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Effect of Internet Technology on the relationship between Corporate Voluntary Disclosure and Firm Value of Listed Companies at the Nairobi Securities Exchange

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Abstract

Transparency and accountability has become critical for the company's success and value creation. What was previously a mere obligatory function of the annual general meeting, has for the past decade, become an activity of distinguished priority for most top executives. Internet has triggered a revolution in the area of transparency. Internet as a medium for the disclosure of corporate information creates a new corporate reporting environment that offers a platform for managerial stewardship and disclosure management. This paper examines the moderating role of internet technology on the relationship between corporate voluntary disclosure and firm value of listed companies at the Nairobi Security Exchange in Kenya. A census survey was carried out and of the 66 firms that were targeted, 56 were analysed. The study relied on disclosure index procedures to assess the level of corporate voluntary disclosure in the annual reports (2010-2019) of 56 listed companies. The moderating effect on the relationship between independent and dependent was tested using panel data models. The finding showed that internet technology as moderating affects the relation between corporate voluntary disclosure and firm value (measured using return on assets) and, has no effect on relationship between corporate voluntary disclosure and firm value (measured using Tobin Q). In general the finding shows mixed results in terms moderating role of internet technology on relationship between corporate voluntary disclosure and firm value. The finding are helpful to policy maker and prepares of corporate reports to establish disclosure strategy to prioritize investor relations through website to level the playing field on the security market. The inconsistence results of the moderating role of internet technology on the relationship between corporate voluntary disclosure and return on assets and Tobin Q ratio as measure of firm value, may be due the fact that theoretical each measures express different meanings. However, future researchers may explore the possible causes of differences and how to deal with inconsistence in results with respect to return on assets and Tobin Q.

Keywords: *Internet technology, corporate voluntary disclosure, firm value, information asymmetry*

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Introduction

Internet refers to a worldwide network that joins computer systems across the globe (Christensson, 2019). The Internet technology has paved way for shift in global communication, with the spread of internet usage (Elsayed, 2010; Wagenhofer, 2003; Modaff & DeWine, 2002). The mode of communication to disclose accounting information has been summarized to include, Annual reports, investors' relation activities and other official publications (Kavitha & Nandagopal, 2011; Debreceny, Gray, & Rahman, 2002). Annual report is regarded as primary, oldest and more familiar mode of communication to various stakeholders (Vergoossen and De Bos, 2005).

With recent development companies can select among varieties of direct modes of disclosure by providing corporate information worldwide and facilitate broader stakeholders. Thus, optimizing the use of several modes to generate value from corporate disclosure. What was previously a mere obligatory function of the annual general meeting, has for the past decade, become an activity of distinguished priority for most top executives. Transparency and accountability has become critical for the company's success and value creation (Opanyi et al., 2022). The top decision makers of a firm can contribute by reducing the information asymmetry between themselves and the outside world. Corporate disclosure is the prime means by which corporations can become transparent (Healy & Palepu, 2001).

Internet as a mode of company disclosure is a phenomenon that has seen significant development in the recent years as it provides more flexibility than the annual financial reports (Lai et al., 2010). According to Cormier et al., (2007), it offers best platform for the managerial stewardship responsibilities and disclosure management. It provides firm's information characterized with real-time, borderlessness, pervasiveness, low-cost and high-interaction along with incorporation of images, figures, text, live pictures and sounds (Lai et al., 2010). Lai et al., (2010), summarizes these characteristics as: timeless, diversity, and unlimited access. Indeed, FEE, (2015), agrees that technology undoubtedly plays an essential role in development of corporate reporting, both as an enabler and as a driver for change.

Prior studies attempted to develop several disclosure index suitable for the purpose of distinguishing the effect of internet technology on corporate reporting by developing disclosure checklist to assess the extent of company's website disclosure of financial information (Lai, Lin, Li, & Wu, 2010; Debreceny, et al., 2002). The cataloging constructed by Pirchegger and Wagenhofer (1999) is the most widely held and

applied by internet-based reporting (IR) researchers (Khan & Ismail, 2011). Pirchegger and Wagenhofer (1999) IR disclosure index categorized, a list of criteria to appraise organization web sites into four clusters: technology, timeliness, content and user's support. Other dimensions used by other researchers (e.g. Marston and Polei, 2004; Debreceny et al., 2002 Xiao et al., 2004) includes content and presentation. Overall, many aspects have been used to represent IR disclosure index (Khan & Ismail, 2011).

This study focused on four important elements to evaluate company website that includes; technological features (analyze how firms make use of advanced features and integration of the Internet-based reporting), content and presentation (examine the scope/coverage of company economic information and other corporate information), user support (evaluates the layout and design of the organization websites and its user friendly) and organisation support (measures company commitment to use of technology, transparency and credibility of information and users security and safety).

Research Problem

Kenyan listed companies are of interest to wide and sophisticated investors with about 20% foreign investors' participation outside East Africa (Injeni et al 2019; CMA 2019) and therefore matters of corporate reporting are essential. Internet has triggered a revolution in the area of transparency. Internet offers a platform for managerial stewardship and disclosure management (Cormier et al., 2007). However, it should not simply allow companies to disclose additional information to wider audience, but should instead enable disclosure of more relevant, timely and market-moving information. Notwithstanding the growing use of the internet as a medium for the dissemination of corporate information, some companies either do not have a corporate website, or are not using their website to disseminate such information. Also, widespread literature examines the extent and determinants of corporate voluntary disclosure through traditional mediums such as traditional annual financial reports. The development of Internet as a medium for the disclosure of corporate information creates a new corporate reporting environment that may be different from the traditional annual reports. There are limited studies investigating the moderating role of internet technology on association between CVD and the firm value of listed companies in Kenya. This paper extends this literature by examining the role played by the internet technology in the disclosure of financial and non-financial information in Kenyan context. This paper therefore aim to examine the moderating role of internet technology on relationship between CVD and firm value.

Objective of the study

The aim of this study was to examine the effect of internet technology in moderating the relationship between corporate voluntary disclosure and firm value of listed companies at the NSE.

