital strategy Carrefour (2022), for example, announced its commitment to transform the company from 'a traditional retailer with e-commerce capabilities into a Digital Retail Company, which places digital and data at the heart of all its operations and its value creation model.' More generally, Hitachi Solutions (2022), suggested that

- 'retailers provide omnichannel shopping and delivery options for customers
- customers can access stores from anywhere in the world in just a matter of moments via a mobile device
- social media has become a primary form of advertisement
- cutting edge technologies such as AI, augmented reality, and virtual reality have become an active part of the shopping experience', and

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- ‘retailers use data analytics and machine learning to inform major business decisions.’

At the same time, Renz et al. (2022), writing under the EY banner, reported that retailers’ investment on digital technologies is growing as a proportion of their overall information technology spending, and that the current focus in retailing is on ‘creating a data-driven organization by prioritizing analytics and artificial intelligence (AI) as well as robotics and automation’, and that ‘investment is also currently being made in the Internet of Things and edge computing.

However, while the digital technologies bring a wide range of new opportunities, for both retailers and consumers, retailers face, and may have to address, several new sets of responsibility issues as they progressively introduce these technologies. These responsibilities are increasingly being captured in the concept of corporate digital responsibility (CDR), which embraces ‘a broad set of responsibilities concerning the application and management of data and digital technologies in organisations’ (Allegory 2021). However, while many retailers may well be privately reviewing their approach to CDR, it is surely important that they also keep the public informed about how they are addressing these responsibilities, and yet very few retailers have explicitly publicly addressed, or reported, on their approach to CDR.

At the same time, the issue of CDR within the retail industry has received little, or no, attention in the academic literature, and Mueller (2022) observed ‘the emergent research landscape on CDR is mostly conceptual in nature, but a galloping development in practice will afford rich opportunities to explore the issue empirically.’ This paper looks to make a small contribution to exploring that empirical gap in the literature. The paper includes an outline of the concept and the scope of CDR, a short literature review, details of the frame of reference and simple method of enquiry, two cameo case studies which provide simple illustrations of some of the ways in which the Rewe Group and the Otto Group, two of Germany’s leading retailers, are publicly addressing CDR, some reflections on retailers and CDR, and a conclusion which summarises the paper, identifies some of its limitations, and suggests some opportunities for future research.

The Concept and the Scope of CDR

The idea that companies have responsibilities towards society is not new, and Agudelo et al. (2019) argued that corporate social responsibility (CSR) has a long and varied history, but claimed that ‘what is arguably the first unified definition of Corporate Social Responsibility’ dated from 1979. More specifically, Agudelo et al. (2019) cited Carroll’s (1979) definition that ‘the social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time’ (Carroll 1979, p. 500). While work on CDR is still very much in its infancy, there are differing views on where it sits in relation to corporate social responsibility.

For some authors CDR is seen it is seen to be closely related to the wider issue of CSR and it has been described as ‘one part of an overall CSR model’ (Van der Merwe and Achkar 2022), while Wade (2020) argued that ‘CDR is a subset of corporate social responsibility.’ Mihale-Wilson et al. (2022) recognised that ‘at its core CDR is related to CSR’, in that, ‘in essence both concepts summarise the obligations that companies have towards society’, and that ‘both concepts aim at minimizing the adverse effects of practice activities while maximizing the benefits of firms’ activities.’ However, Mihale-Wilson et al. (2022) argued that because many of the digital technologies ‘have various characteristics that reshape value creation and the relationship between companies and society, it is expedient to make separate efforts to identify the new social responsibilities of developing and operating such technologies.’ Further, Mihale-Wilson et al (2022) argued ‘due to the complexity that technology adds to corporate responsibility and the fact that managing the consequences and the opportunities that technologies can bring about requires a strong technological focus, it seems appropriate to view CDR as distinct from CSR.’ However, Van de Merve and Achkar (2022) argued that CDR may be thought of as a separate mechanism that overlaps with CSR in multiple areas, but claimed that there were ‘gaps in relying on CSR and CDR’ and suggested ‘the need for a broader societal and comprehensive approach’.

