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Stock Returns of 'Sin' and 'Non- Sin' Companies in Nigeria: A Comparative Empirical Assessment

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Abstract:
This study comparatively analyzed the stock returns of sin and non- sin companies in Nigeria. The population of the study was heterogeneous consisting of all the quoted firms regarded as sin and the manufacturing ones at 31st December, 2016 which fall into the categories of non-sin companies. A sample of twenty-six (26) non-sin firms (manufacturing) and twenty-five(25) sin companies including banks was selected for the period 2010 and 2016. Summary statistics such as descriptive and correlation Statistics, Capital Asset pricing models (CAPM) and Panel estimation methods were used to analyze the data. The findings indicate that sin companies have higher stock return (excess returns), earnings per share but a lower dividend payment as against the comparables. Premised on these empirical findings, the study recommends that financial analysts should always encourage investors to invest more in selected companies regarded as sin based on their products and services than the non-sin companies due to better higher stock returns. Some of the companies considered as sin in terms of their production or services rendering need to be viewed differently by investors in that some of them in terms of exponential thinking are really not sin companies and as such investors have to exercise caution so as not be misled.

Keywords: *Stock Returns, CAPM, Investors, Beta, Religion*

1. Introduction

Nigeria is a country where social norms are important features guiding behaviour in all spheres of human endeavour. Though the 1999 constitution (as amended) emphasizes the country is a secular state, nonetheless the two dominant religions of Christianity and Islam have successfully ensured social norms determine decisions in all socio-economic activities embarked upon by their followers. In Islam for instance, the decision to purchase pork for consumption is generally forbidden and considered sinful. Given that the majority of the people are adherents of these religions, purchases and investment decisions are often hinged on patronizing moral and ethically thorough companies. According to Cheung and Lam (2015) Protestants are found to be more 'sin' averse than Catholics and it suggests that culture may play an influencing role in driving the performance of sins stocks. Schueth (2003) affirmed there is a pervasive neglect of sin stocks among investors often because of religious reasons while Statman and Glushkov (2009) stated that socially responsible investors tend to avoid sin stocks. Many public stakeholders are generally considered to have a negative view of sin stocks (Morsing & Schultz, 2006); some institutions even setting up 'sin' screen as part of their socially responsible investing philosophy (Entine, 2003). This probably explains the reasons why sin stocks are less held by norm-constrained institutions; receive less coverage from analysts, have higher expected returns than their non-sin stocks and tend to be relatively cheap when likened against their non-sin comparables. This is not really surprising judging from the assertion of Troberg (2016) that throughout the centuries and cultures, people have been craving for sin and some people have turned it into profitable businesses. The major reason that could have accounted for this trend is perhaps the market returns being earned by sin companies (Kim & Ventakachalam,

2010). In a research conducted by Hong and Kacperczyk 2009 "sin" stocks from sin companies were touted as 'behaving more like value stocks in that they earn abnormal returns'. Studies such as Ahrens (2004); Berman (2002); Hong and Kacperczyk (2009); Money Management (2006); Waxler (2004) have however shown that sin stock returns are higher than returns on their non-sin comparables.

Usually, risk adverse investors have the predisposition to invest in companies whose securities yield better returns with little risk irrespective of product lines in a typical stock market. The products or services a firm produces or renders form the basis of assessing the industry it belongs. Most often investors invest in companies in a particular sector based on products lines or services and this also attracts government attention to such sector in terms of regulation and tax purposes. For instance, firms in the banking sector and tobacco industry are highly regulated and taxed. This is so because of the products or services of such firms. In a typical stock market, some investors most times do not bother buying a company's shares regardless of product lines or services in as much as they maximize return on investments. Some investors are unmindful of investing in firms that produced goods or render services that are socially or religiously unethical. Some guide their religion faith by conscientiously making investments in the securities of companies that do not produce products or render services that are contrary to their religious belief. There are some other investors who are financially conscious and may want to invest in stocks of firms that produce goods or render services irrespective of religious stands or not in as much as they expect capital gains from the investments and their wealth is maximized for a period. The foregoing presupposes that investors invest in two classical taxonomy of stocks of quoted firms on account of religion, belief or both and these stocks may be termed 'sin' stocks and 'non – sin' stocks. The point of discuss in literature as regard sin or non – stock is premised on the fact that the perception of sin differs from one religions to the other particularly on geographical basis. Schueth (2003), Hong and Kacperczyk (2007) noted that sin stocks are publicly traded stocks of companies that are involved in the production of alcohol, tobacco and gaming services. Conversely, non-sin stocks could be regarded as the shares of companies that produce products or render services that are adjudged ethical in a particular religious circle. Irrespective of the position one assumes in the argument, religions tend to govern practices, beliefs and attitudes of investors in the world and as such there is certainly some class of investors that are fanatical and they display these fanatics when making investments in the securities of companies.