Literature Review

This segment contains a review of the theoretical foundation of this study as well as empirical reviews.

Theoretical Review

This section explains the related theories on which the study is based. A number of theories have been hypothesized as explanatory theories endeavoring to explain firms' incentives to disclose extra information voluntarily. The stakeholder theory, and signaling theory were used to underpin the study.

Stakeholder's theory

Freeman (2004) describes stakeholders as individuals who are vital to the success and survival of the organization. The theory assumes that all stakeholders have "customer-like" power to engage or not to engage with the company and the contribution of every stakeholder to the firm system of value creation affects the total value created (Ansoff, 1965). According to stakeholder's theory, contribution of every stakeholder to the firm system of value creation affects the total value created. As such, survival of organization rest on the sustainability of its stakeholder's relations, companies need to consider and engage all stakeholders. CVD is used to serve the company interest to involve with stakeholders and overcome information asymmetries. Resulting in the long-run benefits to the company.

This is achieved by providing CVD, to gain attention, backing and endorsement of all stakeholders. CVD enables firms to build trust of all interested parties. Consequently, companies realize resources driven by all the stakeholders (Armitage and Marston, 2008). Company does not have a homogenous set of stakeholders (FEE, 2015). Stakeholders' theory suggests that company must meet the information needs of diverse set of users with complex set demand and supply. Stakeholder theory view firms' CVD as a reaction to the expectations and demands from different interested parties.

In addition, changes in business environment due to development in internet technology. Organisations are growing embracing the internet as the mode of investors' relation. Availability of firm's financial

information has extended to wider stakeholders well beyond its historical target. Stakeholder's financial information need must be reliable and fast to meet their requirements for sound decision-making. Therefore, companies use different channels to release corporate information in order to optimize the benefits of disclosure. Internet corporate reporting is instantly available to global audiences. In order to keep up with this new order of the corporate world, it has become imperative to assume a greater transparency with the investment community, which may maximize value for the shareholders.

Signaling theory

The signaling theory deals with asymmetric information and shows how parties with more information if shared with others can reduce asymmetry (Akerlof, 1970; Spence, 1973). The theory recognizes that a number of parties to a company transactions may possibly have more superior information than others. Managers have access to company private information than outside stakeholders. Given informational asymmetries, investors face two challenges; lack of trust in management and the doubt in the value of the investment opportunities. Signaling theory posit that, increased demand for information disclosure arises from an information asymmetry problem.

According to the theory, CVD has major influence on firm value by arguing that the value of a firm is a function of how well managers signal corporate information to reflect true value of the firm in the market (Hossain & Taylor, 2007). Consequently, companies signal informative information about the company to investors to show that they have superior investment prospects than other enterprises to boost a positive firm status (Verrecchia, 1983).

Internet disclosure, enhances transparency by disseminating diverse, timely and unlimited access to wide audience (Lai et al., 2010; Debreceny et al., 2002). Thus, levelling the playing field on the security market (Opanyi 2022; Rikanovic 2005; Leuz and Wysocki 2015). Information efficiency is necessary for the smooth running of security markets, which enhances confidence in the capital market thus facilitating sound economic decision-making (Bushman and Smith, 2001). Thus, CVD may build trust to facilitate reduction in transaction costs (through reduced resources needed to make, enforce and monitor contracts to successful execution). Accordingly, increasing shareholder values. CVD may be used as a platform for investor relations and a cogent evidence of management creditability.

However, it is possible that the company engage in CVD in a very complex manner, making it hard to interpret the information disclosed. Moreover, for the firms to successfully signal their qualities, the signal must be credible. Watson et al., (2002) states that, credibility is attained once the true quality of a company is eventually confirmed. Jennings (1987), noted that the market moving information is subject to the believability and new information in the disclosed information.

Empirical Studies

It has become imperative to assume a greater transparency with the investment community. Farvaque et al., (2009), argues that a company can increase its level of CVD by making information disclosed more easily available, by releasing on firm web-sites and on all other media. The benefit of internet reporting has been explored by many prior studies (Saada and Khalfaoui 2015; Xiao et al., 2004; Wagenhofer, 2003; FASB, 2001; Ashbaugh et al. 1999).

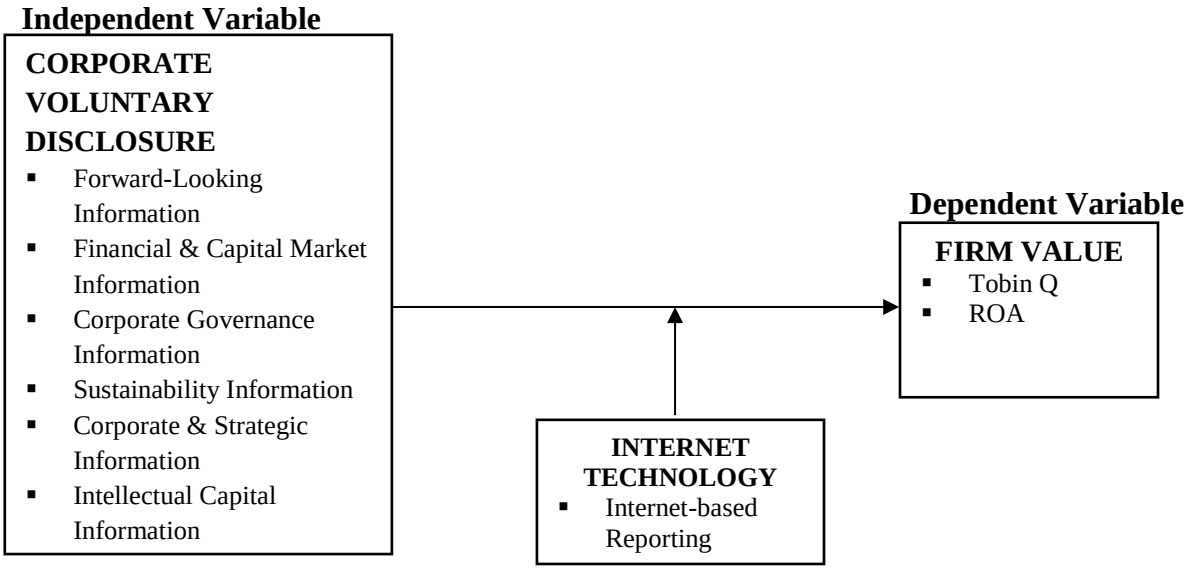
Some of benefits identified includes: reduction in costs of printing and distribution of annual reports to stakeholders, elimination of time required to print and distribute the annual reports. Moreover, it increases the timeliness of financial information, by making financial information electronically portable and globally accessible enables access by a wider audience. It enables release of information with dynamic presentation and multimedia which improves the presentation of the corporate information. Internet disclosure, enhances transparency by disseminating diverse, timely and unlimited access to wide audience (Lai et al., 2010; Debreceny et al., 2002).