That said, there is no generally agreed definition of CDR and Herden et al. (2021) suggested ‘there are relatively few and widely differing definitions for the term CDR’, but a number of definitions can be identified. Lobschat et al. (2021) described CDR as a ‘novel concept’, and defined it as ‘the set of shared values and norms guiding an organization’s operations with respect to the creation and operation of digital technology and data.’ Herden et al. (2021) defined CDR as ‘an extension of a firm’s responsibilities which takes into account the ethical opportunities and challenges of digitalization.’ For Elliot et al. (2021) ‘CDR is a voluntary commitment by organisations fulfilling the corporate rationalisers’ role in representing community interests to inform good digital corporate actions and digital sustainability via collaborative guidance on addressing social, economic, and ecological impacts on digital society.’

In the CDR manifesto (Corporate Digital Responsibility 2022), CDR is defined as ‘a set of practices and behaviours that help an organisation use data and digital technologies in ways that are perceived as socially, economically, and environmentally responsible.’ van de Merwe and Achkar (2022) defined CDR ‘as the set practices, policies, and governance structures of corporations as they relate to the digital transformation.’ More expansively, Van de Merwe and Achkar (2022) suggested that ‘CDR must be centered around accountable digital practices, enforcement mechanisms, sustainable growth and development, and the promotion of trust across the digital ecosystem’, and that ‘CDR practices must engage how digitalization shapes society and the environment and the impacts that it has on individuals, communities, and states.’

In outlining its scope Elliot et al. (2021) claimed CDR is about promoting economic transparency and social wellbeing and about reducing the impact of technology on the environment, while Mueller (2022) suggested that CDR

embraced two domains namely digital ethics and governance. More specifically, large retailers will increasingly look to employ digital technologies across an ever-widening range of their activities throughout their value chains, but as they do so, they may need to address the responsibilities associated with these technologies. Such responsibilities are wide ranging, though often interlinked, and they embrace people, the economy and the planet. Retailers' responsibilities to people, include their customers, their employees and society at large. Responsibilities to the economy can be seen to include the retailers themselves, their shareholders, their suppliers, and their relationships to intergovernmental initiatives, while responsibilities to the planet embrace a range of environmental issues, notably climate change, natural resource depletion, energy use, and waste management.

Literature Review

To date, CDR has attracted limited attention in the academic literature, but a number of themes, namely, the importance of taking a company-wide approach, the importance of stakeholders and the importance of continuing research into CDR, can be identified within that literature. Lobschat et al. (2021) for example, highlighted how to put CDR compliant behaviour into operation based on an organisational culture perspective. Here Lobschat et al. (2021) argued that 'for a business to be digitally responsible, its managers and employees must align their behaviors with specific norms established by the organization to achieve CDR', and that specific norms 'help ensure the organization's mission and values get translated into actionable guidelines, which are especially important if conflicting interests and needs arise among different stakeholders.' Lobschat et al. (2021) concluded by suggesting that the complex and diverse role that CDR plays within organisations may require widespread change within an organisation including organisational restructuring, employee training, and management development, the implementation of new data management and communication processes and by emphasising the urgent need for research into CDR within organisations.

Herden et al. (2021) suggested that CDR offered organisations an opportunity to gain both the trust of their stakeholders, and competitive advantage in the marketplace. More specifically, Herden et al. (2021) uncovered both a need, and an opportunity, for companies to implement a CDR strategy to address the threats, and embrace the opportunities, presented by the digital technologies, but argued that 'as each company has unique goals, business strategies and CDR needs, an individual CDR strategy is essential.' Further, Herden et al. (2021) concluded that the continuing rapid development of the digital technologies, effectively demanded that companies should regularly revisit and update their current organisational structures and CDR policies to ensure optimum levels of digital responsibility. More

Mihale-Wilson (2022) identified a number of research opportunities but identified two pressing research directions, namely 'the conceptualisation and operationalisation of CDR', and an analysis of the 'suitability and effectiveness of different CDR measures' companies could implement. In outlining the specific

research avenues for the first of these research directions, Mihale-Wilson et al. (2022) suggested the need to clarify how four sets of norms could promote responsible management and the use of technology and data. Firstly, consumer should have access to essential digital goods and services, secondly consumers should be informed and educated about the consequences of their digitally enabled consumption decisions, thirdly, that customers should have access to details of how their data is collected and handled, and fourthly consumers should be informed about how their economic interests could be protected and promoted. The principal research questions linked to the second of the research directions identified above, for example, focus on the suitability and effectiveness of various CDR activities for different key stakeholder groups in various types of businesses.