There are lots of companies in Nigeria whose stock may be seen as sin specifically from both Christian and Islamic perspective and include companies in Alcohol industry (e.g.Guinness Nigeria PLC, Intafact Beverages Nig. Ltd, International breweries Plc, Mopa breweries ltd, Pabod breweries, Wilfort Danlale, Champion breweries). Defense industry (DICON- Defense Industries Corporation of Nigeria). Gambling industry (Bet9ja, Bet365naija, 360Bet, surebet247, nairabet, La60bet, Merrybet, Bstrepublicana, Bet colony, Lovingbet. Tobacco industry (e.g.British American Tobacco (Nigeria) limited), International Tobacco Company, West African Tobacco co. ltd) and even the banking industry. Non-sin stock companies in Nigeria include: 7up Bottling company plc, Cadbury Nigeria plc, Dangote flour mills plc, Dangote sugar refinery plc, Golden guinea breweries plc. To the best of the researchers' knowledge, there are little or no studies that have empirically examined the stock returns of companies considered to be sinful in terms of products produced or services rendered in contrast with companies in the comparable specifically the manufacturing firms of household durables in developing countries like Nigeria. Hence this study is undertaken with a view to contributing to existing literatures and in guiding investors in terms of investment decision in securities of quoted companies.

2.Literature Review

2.1. Theoretical Framework

This study hinges basically on the discriminatory theory originated by Gary and Becker (1957) and the modern portfolio theory (MPT) by Markowitz (1952). The discriminatory theory tries to explain why investors prefer sin stocks and why others prefer non-sin stocks (Ondigo et al., 2014). Investors who are morally conscious would rather avoid investing in sin stocks despite sin stocks post a higher return than non- sin – stocks (Ondigo et al., 2014). The Markowitz, 1952) modern portfolio theory explore how risk – adverse investors can construct optimal portfolios while taking into cognizance the relationship between market risk and expected returns, (Ondigo et al., 2014). They note that the modern portfolio quantifies the benefits of diversification and shows that out of a universe of risky assets, an efficient frontier of optimal portfolios can be constructed.

2.2. Theoretical Literature

There is a wide spread belief that social norms have an important role to play on investment decisions of shareholders. There is however a significant contribution of social norms on the investment rate of sin stock companies and non-sin stock companies, this is so because the behaviour and actions of shareholders is based on their social, religious, and personal belief. Kumar and Page (2011) state that institutional investors deviate from established norms when the perceived benefits are sufficiently large and find that when gambling and sin averse institutions invest in lottery-type stocks and sin stocks, they earn higher abnormal returns on these stocks. Human beings naturally would rather invest in sin stock companies because of the high yield return attached to it. Sin stocks have certain attributes which make them distinct from others in a typical stock market. According to the USA Mutual (2016), the five compelling investment characteristics of sin stocks include natural barriers to new competition, steady demand regardless of economic condition, potentially high profits

margins, ability to generate excess cash flow and pay increase dividends. While there is little academic proof characteristic of sin stocks, it works at least in practice (Barrier fund, 2016). Similarly, sin companies are also considered to be financially sound and solvent. Nowadays, the core sin industries are alcohol, tobacco and gaming industries, additionally defence or sin industry adds to this triumvirate of sin and in academic literature, these industries are widely characterized as stable, recession – resistant, profitable business fields (Alto university school of Business, 2014).