Generally, firms are gradually using websites as a means of investors-relation, increase firms' investors' base and at the same time democratizing the access to company's information. This increases firm's visibility by making more investors aware of the company. As a result, it enables better transparency, which could improve firm value. Saada and Khalfaoui (2015) study explored the economic benefits of incremental IR by 190 French corporations relating to SBF 250 Index. They argue that IR reduces the asymmetric information. Subsequently, increases the stock liquidity. They tested from a theoretical basis, if the incremental IR affects the cost of capital and liquidity. The findings show that the IR increases stock liquidity. But, has no relationship with cost of capital.

Elsayed (2010) study examined the association between IR and economic benefits and its main components in Egypt. The researcher argue that IR improve firm's transparency by disseminating several type of timely information to wider audience. Enhanced transparency facilitate better investment decision making. The results reveal that IR by Egyptian quoted firms is influenced by different variables for example: company size, audit type, leverage, shares volatility, cross-listing, legal form, ownership structure, board size. Furthermore, the study shows that IR determinants differ among several components of IR: presentation, content, timeliness and usability. The study showed IR are positively related to firm performance.

Oyelere et al., (2003) established that larger corporations, multinational companies, more profitable and liquid firms engage more in web-based reporting. They found the size of firm, share spread, market liquidity, industry type and internationalization to be predictors of web-based reporting while leverage and profitability were found not statistically significant.

Conceptual Model



The research hypothesis tested in this study was:

H_{O1}: Internet technology has no significant moderating role on relationship between corporate voluntary disclosure and firm value of listed companies at the NSE.

Research Methodology

Research Design

The study employed quantitative research method. This study was based on existing body of knowledge, review of literature from previous related studies, setting of hypotheses based on the existing pertinent theories, from which observations was deduced so as to be confirmed or refuted by quantitative and statistical methods. This approach also relies on taking large samples hence the researcher studied the entire population so as to generalize the findings.

The researcher adopted cross sectional research design. Cross sectional design is a sampled groups along a development path in an experiment to determine how development influences research variable. A cross sectional study describes a group of subject at one particular point in time. Data gathered is from a pool of participants with varied characteristics and demographics known as variables. It enables exploration of changes over-time and relates them to variables that clarifies why the changes occurs. The cross sectional study was employed because it is comparatively quick and easy to conduct. It is not costly to perform and does not require a lot of time.

Population and Sample

The study targeted all listed companies whose stocks were actively traded at the Nairobi Securities Exchange from 2010 to 2019. There are 66 listed companies on NSE as of December 2019 (CMA, 2019). Census method was selected because listed companies represent a small population and is possible to study the whole population (Kothari, 2004). Also the results based on this method are less biased as each and every unit of population is considered. Out of 66 firms that were targeted, 56 were analyzed because there stocks were actively traded at NSE.

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Table 1: Number of Listed Firms by Sectors

Sector	No. of Listed Companies	No. of Companies to be Studied
Banking	12	11
Commercial and Telecommunication	14	11
Construction	5	5
Manufacturing and Allied	9	7
Insurance	6	6
Agriculture	7	6
Investment and Investment Services	8	6
Energy and Petroleum	5	4
TOTAL	**66**	**56**

Data Collection and Instruments; the study collected secondary data (annual financial statements). The secondary sources (annual financial statements) was selected because it is economical, easy to access and is much reliable because annual financial statement are audited. The financial statements were obtained from CMA websites and specific listed company's websites for ten-year's time period (2010 to 2019). The financial data from published financial reports were compared with data from NSE Hand book, this assisted in the verification of consistency and accuracy. The study used disclosure index procedures to evaluate extend CVD in the annual financial reports of 56 listed companies for the period 2010-2019. CVD checklist comprises multiple measurement items based on broad literature review of survey instrument from prior studies and established guidelines. Data on firm value was obtained from the Annual reports using secondary data collection sheet.

Data Analysis; Operationalization refers to the process of developing indicators or items for measuring these constructs (Bhattacherjee, 2012). This study operationalized the study variables as detailed in the table two.

Table 2: Operationalization and Measurement of Study Variables

Variable	Operation Definition	Indicators	measurement	Researchers
Value of Firm	Objectives of shareholders interest	Firm value	TQ = Market Capitalization / Book Value Total assets. ROA= Profit after Tax (Net Income) / Book value Total Assets.	Waweru, 2018; Hamrouni et al., 2015; Rikanovic 2005; Drobetz et al., 2004
Corporate Voluntary Disclosure	Disclosure beyond regulatory and legal requirement	CVD Attributes	Disclosure Score $=\sum_{t=1} \frac{X_{ij}}{n_{ij}}$ CVD will be measured using 5 point likert scale ranging from "no disclosure" to "very extensive disclosure".	Khanna and Chahal 2019; Scaltrito 2015; Uyar et al., 2013; Coebergh 2011; Francis et al., 2008; Boesso and Kumar 2007 Striukova et al., 2008; Ticha' I 2008; Meritum et al., 2002
Internet Technology	Disclosure of CVD items on firm's websites	Internet-Based Reporting	IT Index = $\sum_{t=1} \frac{X_{ij}}{n_{ij}}$ IT will be measured using Capability Maturity model ranging Initial to Optimizing level	Pirchegger and Wagenhofer 1999; Marston and Polei 2004; FASB 2001; Xiao et al 2004 Debreceny et al 2002

Hypothesis to Test the moderating effect of Internet Technology on relations among corporate voluntary disclosures and firm value

The moderating influence of Internet Technology on relations among CVD and the value of firm is based on casual step approach by Judd and Kenny (1981) and Baron and Kenny (1986) model.