Liyanaarachchi et al. (2020) explored gaps in bank privacy protection practices and argued the case for online banking operators to integrate market-oriented approaches to CDR to help to minimise consumer data vulnerability. The findings of this work suggested that managing the vulnerability of customers' data requires a different strategy than conventional service delivery, and that 'a holistic approach is recommended by integrating corporate digital responsibility as a pivotal element of organisational strategy and by positioning vulnerable customers as critical stakeholders' (Liyanaarachchi et al. 2020). At the same time, the study also concluded that companies must ensure that they limit exposure to data breaches that could damage their brand equity.

Wirtz et al. (2021) looked to provide managers with some insights into where service companies' CDR issues originate, and to signal ways of addressing them. More specifically, Wirtz et al. (2021) suggested the importance of service organisations ensuring that CDR concerns were addressed in their relationships with their business partners, particularly their supply chain and technology partners, as well as any other potential secondary users of their customers' data. Wirtz et al. (2021) also suggested that future research agendas might include which corporate governance procedures were most effective in ensuring CDR compliant practices, and the extent to which customers are interested in being informed about CDR compliant practice, and the role consumer inertial plays in this process.

Jelovac et al. (2021) looked to explore the impact of CDR on building digital trust and responsible corporate governance in high performance computing businesses. The authors concluded that 'the best response to building and maintaining trust is, in our opinion, the building of a new modern business and organizational CDR culture', and that 'although CDR is a voluntary obligation which follows after legal requirements and standards have been fulfilled, it is the very thing that can provide the difference that leads to business sustainability and the realization of competitive advantage' (Jelovac et al. 2021).

Frame of Reference and Method of Enquiry

The majority of large retailers have been addressing, and reporting on, CSR for two decades (e.g. Jones et al. 2005). Although very few retailers have publicly

addressed CDR, since 2020 two leading German retailers, namely the Rewe Group and the Otto Group, have posted some details of their approach to CDR on their corporate websites. It is perhaps not surprising that German retailers have taken the retail lead in publicly addressing CDR in that much of the early impetus for CDR has been seen in Germany. The German Ministry of Justice and Consumer Protection launched a CDR initiative in 2019, public awareness for responsible corporate governance in the digital age has been gaining increasing attention within Germany, and German-based academics (e.g. Lobschat et al. 2021, Herden 2021), and consultancies (e.g. Hanauer 2019) have played a leading early role in publishing work on CDR.

The Rewe Group is Germany's third largest retailer, as measured by turnover, and it has over 4,000 stores and some 363,000 employees. The Rewe Group was originally established in 1927 and trades from a variety of formats including department stores, hypermarkets, supermarkets, convenience stores, home improvement stores and cash and carry outlets, and from a co-operative tourism trade group which embraces a network of independent retailers. The Otto Group is primarily a retail e-commerce company that offers multi-channel retailing, financial services and logistics. The company, which was originally founded as a footwear retailer in Hamburg in 1949, trades under a variety of brands and banners, including About You, Bon Prix, FGH, Frankonia, and Heine, and has a presence in over 30 countries and employ some 50,000 people.

This paper employs a sample case study approach and offers cameo case studies to illustrate some of the ways in which the Rewe Group and the Otto Group are addressing CDR. Rowley (2002) suggested that case studies were a useful tool in exploratory research projects, and the current paper is not the first to employ case studies of business practices to gain a perspective on CDR. In her study of CDR in construction engineering Weber-Lewerenz (2021) chose to employ case studies, because she claimed that 'the field of research is a marginal area; the topic is still new.' The material for the cameo case studies was obtained from the corporate websites of the two companies, and some of the information on the websites was machine translated from the original German, by Google. Throughout the two case studies the author looks to capture the retailers' approach to CDR in their own words, in the belief that such quotations help to convey corporate authenticity. The cameo case studies do not provide a comprehensive picture of the two companies' approach to CDR, but they offer some valuable insights in a field that has received little, or no, public or academic attention to date.