Hong and Kacperczyk (2009) listed typical characteristics of sin stocks to include the fact that they are held by norm – constrained institutions, receive less coverage from analysts, have higher expected returns than their comparable and face greater litigation risks. As the awareness about the health hazards caused by smoking has increased, it has become more criticized to support tobacco companies in the tobacco industry by investing in them and most especially public institutions have to restrain from investing in sin businesses, because otherwise they might suffer from social reputation loss. For example, Germany legalized prostitution in 2002 and in 2013 the market only in Germany was estimated to be worth 15 billion Euros annually (Gunter &Clissitt, 2013). Not even prostitution is a completely recession – proof industry or the German brothers were reported to be forced to cut their prices during the financial crisis in 2009 (Kirsohbaum, 2009). There are many mega – hotels in Germany as well as smaller cubicles where women sell sex (Gunter & Clissitt, 2013). Moreover, the country attracts sex tourists with inexpensive services and massive milieus (Local, 2013). Sin stocks are relatively cheaper compared to other stocks, and they have low price to book or price to earnings ratios (Merton, 1987). Apart from the common observable fact in extant literatures that sin stocks maintain certain attributes, they are also driven by some unique factors. Another factor that may drive the performance of sin stocks against the comparable is litigation risk and higher excise tax as could be deduced from the assertion of Salaber (2007). Durand et al (2013) suggests that the cultural dimension of individualism and collectivism may play an important role in sin stock returns. Legislation differences could promote the rapid growth of sin companies. If a company activity is supported by legislation, it will enhance the demand for its products or services and consequently influence the economic performance which in turn enhances the stock returns. Hong and Kacperczyk (2009) examined the effect of social norms on sin stocks and found that sin stocks listed in the US, Canada and Europe are less held by institution investors because of social norms, that is a deliberate avoidance because it is sinful to do so. As such, these stocks have higher risk premium, which results in higher abnormal returns than comparable stocks in the market (Cheung & Lam, 2015). Similarly, since sin stocks suffer from social screening and are prone to litigation risks, it is expected they are to yield higher returns than the comparables in a typical stock market. By default, this is supposed to influence investment decision of both financial analysts and investors in addition to the fact such stocks are hardly affected by certain negative economic outlook like recession as it is currently being witnessed in Nigeria.

2.3. Empirical Review

Hong and Kacperczyk (2009) found that their sample of 184 sin stocks (in the gaming, tobacco, and alcohol industries) outperformed the market on a relative basis after taking into account well-known predictors of stock returns, and that the outperformance was more attributable to the neglect effect than to litigation risk. Galema, Plantinga and Schoitens (2008) in empirical study found that sin stocks have higher returns than other stocks and less likely to be held by pension funds. Salaber (2007) using data for 18 European countries from 1975 to 2006 found that sins tocks out-perform their counterparts or comparable stocks when litigation risk is higher and when there is higher excise tax. Visaltanachoti et al (2011) empirical study revealed that sin stocks listed in Hong Kong, Shanguai and Shenzhen generally outperform their market indices by 5.94% in Mainland China and 29.1% in Hong Kong. Durand, Koh and Tan (2013) investigated sin stocks across Australia, India, Japan, South Korea, Malaysia, New Zealand and Singapore and found that sin stocks in these countries also have considerable higher returns than their comparable. According to Cheung and Lam (2015), there are indeed considerable differences with the returns of sin stocks among these countries, which the researchers suggest is due to cultural differences. Schueth (2003), Hong and Kacperczyk empirical studies on the difference between the stocks of companies engage in the production of products and rendering of services that could be regarded as socially screened and their counterparts indicated mixed results. Chen, Kim and Chen (2007) empirically examined hospitality stock prices and their fundamental values in Taiwan. The study found that although hospitality stock prices fluctuate from time to time will always return to their fundamental values based on earnings per share and dividend per share. Stock prices including prices of hospitality and gaming firms intuitively are expected to reflect all information available in an efficient market. Cheung and Lam (2015) empirically compared the price of sin with regards to abnormal returns of cross – listed casino gaming stocks in the Hong Kong and US markets. The study used cross – listed sample consisting of 3138 firm daily observations from January 2009 to December 2013, preliminary analyses using time – series regression was carried out. It was ascertained that the average daily returns and standard deviations of casino gaming stocks are much higher than market indices in both jurisdiction. In other words, a significantly higher abnormal return was found in Hong Kong exchange than their cross – listed counterparts in the U.S empirical study by Salaber (2007) reveals that the beta of the sin portfolio is below one, an indication that the sample of sin stocks has "below average" market risk and it is relatively less sensitive to shocks in the market portfolio. Majorly, sin stock returns tend to be higher than returns on their comparable. This is because socially responsible investors refrain from buying sin stocks, leading to higher cost of capital for the company owning these stocks, (Claassen, 2011). What a cost of capital is to the company is the expected return to the investor, resulting in a higher return for investors in sin stocks than for investors in other stocks (Statman, 2000). Furthermore, higher sin stocks return can also be explained by limited risk sharing and higher