$FV = ß_0 + ß_1 CVD + \varepsilon$ ……..……..…..… (2a)

Regress FV on CVD to test $ß_1$ is significant

$FV = ß_0 + ß_1 CVD + ß_2 IT + \varepsilon$ …… (2b)

Regress IT on CVD to proof $ß_2$ is significant

$FV = ß_0 + ß_1 CVD + ß_2 IT + (ß_3 IT * ß_4 CVD) + \varepsilon$ …… (2c)

Regress FV on CVD and IT to test $ß_1$ is significant and $ß_2$ is smaller

Where: FV= Firm Value CVD= corporate voluntary disclosure index ε = Error term, $ß_o$= Constant or intercept, ß = Regression model co-efficient (parameters)

Findings and Discussions

The empirical results comprise the results of descriptive statistical analysis, correlation analysis and panel data regression analysis.

Descriptive Statistics

Descriptive statistics is usually used at the beginning of the analysis phase in order to provide preliminary analysis of the data and guide the rest of the data analysis process (Cooper & Schindler, 2008). Descriptive statistics are univariate tests which represents the total sample distribution of one variable at a time, which are divided into statistics that measure central tendency and statistics that measure dispersion. Central tendency measures are concerned with locating where values in a distribution tend to concentrate. The dispersion measure is concerned with how wide a distribution is (Bryman and Cramer, 2005).

Corporate Voluntary Disclosure

Previous studies treat CVD as a whole. However, there are differences in disclosure behaviour in each information category that may result from management intentions or a wide variety of demands from stakeholders, and each type of information has different characteristics. According to Khanna and Chahal (2019); Gray et al. (1995) and Meek et al. (1995) empirical evidence shows that different CVD information category result in different disclosure behaviour and can be explained by different factors.

The study adopted a comprehensive disclosure index in terms of items which considered 24 checklist statements using 5 point likert scales. The maximum score that a company was expected to score was 120. The score was categorized into three ranks of low cluster (0-40), middle cluster (41-80) and high cluster (81-120).

The results in Table three indicates the CVD score by year. The results indicates that the year 2010 had the lowest scores (mean= 34.30, standard deviation= 12.14) and the year 2019 had the highest score (mean= 48.13, standard deviation= 22.26). The results shows that adoption of CVD was low, but increased gradually

from 2010 to 2019 with extent of CVD among forthcoming companies and those that are reluctant to embrace CVD also increasing as shown by standard deviation (spread).

Table 3: Corporate Voluntary Disclosure Score by Year

Year	Obs.	Mean	Std. Dev.	Std. Err.	(95% Conf. Interval)		Min	Max
2010	56	34.30	12.14	1.62	31.12	37.49	10.00	63.00
2011	56	34.68	12.53	1.67	31.39	37.97	10.00	69.00
2012	56	35.54	12.82	1.71	32.17	38.90	10.00	69.00
2013	56	36.11	13.32	1.78	32.61	39.60	10.00	69.00
2014	56	37.01	14.22	1.90	33.28	40.74	10.00	69.00
2015	56	38.88	16.18	2.16	34.63	43.12	10.00	74.67
2016	56	43.53	17.40	2.33	38.96	48.10	16.00	83.67
2017	56	47.37	18.71	2.50	42.46	52.28	16.00	82.67
2018	56	46.95	21.39	2.86	41.33	52.56	0.00	79.67
2019	56	48.13	22.26	2.97	42.28	53.97	0.00	84.67

Internet Technology

This section, contained the analysis of how listed companies adopt advanced features of internet technology in embracing CVD. The study employed Internet-based disclosure index suggested by Xiao (2004) which was based on Pirchegger and Wagenhofer (1999). IT disclosure index, was classified into four components: technological features, user support, Content and presentation and organization support.

Table 4 presents Internet Technology score by sector. The result indicate that Banking, Energy and Petroleum and Insurance sector scored middle cluster rating, the other sectors; Commercial and Telecommunication, Investment and Investment services, Manufacturing, Construction and Agriculture sectors scored low cluster ranking.

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Table 4: Internet Technology by Industry

YEAR	Banking	Commercial & Telecommunication	Manufacturing	Construction	Insurance	Agriculture	Energy & Petroleum	Investment & Investment Services
2010	8.82	6.7	7.5	7.4	7.33	5.33	8.8	5.8
2011	9.36	6.7	7.75	7.4	7.83	5.33	9	6
2012	9.27	7	7.75	7.4	8.17	5.17	9.2	6.2
2013	9.36	7.8	8.13	7.4	8.83	5.17	9.6	6.8
2014	9.64	7.7	8.63	7.4	8.83	5.5	9.6	7.2
2015	9.73	7.8	8.5	7.2	8.83	6.33	9.6	7.2
2016	10	7.8	8.63	8	8.83	6.5	10	7.8
2017	10.09	7.7	8.88	8	8.83	6.67	10	8
2018	10.09	7.8	8.88	8	8.83	7	10	8.2
2019	10.09	7.2	8.88	8	9	7.17	10	8.2
Total	**9.65**	**7.42**	**8.35**	**7.62**	**8.53**	**6.02**	**9.58**	**7.14**

Table 5 presents Internet Technology by component classification. The result indicate that technological features, content and presentation, user support and organization support had mean scores of 3.09, 2.54, 1.65 and 0.87 respectively. However, despite some companies having a fairly good website in term of technological features (such as banking, energy and petroleum and Insurance), CVD on website was minimal among all the companies and across the industries. However, it should be noticed that information such as Governance reports, CSR Reports and strategic information that were previously not available, have gradual been published more often. With Energy and Petroleum, Insurance and Banking scoring an average score of 1.96, 1.8, and 1.73 respectively out of maximum score of 5 under content and presentation subcategory. Most companies disclosed only mandatory reports on their websites.