Cameo Case Studies: The Rewe Group and the Otto Group

In addressing its approach to ‘Digital Responsibility’, the Rewe Group (2021) acknowledged the responsibility it bears ‘for its customers, employees and suppliers’, claimed it felt ‘a responsibility to help shape digitization in a responsible manner’, and argued that ‘against the background of digital change’, it is logical to ‘live this responsibility in the digital space.’ Further the Rewe Group (2021) claimed to understand CDR as responsibility ‘in the sense of the conscientious handling of data’, where the ‘focus is on ethical data use and data protection’, on the ‘interaction of the responsible use of different technologies’, and that ultimately, for the company ‘people are always the focus of digitization.’ The Rewe Group (2021) claimed ‘as a pioneer in the digital trade in food and all products related to nutrition, kitchen and household, the Rewe Group is aware of its responsibility for customers, employees and suppliers’, and ‘she is aware that digitization offers great opportunities, but also possible risks must be considered.’ More specifically, the Rewe Group (2021) argued that ‘both needs-based offers for customers and the more efficient design of processes represent opportunities for responsible data use’, and that ‘responsible use of digital products and services can also offer added value in terms of sustainability.’ At the same time, the Rewe Group (2021) argued that the digital technologies can also help to increase transparency within supply chains, and illustrated their argument with an example of how QR codes can enable customers to trace some own brand products customers back to their producers. More widely the Rewe Group (2021) claimed that ‘by working intensively on digital responsibility’, it could ‘better counteract the effects of digitization, such as the loss of privacy when using data or possible discrimination by algorithms.’

More specifically, the Rewe Group (2022) acknowledged that ‘the possibilities represented by Artificial Intelligence mean that we must assume greater digital responsibility and ensure that Artificial Intelligence is used ethically’, and emphasised its belief that ‘the development of Artificial Intelligence projects require forward-looking and reliable guidelines.’ To that end, the Rewe Group (2020) developed a digital Artificial Intelligence Manifesto, principally designed to help software engineers to develop sustainable and responsible systems, and to help enhance awareness of the potential risks of Artificial Intelligence if improperly developed and used.

This manifesto effectively offers eight elements of guidance on Artificial Intelligence as illustrated below. The first element advises ‘You are an individual. The people interacting with your Artificial Intelligence are diverse. Respect them all equally’ (Rewe Group 2020) Further, this first element continues ‘Your Artificial Intelligence should treat its potential users fairly. Remind yourself that you inherently carry some bias and try to limit potentially adverse effects thereof. Try gathering diverse data that reflect the perspectives of your actual users’ (Rewe Group 2020). The fourth element advises ‘The users of Artificial Intelligence may not be human. Do not assume them to be’ (Rewe Group 2020). More expansively, this element of the manifesto continues ‘your artificial intelligence might be confronted with very fast and unexpected input sequences and its output might not

undergo human interpretation and judgement. Be especially careful when dealing with personal and sensitive data. If machine-machine interaction is a primary use case, a dedicated communication channel might be preferable' (Rewe Group 2020). The seventh element is focussed on taking responsibility and advises 'As creator of an intelligent system interacting with humans and potentially interfering with their lives, you carry an undeniable responsibility. This responsibility should always guide your thinking and acting' (Rewe Group 2020).

In outlining the Otto Group's Future Values Initiative, Speidel and Janig (2021) suggested that the company had been 'actively addressing the topic of digital corporate responsibility for several years', but that the launch of the 'Future Values Initiative' had seen the creation of a 'platform that aims to promote social discourse on the opportunities and challenges of digitization.' Speidel and Janig (2021) reported that the cornerstone for this initiative was laid in 2020 and that it was underpinned by a focus on a 'new way of externally directed corporate responsibility in digital change, since the initiative is not only aimed at direct and indirect stakeholders but also pursues an overarching social approach,' The underlying aim was to get the various players from the economic, science, academic, political, media, and civil sectors together to drive forward the digital socio-ecological market economy. By way of a summary of the importance of the Future Values Initiative, Alexander Birken, the Otto Group's Chief Executive Officer, argued 'a company's attitude and value-oriented action towards the environment and society are indispensable. They are increasingly becoming a license to operate' (Otto Group 20212).