litigation risk (Hong &Kacperczyk, 2009).However, there is often high dividend yields of sin investments are shunned by numerous investors as they are concerned about the effects of sin industries on the quality of life for themselves, their families and for society as a whole (Robins, 2010).

3. Methodology

This study adopts the explanatory research design using annual time series data for the period 2009 to 2016 of the category of companies quoted on the floor of the Nigerian Stock Exchange (NSE). The study uses descriptive statistics and the capital asset pricing model (CAPM) to examine the subject matter. The descriptive basically encompass the mean, median, and standard deviation. The CAPM is employed to determine the performance (Returns) of both sin stocks and non – sin stocks comparatively. Sharpe (1964) formalized the CAPM and with the use of CAPM, all investors are supposed to hold the market portfolio, leveraged or de-leveraged with positions in the risk – free asset and CAPM in introduces beta and relates an asset expected return to its beta (Ondigo, Njevu & Chirchir, 2014). The beta factor is a measure of the volatility of the return on a share relative to the stock market and it indicates the level of systematic risk (ACCA financial management study pack, 2014). The data were generated from the official stock of the Nigerian Stock Exchange (NSE) and annual financial statements of the selected companies. The companies were selected from the population of interest using purposive sampling technique. Similarly, the variables used were operationalized using the December stock prices and the annual earnings per share (EPS) and dividend yields of each of the companies for the period 2009 to 2016.

3.1. Model Specification

The empirical model formulated is the capital asset pricing model (CAPM) which is expressed as $E(Ri) = R_f + \beta_1((ERM) - R_t)$

Where:

E(Ri) = cost of equity capital or expected stock returns of an individual firm
β_1 = the beta factor for the firm's stocks
E(rm) = market rate of return
Rf = is risk free rate of return. It is proxied using the government treasury bills.

4. Data Analyses

4.1. Presentation of non- sin companies CAPM result

The tables below represent the descriptive and correlation statistics analysis as well as the capital asset pricing model panel estimation results of the sampled non-sin firms in Nigeria.

Stats	Stock Returns	Market returns	Free risk rate	Beta
Mean	0.7270	3.8371	10.5442	0.2078
Max	57.20	6.19	14.27	7.49
Min	-50.16	0.02	4.57	-13.81
STD	10.3997	2.4786	3.225	1.9043
Skewness	48077	-60282	-63847	-1.5860
Kurtosis	10.8594	1.6926	2.2601	20.3974
N	182	182	182	182

Table 1: Descriptive Statistics
Source: Researchers' computation from STATA 21.0 version

The average stock returns of the sample firms are 72%, the maximum stock return is 572%. The market average return is 383% while the maximum return is .619%. The average beta is 20, while the maximum beta value is 7.49.

Variables	Stock Returns	Market returns	Free risk rate	Beta
Stock returns	1.000			
Market returns	0.1031	1.000		
Free risk rate	-0.0989	0.3054	1.000	
Beta	0.1166	-0.0297	-0.1129	

Table 2: Correlation Matrix
Source: Researchers' computation from STATA 21.0 version

It can be observed that there is a positive relationship between stock prices and market returns (r = 0.103). a negative relationship exists between stock price and risks free rate (r = -0.0989). The relationship between bet (β) and stock price of the sampled manufacturing is positive (r = 0.1166) market returns and risk-free rates are positively correlated (r = 0.3054).