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Table 5: Internet Technology by Component classification

Industry Type	Technological Features	User Support	Content and Presentation	Organisation Support
Banking	3.46	3	1.73	1.45
Commercial & Telecommunication	3.12	2.2	1.36	0.8
Manufacturing	2.86	2.88	1.61	1
Construction	2.76	2.6	1.66	0.6
Insurance	3.4	2.67	1.8	0.67
Agriculture	2.67	1.33	1.68	0.33
Energy & Petroleum	3.42	3.2	1.96	1
Investment & Investment Services	2.74	2.2	1.6	0.6
Total	**3.09**	**2.54**	**1.65**	**0.87**

Firms Value

Firm value of listed firms at NSE was assessed using two measures; return on assets and Tobin Q ratio. ROA indicates profitability of firm relative to its total assets. ROA provides an understanding as to how company's managers' efficiently puts to use its assets to generate earnings. A higher ROA indicate more asset efficiency. Whereas, Tobin Q describe a condition of investment opportunities owned by the company or the firm growth potential. Tobin Q ratio above one shows that the company is worth more than the cost of its asset and vice versa (Wahba, 2008). The mean score for ROA and Tobin Q from the year 2010 to 2019 are presented. Figure 4.1 shows mean score for ROA and TQ were 3.92 and 0.94 respectively. The results indicated that TQ ratio was high in the year 2015 and low in the year 2011 while average ROA declined gradually during the period under study.

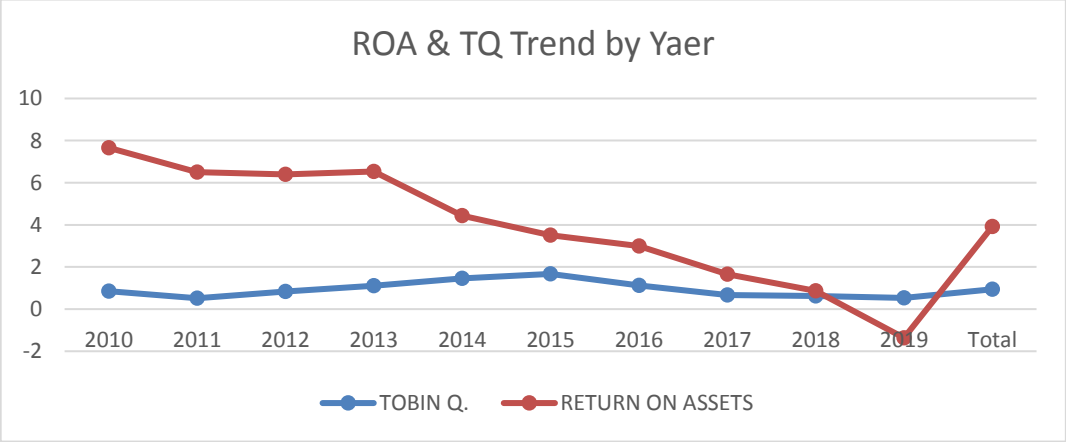

Figure 1: ROA and TQ Trend

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Figure 2 presents firm value by industry. The results shows that Agriculture, Manufacturing, Insurance, Construction and Energy and Petroleum had mean score in term of ROA above the market mean score of 3.92. With regard to Tobin Q, Agriculture, Manufacturing, Commercial and Telecommunication had Tobin Q ratio above 1 and above market mean score.

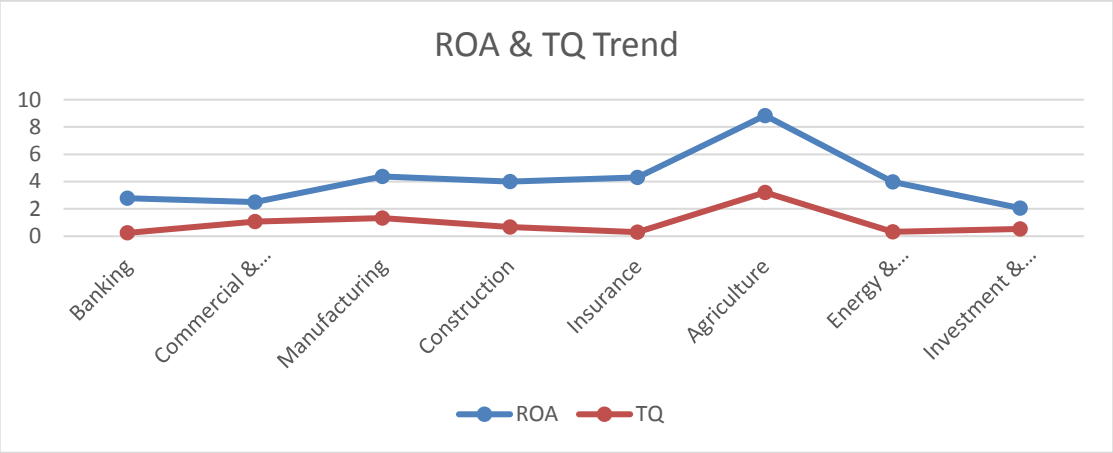

Figure 4.2: ROA and TQ by Industry

Univariate Analysis

The three selected variables for this study are represented by FV, CVD and IT representing Firm Value, Corporate Voluntary disclosure score and Internet Technology of listed companies. The variables when subjected to normality testing the results showed that the variables were not drawn from a normal population. Therefore, non-parametric correlation test (spearman rank correlation) was conducted to establish extend of association among the variables.

Table 6: Spearman Rank Correlation Matrix

spearman CVD FXstics IT TQ ROA, star(0.05) (obs=560)

	CVD	IT	TQ	ROA
CVD	1.0000			
IT	0.5178*	1.0000		
TQ	-0.0473	-0.0339	1.0000	
ROA	-0.0144	0.0911*	0.4542*	1.0000

The results in table 6 shows dependent variable (ROA and TQ) had no higher degree of correlation with independent variables (CVD, IT). The dependent variables FV (ROA) was negatively correlated with CVD and IT with values of 0.0144 and 0.0911 respectively. In terms of dependent variables FV (TQ) exhibited a negative correlation of 0.0473 and 0.0339 with CVD and IT respectively. The test for correlation was also conducted amongst the independent variables themselves. The study reveals that CVD are positively related with IT with the value of 0.5178.