CDR is one of seven topic areas within the Otto Group's corporate responsibility strategy. Here, in outlining the 'core priorities' for CDR, the Otto Group (2021) reported 'we want to seize the opportunities of digitisation while shaping the transformation responsibility in line with our German and European values', and 'to this end we develop approaches to solutions for our organization and society.' The Otto Group (2021) emphasised 'it is important for us to work on concrete measures and initiatives in order to meet our claim as a future-oriented organization through successfully implemented transformation and flagship projects.' Further, the Otto Group (2021) reported that 'we have launched a Group-wide initiative, TechUcation, to give our employees an even better understanding of digitisation and to offer learning opportunities', and in addition to questions relating to data and security, 'we are also bringing climate protection and digitisation together, for example, with a project to survey the carbon footprint of IT.'

For the Otto Group issues of sustainability and digitisation are intertwined. Michael Otto, chair of the company's Supervisory Board (Otto Group 2022a) suggested that 'on the one hand, we urgently need to limit global warming, on the other hand we have to master digitisation. It's not easy, but we can do it without losing sight of our values. Because economy and ecology do not have to be mutually exclusive. On the contrary. They must become the new business model. Here we can play a pioneering role in Germany and Europe if we start now.' Looking to the future, the Otto Group (2022b) will look to enhance awareness of CDR by providing 'employees with greater transparency about their own CO₂

footprint, Otto Group IT is set to roll out a self-developed CO₂ footprint app in the first quarter of the year. This way, the Otto Group is seeking to raise its employees' awareness of climate protection and enable them to take informed decisions about emissions reduction – a small but important step towards the Group's goal of climate-neutral business by 2030.'

More generally, the Otto Group is one of five signatories to a CDR Initiative first launched by the German Federal Ministry for Justice and Consumer Protection in 2018. The aims of the initiative are 'to ensure that digital responsibility becomes a normal part of day-to-day business for companies in all sectors', and that 'more companies should be encouraged to go beyond what is required by law and actively shape the process of digitalisation in a people-and value-oriented way' (Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection 2021). One of the central themes of the initiative is that digitisation should be centred on people, that 'on the one hand, this means focussing on consumers when weighing up opportunities and risks', while 'on the other hand, it means ensuring transparency as a basis for trust', and that 'with this in mind, the CDR Initiative strives to shape digital change in a transparent and responsible way that serves citizens' best interests' (Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection 2022). Essentially, the initiative is built around the CDR code which spans five fields of action, namely handling data, training, climate and resource protection, employee involvement, and inclusion.

Reflections

Large retailers have been quick to seize an ever-wider range of opportunities by harnessing digital technologies to transform all areas of their business operations, but the vast majority of them have been much slower to publicly acknowledge, and address, the new set of responsibilities associated with the introduction of these technologies. That said, two linked sets of reflective issues, namely, potential internal inconsistencies within CDR, and wider concerns about whose best interest are served by CDR, merit concluding attention.

Firstly, a number of internal inconsistencies and potential contradictions can be identified within CDR. There are, for example, potential tensions between the management of the economic and the social dimensions of CDR, with the one concerning the retailers' responsible management of the economic impacts of digital technologies, and the other concerning the retailers' relationships to individuals, and more generally to society. Here, retailers are looking to use their customers' data, in a variety of ways, to drive their businesses, and customers, and the public at large, are looking to protect their privacy and their rights, while harnessing the benefits and conveniences many of the digital technologies offer. Whether consumers will ever willingly relinquish the flexible purchasing powers offered by digital technologies, for example, remains very much to be seen, and this in turn further complicates retailers' commitments to CDR. At the same time, employees may be concerned that digital technologies will be employed by their

retail employers to reduce, or replace, jobs at store level, in head offices, and in logistics operations.