4.1.1. Presentation of Hausman Test Results

The Hausman test statistic is employed to test for the exogeneity of the unobserved error components of the regression model. The test is necessary because the random effect ought to be uncorrelated with the explanatory variables or else there is endogeneity problem and the random effect estimator becomes inconsistent. The null hypothesis for the Hausman test is: H_o: $B_{RE} = B_{FE.}$ Where B_{RE} and B_{FE} are coefficients vectors of the time – varying explanatory variables excluding the time variables. If the null hypothesis is rejected, the conclusion is that random effect (RE) result is inconsistent and the fixed effect (FE) result is preferable.

Coefficients				
(b) fre	(B) fe	(b – B) Difference	Sq r(diag) S.E	Cv – b – r – B
Market premium	1.194	1.194	-3.110	1.6900
Chi-square 1.188		Prob (Chi-square = 0.9900		

Table 3: Hausman Test

Source: Researchers' computation from STATA 21.0 version

Thus, from the Hausman test result below, the prob = Chi-square = 0.9900 is not statistically significant and systematic. Hence the fixed effect result is used.

4.1.2. Presentation of CAPM Fixed Effect Results

Fixed effect (within) regression Group variables: Cross				Number of observations		= 182
R – Sq within	= 0.1525			Number of groups		= 26
Adjusted R-Sq	= 0.1330			Observation per group min		= 7
F(1, 155)	= 27.89			Average		= 7
				Max		=7
Firm excess returns	Coeff	Stedeno	T	p> 1 t 1	95% conf	Internal
Market premium	1.194	0.226	5.28	0.000	74.7	1.641
Constant	-1.804	1.701	-1.06	0.291	-5.165	1.557
F (25,155) = 1.07 Prob> f = 0.3807						

Table 4: CAPM Result with fixed effect

Source: Researchers' computation from STATA 21.0 version.

The table above shows that the overall R-squared result is 0.1330, which is 13%. The F – statistic of 27.89 is statistically significant in that the probability value of (0.0000) is greater that F – statistic value of (27.89). The firm excess return (market premium) for the period was positive (1.1946) and significant, and it means that the market risks contribute largely to the expected returns of the firms in the period observed.

4.1.3. Presentation of CAPM Results for sin Companies

Stats	**Stock Returns**	**Market returns**	**Free risk rate**	**Beta**
Mean	2.367	3.883	10.560	0.078
Max	407.18	6.19	10.97	8.02
Min	-35.61	0.2	14.27	-24.95
STD	31.184	2.4786	3.226	2.461
Skewness	11.697	-64011	-6520	-5.705
Kurtosis	152.710	1.753	2.278	60.813
N	182	182	182	182

Table 5: Descriptive Statistics

Source: Researchers' computation from STATA 21.0 version

The mean return of the sin companies' stock is 236%. The maximum return is 407.18%. The market return is 388% on the average. The maximum value is 619%, the average value of risk free asset is 105%. The maximum mean value is 1427%. The Beta value is 0.07 on the average while the maximum mean is 8.02.

Variables	Stock Returns	Market returns	Free risk rate	Beta
Stock returns	1.000			
Market returns	0.0502	1.000		
Free risk rate	0.1119	0.2906	1.000	
Beta	-0.1228	0.0335	1.000	

Table 6: Correlation Matrix
Source: Researchers' computation from STATA 21.0 version

Stock return is positively correlated with market return (r = 0.05). Stock return is positively related with risk – free rate (r = 0.11) while the stock return is also positively associated with beta value (r = 0.225). Market return has positively association with risk – free rate (r = 0.290).

Coefficients				
(b) fre	(B) fe	(b – B) Difference	Sq r(diag) S.E	Cv – b – r – B
Market premium	0.779	0.624	0.0154	0.0389
Chi-square 1.188		Prob (Chi-square = 0.9900		

Table 7: Hausman Test Result
Source: Researchers' computation from STATA 21.0 version

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. The table above shows that the Random Effect Result is preferred.