Multivariate Statistical Analysis

First, fixed effect model of panel analysis was conducted to understand the moderating effect of firm characteristics on relationship between CVD and firm value. Second, random effect model of panel regression using GLS was carried out to establish the moderating effect of firm characteristics on relationship between CVD and firm value across the time period. Lastly, in order to determine the applicability of the random-effect and the fixed-effect in the data set, hausman test was carried out. The fixed-effect model of panel regression was conducted to examine the effect of CVD on ROA. The results in table 7 indicates that CVD (p value of 0.002) on an average at an individual level significantly influence ROA of listed companies.

Table 4.5: Fixed Effect Panel Regression Model (Impact of CVD on ROA).

Fixed-effects (within) regression				Number of obs	=	560
Group variable: YEAR				Number of groups	=	10
R-sq:				Obs per group:		
within	= 0.0170			min	=	56
between	= 0.9040			avg	=	56.0
overall	= 0.0030			max	=	56
				F(1,549)	=	9.49
corr(u_i, Xb)	= -0.3005			Prob > F	=	0.0022
ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CVD	.0971199	.0315274	3.08	0.002	.0351908	.1590489
_cons	.0100908	1.36942	0.01	0.994	-2.679853	2.700034
sigma_u	3.4559397					
sigma_e	12.185394					
rho	.07444815	(fraction of variance due to u_i)				
F test that all u_i=0: F(9, 549) = 4.10					Prob > F = 0.0000	

The random effect model of panel regression using GLS technique of estimation was conducted to understand the effect of CVD on ROA. The results in table 8 indicates that CVD (p value of 0.195) on an average at an individual level does not significantly influence ROA of listed companies.

Table 8: Random Effect Panel Regression Model (Impact of CVD on ROA).

Random-effects GLS regression — Number of obs = 560
Group variable: YEAR — Number of groups = 10
R-sq: — Obs per group:
within = 0.0170 — min = 56
between = 0.9040 — avg = 56.0
overall = 0.0030 — max = 56
Wald chi2(1) = 1.68
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.1948

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CVD	.0398041	.0306991	1.30	0.195	-.020365	.0999732
_cons	2.316948	1.343527	1.72	0.085	-.3163172	4.950213
sigma_u		0				
sigma_e	12.185394					
rho		0	(fraction of variance due to u_i)			

The result of Hausman test in table 9 shows that the null hypothesis be rejected in this case and hence fixed effect model is suited for the data set to ascertain the impact of CVD, FXstics and IT on ROA. The p-value of the Chi-square being 0.0001 and the chi-square statistic been 63.74 shows that the null hypothesis of applicability of random effect model be rejected and hence fixed effect is applicable in this data set to understand the impact of CVD on ROA.

Table 9: Hausman Test for FE/RE Panel Regression Model (Impact of CVD on ROA)

	---- Coefficients ----			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
CVD	.0971199	.0398041	.0573158	.0071792

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic
chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 63.74
Prob>chi2 = 0.0000

When ROA was regressed with the independent variables CVD using fixed effect panel regression the probability value of CVD is 0.002 which was insignificant at 5% level of significance as shown in table 4.5. The coefficient sign of CVD is positive indicates that an increase in CVD will result in increase of ROA. The coefficient value of CVD is 0.097 indicating that an increase in 1 percentage of CVD will result in an increase in ROA by 0.097 percentage points. The coefficient of determination (R^2) of was 0.0030 implies that CVD explained 0.30 percentage of ROA variation. The remaining 99.70 percentage was explained by other variables not considered in this study.

The overall test of significant using F-value statistics after intervening effect was 9.49 which was statistically significant because P. value (0.0022) was less than 0.05 significance level and the null hypothesis that CVD has no effect on firm value with respect to ROA at 0.05 level of significant was rejected.

To understand the moderating effect of internet technology on relation between CVD and firm value. The null hypothesis (H_3); internet technology has no moderating effect on relation between CVD and the value of firm with respect to ROA of listed companies was tested.

Table 10: Fixed effect panel regression (CVD and IT on ROA).

Fixed-effects (within) regression — Number of obs = 560
Group variable: YEAR — Number of groups = 10
R-sq: — Obs per group:
Within = 0.0372 — Min = 56
Between = 0.8850 — Avg = 56.0
Overall = 0.0186 — Max = 56
F (2,548) = 10.58
corr(u_i, Xb) = -0.2149 — Prob > F = 0.0000

ROA	Coef.	Std Err.	t	P > | t |	[95% Conf.	Interval]
CVD	.0376715	.0358165	1.05	0.293	-.0326829	.1080259
IT	.7519792	.2218094	3.39	0.001	.3162784	1.18768
cons	-3.721821	1.746964	-2.13	0.034	-7.153386	-.2902557
sigma_u	3.4717004					
sigma_e	12.070582					
rho	.07640302			(fraction of variance due to u_i)		

F-test that all u_i=0: F(9, 548) = 4.22 — Prob > F = 0.0000

The fixed-effect model of panel regression was conducted to examine the moderating role of internet technology on the relation among CVD and the value of firm with respect to ROA. Table 10 shows the finding of the moderating role of internet technology on the relation among CVD and the value of firm with respect to ROA with (p-value of 0.0001). The findings shows that CVD and IT significantly influence ROA.

To understand the mediating role of IT on the relation among CVD and ROA, a random-effect of panel regression using GLS techniques was done. Table 11 shows the findings of the mediating effect of IT on the relation among CVD and ROA with (p-value of 0.0022). The findings shows that CVD and IT significantly influence ROA.

Table 11: Random effect panel regression (CVD and IT on ROA).