A further set of tensions can be identified when examining the role of digital technologies in addressing a range of environmental problems. In many ways, the conventional wisdom is that harnessing the digital technologies will be vital in driving the transition to a sustainable future. However, the increasing adoption of digital technologies, might be seen to be the antithesis of sustainable consumption. Not least, in that these technologies increasingly enable consumers to buy a wide range of goods and services instantly, regardless of the consumers' location or the time of day, at the touch of a button or a key. More generally, ICTworks (2020), an online community for international sustainable development professionals, claimed 'the digital technology industry is one of the least sustainable and most environmentally damaging industrial sectors in the modern world', and that 'if digital technologies are indeed to do good, especially with respect to the physical environment that sustains us all, it is time for a dramatic rethink of all aspects of the sector's activities.'

The two cameo case studies reveal that both the Rewe Group and the Otto Group have begun to address CDR, and in the coming years many other large retailers may follow suit. However, it remains to be seen if, and how, such retailers will be able to decide on reconciling what may be competing and contradictory claims under the overall umbrella of CDR. The Otto Group's commitment to involve representatives from business, science, politics, and civil society, and the emphasis on transparency emphasised by both the Rewe Group and the Otto Group in the outline of their approaches to CDR, may help in looking to reconcile competing claims, but they surely offer no guarantees of effective reconciliation. Further, it also remains to be seen how retailers will communicate the reconciliation of such competing and contradictory pressures to their customers, and more generally to their various stakeholders, and given the complex nature of many of the digital technologies, there must be questions about how well customers will be able to make sense of such communications.

Secondly, there are issues about whose best interests are served by CDR and the difficulties involved in making such judgements. Lobschat et al. (2021) argued that 'the multisided natures of many markets for digital products and services makes the assessment of beneficence for all involved stakeholders complex but specific engagement with CDR offers organizations an opportunity to adopt a clear approach to this challenge and involve relevant parties along their value chain.' On the one hand, many large retailers, and the consultancy companies looking to help them implement new digital development policies and applications, emphasise the individual and corporate benefits of digital technologies. On the other hand, CDR might be seen to be important for large retailers in promoting their business strategies, in effectively giving them licence to operate, and in legitimating their business activities to their various stakeholders, and more widely to society.

In pursuing the argument that large companies might use CDR to pursue their own ends, Van der Merwe and Achkar (2022) raised the concern that CDR will be used for 'whitewashing and regulatory capture', and that a 'cynical interpretation of CDR' is that 'it offers corporations an opportunity to build a cover for unethical

behaviours and practices.’ More optimistically however, Van der Merwe and Achkar (2022) also argued that CDR offers an opportunity to incorporate strong enforcement and accountability mechanisms, in order to ‘ensure responsible development of technology in a realm that is severely underregulated.’

Conclusion

The two case studies of the Rewe Group and the Otto Group provide some insights into the ways both of the retailers have approached publicly addressing CDR. More specifically, the case studies help to illustrate how the two retailers conceptualise CDR and their commitment to it, how it has guided the development and use of some of the digital technologies, and how it fits into the wider social and business context. At the same time, the two case studies do reflect, in part at least, some of the themes identified in this paper’s literature review, principally the importance of taking a company-wide approach and the importance of some stakeholders. At the same time the call for additional research on CDR is a common theme in the literature, and the current paper can be seen to begin to fill a gap in the retail literature.

That said, as a commentary of CDR in the retail industry, the paper does have a number of limitations. Not least, in that it is based on cameo case studies of just two large German retailers, and in that the material for these cameo studies is drawn exclusively from Internet sources. At the same time while the cameo case studies offer illustrations of how the two retailers are currently approaching CDR, they do not provide a comprehensive picture, or a detailed analysis, of the development and workings of the two retailers’ current CDR policies. That said, and looking to the future, a number of research opportunities can be identified which will go some way to build the foundations for a more comprehensive review of CDR within the retail industry.

Such research might cover a range of endeavours. Empirical studies, of how a number of large retailers in Europe and the US, drawn from different sectors of the retail economy, are addressing CDR, and more specifically how they are addressing CDR within their supply chains. If, and how, retailers’ customers are being included in the CDR process, and if customers trust the retailers’ public statements about the security and safety of their financial and personal data, does this enhance their patronage. Are small independent retailers addressing CDR in a different way to the large retail companies, and what role does direct interpersonal communication play in this process? In addition to these empirical research opportunities, it will also be important to develop some theoretical frameworks around CDR.

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