4.1.4. Presentation of CAPM Panel Random Result

Random effect (within) regression Group variables: Cross				Number of observations		= 182
R – Sq within	= 0.7001			Number of groups		= 27
Adjusted R-Sq	= 0.6178			Observation per group min		= 6
F(1, 155)	= 0.0000			Average		= 7.0
				Max		=7
Firm excess returns	Coeff	Std error	Z	p> 1 z 1	95% conf	Interval
Market premium	0.0624	.651	0.10	0.924	-1.213	1.338
Constant	-7.780	4.996	-1.56	0.1119	-17.574	2.012
F (25,155) = 1.07 Prob> f = 0.3807						

Table 8: Random-effects GLS regression
Source: Researchers' computation from STATA 21.0 version

The table above indicates that the excess return (the market premium) is 6% and it is statistically significant. Investors in the stock market usually tend to discriminate some stocks by way of investments. Some select stocks that are high yielding and whose value appreciation is fundamentally driven. Yet there are other investors that avoid investment into some companies due to social norms, scrutiny by regulatory authorities and litigation risks. The empirical investigation in this study indicates that sin companies outperform non–sin companies financially in Nigeria. Sin companies have higher cash dividend payment than the non-sin companies in Nigeria.Sin companies have higher stock return (excess returns) than non- sin companies in Nigeria. Non – sin companies have higher earnings per share than the sin companies. This affirms the assertion of Durand, Koh and Tan (2013), Cheung and Lam (2015), sin companies were found to have higher cash dividend payment than non-sin companies in Nigeria. The finding is quite in tandem with Robins (2010). Contrary, non-sin companies have higher earnings per share than sin companies. The finding correlates with the study finding of Chen, Kim and Chen (2007). On the overall, sin companies outperform non-sin companies in Nigeria. The finding agrees with Salaber (2007). The Capital Asset Pricing Model (CAPM) points out that sin companies have higher excess stock returns in the Nigerian Stock Market than the non-sin companies. The finding is in tandem with the result of Chen, Kim and Chen (2007).

	DIV	EPS
Mean	3199852.	2.215531
Maximum	1.36E+08	43.58000
Minimum	0.000000	-1.120000
Std. Dev.	16064315	4.462332
Jarque-Bera	18403.89	13291.96
Probability	0.000000	0.000000
Observations	179	179

Source: E-Views 8.0 Output 2017

Observations	170	170

Table 9: Descriptive Statistics for dividend payment and earnings per share for sin- companies
Source: E-Views 8.0 Output 2017

For the non- sin companies, EPS mean value is N2.21, the maximum mean is N43.58, and the standard deviation is 4.46. The Jarque-Bera value of 13291.96 is statistically significant at 5% level. It portends that the data are normally distributed. DIV has a mean value of N3199852; the Jarque-Bera value of 18403.89 is statistically significant at 1% level.

	DIV	EPS
Mean	7737669.	1.470000
Maximum	62793000	12.16000
Minimum	0.000000	-12.66000
Std. Dev.	13320697	2.713326
Jarque-Bera	311.0546	331.6163
Probability	0.000000	0.000000

Table 10: Descriptive Statistics for dividend payment and earnings per share for non-sin- companies
Source: E-Views 8.0 Output 2017

For sin companies, the EPS mean value is N1.71, the maximum mean is N12.16, and the standard deviation is 2.71. The Jarque-Bera value of 331.61 is statistically significant at 5% level. It portends that the data are normally distributed. DIV has a mean value of N7737669, the maximum mean is 82793000. The Jarque-Bera value of 311.0546 is statistically significant at 1% level.

5.Conclusion and Recommendations

The study has comparatively assessed sin companies' stock return and non-sin companies in Nigeria. Because of region inclination, a lot of persons avoid investment in certain companies regardless of the profit and capital gain arising from it. Yet others make investment into companies that render services or produce products that are unethical in terms of their religion stance or not. Premised on this, it was apt and very necessary to examine on the empirical front the performance of companies that are regarded as sin with that of the non-sin ones in the context of Nigeria. The empirical results obtained revealed that those company people refrain from investing into (sin companies on account of religion belief) in the stock market have higher stock returns and of course dividend payment and earnings per share in Nigeria. Based on the empirical findings obtained in this study, the following recommendations are put forward. Investors should try to invest more in sin companies in Nigeria regardless of their religion stance since those companies financially outperform their counterparts. However, this should be done with caution because even the sin companies have their own peculiar risks. Financial analysts should always encourage investors to invest more in selected sin companies than the non-sin companies due to better influence of corporate governance. Some of the companies considered as sin in terms of their production or services rendering need to be viewed differently in that some of them under exponential thinking are really not sin companies and as such investors have to exercise caution so as not be misled.

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