Random-effects GLS regression — Number of obs = 560
Group variable: YEAR — Number of groups = 10
R-sq: — Obs per group:
Within = 0.0322 — Min = 56
Between = 0.6964 — Avg = 56.0
Overall = 0.0216 — Max = 56
Wald chi2 (2) = 12.28
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0022

ROA	Coef.	Std Err.	z	P > | z |	[95% Conf.	Interval]
CVD	-.0183984	.0353148	-0.52	0.602	-.0876142	.0508174
IT	.7366493	.2266167	3.25	0.001	.2924888	1.18081
cons	-1.340251	1.743681	-0.77	0.442	-4.757803	2.077301
sigma_u	0					
sigma_e	12.070582					
rho	0			(fraction of variance due to u_i)		

Table 12 presents the results of Hausman test. The chi-square of 67.11 with (p-value of 0.0001) shows that the alternative hypothesis be accepted. The findings shows that to ascertain the moderating role of IT on relation among CVD and ROA, the fixed-effect is suitable for the data set.

Table 12: Hausman Test for fe/re panel regression (CVD and IT on ROA).

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
CVD	.0376715	-.0183984	.0560699	.0059737
IT	.7519792	.7366493	.0153299	.

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 67.11
Prob > chi2 = 0.0000
(V_b-V_B is not positive definite)

Influence of Internet Technology in moderating the relationship between CVD and TQ

The fixed effect model of panel regression using least square technique of estimation was conducted to understand the effect of CVD on TQ. The results in table 13 indicates that CVD (p value of 0.031) on an average at an individual level significantly influence TQ of listed companies.

Table 13: Fixed Effect Panel Regression Model (Impact of CVD on TQ).

Fixed-effects (within) regression Number of obs = 560
Group variable: YEAR Number of groups = 10
R-sq: Obs per group:
within = 0.0085 min = 56
between = 0.1092 avg = 56.0
overall = 0.0096 max = 56
F(1,549) = 4.68
corr(u_i, Xb) = 0.0194 Prob > F = 0.0309

TQ	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CVD	-.0190017	.0087805	-2.16	0.031	-.0362493	-.0017542
_cons	1.703305	.3813899	4.47	0.000	.9541432	2.452467
sigma_u	.37347546					
sigma_e	3.3936906					
rho	.01196607	(fraction of variance due to u_i)				

F test that all u_i=0: F(9, 549) = 0.68 Prob > F = 0.7292

The random effect model of panel regression using GLS technique of estimation was conducted to understand the effect of CVD on TQ. The results in table 14 indicate that CVD (p value of 0.02) on an average at an individual level significantly influence TQ of listed companies.

Table 14: Random Effect Panel Regression Model (Impact of CVD on TQ).

Random-effects GLS regression				Number of obs =	560
Group variable: YEAR				Number of groups =	10
R-sq:				Obs per group:	
within = 0.0085				min =	56
between = 0.1092				avg =	56.0
overall = 0.0096				max =	56
				Wald chi2(1) =	5.44
corr(u_i, X) = 0 (assumed)				Prob > chi2 =	0.0197

TQ |	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
CVD |	-.0194025	.0083222	-2.33	0.020	-.0357138	-.0030912
_cons |	1.719434	.3642177	4.72	0.000	1.00558	2.433287
sigma_u |	0					
sigma_e |	3.3936906					
rho |	0	(fraction of variance due to u_i)				

The result of Hausman test in table 15 shows the chi-square statistic of 14.99 and the probability value of the Chi-square being 0.0001 indicates that the null hypothesis of applicability of Random effect model be rejected and hence fixed effect is applicable in this data set to understand the impact of CVD, on TQ. The null hypothesis be rejected in this case and hence Fixed effect model is suited for the data set to understand the impact of CVD, on TQ.

Table 15: Hausman Test for FE/RE Panel Regression Model (Impact of CVD on TQ)

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
CVD |	.0986829	-.0194025	.1180853	.0305022

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 14.99
Prob>chi2 = 0.0001

When TQ was regressed with the independent variables CVD using fixed effect panel regression the probability value of CVD is 0.031 which was insignificant at 5% level of significance as shown in table 4.7. The coefficient sign of CVD is negative indicates that an increase in CVD will result in decrease of TQ. The coefficient value of CVD is 0.019 indicating that an increase in 1 percentage of CVD will result

in a decrease in TQ by 0.19 percentage points. The coefficient of determination (R^2) of was 0.0096 implies that CVD explained 0.96 unit points of TQ variation. The remaining 99.04 percentage was explained by other variables not considered in this study.

The overall test of significant using F-value statistics after intervening effect was 4.68 which was statistically significant because P. value (0.0309) was less than 0.05 significance level and the null hypothesis that CVD has no effect on firm value with respect to TQ at 0.05 level of significant was rejected.

To understand the moderating effect of internet technology on relation between CVD and firm value. The null hypothesis (H_3); internet technology has no moderating effect on relation between CVD and the value of firm with respect to TQ of listed companies was tested.

The fixed-effect model of panel regression was conducted to examine the moderating role of IT on the relations among CVD and TQ. Table 16 shows the findings of the moderating role of IT on the relations among CVD and TQ with (p-value 0.0778). The results shows that CVD does not significantly influence TQ.

Table 16: Fixed Effect panel regression (CVD and IT on TQ).

Fixed-effects (within) regression			Number of obs =	560	
Group variable: YEAR			Number of groups =	10	
R-sq:			Obs per group:		
Within = 0.0093			Min =	56	
Between = 0.0696			Avg =	56.0	
Overall = 0.0100			Max=	56	
			F (2,548) =	2.57	
corr(u_i, Xb) = -0.0026			Prob > F =	0.0778	
TQ	Coef.	Std Err.	t	P > |t|	[95% Conf. Interval]
CVD	-.0156855	.010075	-1.56	0.120	-.0354758 .0041048
IT	-.0419476	.0623937	-0.67	0.502	-.1645077 .0806126
cons	1.911482	.4914109	3.89	0.000	.9462024 2.876762
sigma_u	.38095268				
sigma_e	3.3953857				
rho	.01243171		(fraction of variance due to u_i)		
F-test that all u_i=0: F(9, 548) = 0.70				Prob > F = 0.7084	

To understand the moderating effect of IT on the relation between CVD and TQ, a random-effect of panel regression using GLS techniques was carried out. Table 17 shows the findings of the moderating effect of IT on the associations among CVD and TQ with (p-value of 0.0587). The findings shows that CVD and IT does not significantly influence TQ.

Table 17: Random Effect panel regression (CVD and IT on TQ).

Random-effects GLS regression				Number of obs =	560
Group variable: YEAR				Number of groups =	10
R-sq:				Obs per group:	
Within = 0.0092				Min =	56
Between = 0.0803				Avg =	56.0
Overall = 0.0101				Max =	56
				Wald chi2 (2) =	5.67
corr(u_i, X) = 0 (assumed)				Prob > chi2 =	0.0587
TQ	Coef.	Std. Err.	z	P > | z |	[95% Conf. Interval]
CVD	-.0169981	.0096618	-1.76	0.079	-.0359349 .0019387
IT	-.030431	.0620002	-0.49	0.624	-.1519493 .0910872
cons	1.870513	.4770551	3.92	0.000	.935502 2.805524
sigma_u	0				
sigma_e	3.3953857				
rho	0	(fraction of variance due to u_i)			

Table 18 presents the results of Hausman test. The chi-square statistic of 2.73 with (p-value of 0.2559) shows that the null hypothesis be accepted. The findings shows that to examine the moderating effect of IT on the relations among CVD and TQ, a random-effect is appropriate for the data set.

Table 18: Hausman Test for fe/re panel regression (CVD and IT on TQ).

	---- Coefficients ----			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
CVD	-.0156855	-.0169981	.0013126	.0028556
IT	-.0419476	-.030431	-.0115165	.0069962

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
chi2(2) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 2.73
Prob > chi2 = 0.2559

Conclusions and Recommendations

The study sought to examine the moderating role of Internet Technology on relationship between corporate voluntary disclosure and company value. The hypothesis (H_0); internet technology has no moderating role on the relation among CVD on the value of firm with respect to ROA of listed companies was tested. Study findings indicate that the effect of CVD on ROA as moderated by IT.

The results indicates that R^2 improved by 0.0156 from 0.003 that shows that IT had moderating influence. The F-value change with (P-value of 0.293) was significant at 0.05 significant level and coefficient of CVD is smaller. On moderating effect by the IT, the CVD explained 1.86 percentage of ROA variation. The remaining 98.14 percentage is elucidated by variables not considered in this research. The constant and IT coefficient were insignificant but CVD was statistically significant.

ROA= -3.722 + 0.0377 CVD + 0.752 IT

This shows that one unit change in CVD and IT leads to addition of 0.0377 and 0.752 to ROA respectively. The general test of significant using F-statistics after moderating role was 10.58 with (P-value of 0.0001) shows that IT has significant moderating role on relations among CVD and ROA. The hypothesis that IT has no moderating role on relations between CVD and firm value with respect to ROA at 0.05 significant level was rejected.

Table 4.50 indicates that influence of CVD on TQ as moderated by IT. The results indicates that R^2 improved by 0.0005 from 0.0096 that indicates that IT had moderating influence. The F-value change with (P value of 0.079) was significant at 0.05 level of significant and coefficient of CVD is bigger. On moderating effect by the IT, the CVD explained 1.01 unit points of TQ variation. The remaining 98.99 unit points was explicated by variables not considered in this research. The constant was insignificant but CVD and IT were statistically significant.

TQ= 1.8705 -0.0169 CVD - 0.0304 IT

This indicates that one unit change in CVD and IT leads to a reduction of 0.017 and 0.0304 to TQ respectively.

The general test of significant using F-statistics after moderating role was 5.67 with (P-value of 0.0587) shows that IT has no significant moderating role on relations among CVD and TQ. The hypothesis that IT has no moderating role on relations among CVD and TQ at 0.05 level of significant was accepted.

The findings are in line with Elsayed (2010) who found a positive relation with firm value. The result findings were contrary to Khanna and Chahal (2019) who found that CVD has no influence on firm value via cost of capital. Khalfaoui (2015) also found that Web-based reporting has no relationship with firm value via cost of capital. Saada and Khalfaoui (2015) found no relationship with equity cost of capital.

The research generally aimed at determining the effect of internet technology in moderating the relations between CVD and firm value. This study provide evidence on the above relationship and try to quantity the effect of firm's CVD on its firm value as moderated by internet technology in Kenya environment. The most generally used proxies for measuring firm value by prior research were adopted in this research (Tobin Q ratio and return on asset).

The hypothesis that Internet Technology has no significant moderating effect between CVD and company value with respect to ROA was tested. The general test of significant using F-statistics was 10.58 with (P-value of 0.0001) shows that IT has significant moderating role on relations among CVD and ROA. The hypothesis that IT has no moderating role on relations between CVD and firm value with respect to ROA at 0.05 level of significant was rejected. The hypothesis that Internet Technology has no significant moderating effect between CVD and company value with respect to TQ was tested. The general test of significant using F-statistics was 5.67 with (P-value of 0.0587) shows that IT has no significant moderating role on relations among CVD and TQ. The third hypothesis that IT has no moderating effect on relation between CVD and firm value with respect to TQ at 0.05 level of significant was accepted. In general the finding shows mixed results in terms moderating role of internet technology on relations between CVD and firm value.

This paper contributes to the existing literature in that this study is a unique analysis of the emerging CVD in Kenya. The empirical evidence in the new context, compared with existing findings from more developed economy, will stimulate further studies. The study measured firm value using one measure may not reflect true picture about the effect of CVD on firm value. The study involved two measure of firm value. The

inconsistence results of the moderating role of internet technology on the relationship between corporate voluntary disclosure and ROA and TQ ratio as measure of firm value, may be due to the fact that theoretical ROA and TQ express different meanings. However, future researchers may explore the possible causes of differences and how to deal with inconsistence in results with respect to ROA and TQ. Internet technology has moderating effect on relationship between CVD and firm value. From the practical perspective, investor relations through website ought to prioritize for levelling the playing field on the security market.

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