

**SIN STOCKS AND SOCIAL NORMS:
EVIDENCE FROM THE MALAYSIAN EQUITY MARKET**

BY

ALINUR BEISENBAY

THESIS

Submitted in partial fulfillment of the requirements for the
degree of Master of Science in Finance

in the Graduate School of Business
Nazarbayev University, 2025

Astana, Kazakhstan

Advisor: Dr. Francesco Rocciolo

Abstract

This thesis explores the issue of whether or not sin stocks are mispriced in the Malaysian equity market by applying the framework of Hong and Kacperczyk (2009) to a Muslim majority emerging economy. The sin firms are characterized by the SIC and NAICS codes and alcohol, tobacco and gambling and compared to non-sin consumer demand firms. I form viability portfolios of sin and similar firms using the Compustat Global data of 2000-2025 Malaysian non-financial companies, and combine them with FamaFrench emerging-market factors. Time-series regressions of portfolio excess returns on CAPM, Fama-French three and three-factor models and Carhart four-factor models demonstrate that on an equal-weighted basis, Malaysian sin stocks do not receive a statistically significant risk-adjusted premium compared to clean consumer firms. By comparison, value-weighted portfolios, however, have a statistically significant positive abnormal return on sin stocks, indicating that a price of sin is, in any case, highly concentrated in larger companies. Fama-MacBeth cross-sectional regressions of individual stock excess returns on a sin indicator and firm characteristics (size, book-to-market, past returns, turnover and leverage and age) do not show a strong positive sin premium to supplement the evidence in the portfolio. Further, annual valuation and financing regressions indicate that sin firms are trading at comparable or slightly higher market-to-book ratios compared to similar non sin consumer firms and have less cash and leverage and profitability are generally similar. In general, the findings have given a weak evidence of the large sin premium in Malaysia and indicate that any mispricing of sin stocks is small and relies on firm size.

Keywords: sin stocks · Malaysia · social norms · asset pricing · Fama MacBeth regressions

Introduction

Investors and regulators have increasingly been concerned in the last 20 years over the role played by ethical, social and environmental factors in influencing financial decision-making. Most mutual funds and pension funds no longer have controversial industries in their portfolio, including alcohol, tobacco and gambling, and they are frequently driven by regulation or reputation (Renneboog, Ter Horst, and Zhang, 2008; Statman and Glushkov, 2009). Concurrently, these firms still have other investors who hold such firms and even say that such policies of exclusion lead to mispricing and returns opportunities (Fabozzi, Ma, and Oliphant, 2008).

This tension has resulted in a literature on sin stocks which is normally characterized as companies dealing with alcohol, tobacco and gambling. Hong and Kacperczyk (2009) suggest a simple model whereby the social norms and screening policies reduce the number of investors in sin firms. They find in their empirical tests of the United States that sin stocks are more likely to trade at less valuation and therefore on higher average returns when compared to similar consumer companies, after adjusting the standard risk factors. The same tendencies were observed within other developed markets, but the magnitudes fluctuate throughout history and within the range of countries (Fabozzi et al., 2008; Salaber, 2013).

There is far less information about the pricing of the sin stocks in the emergent markets where the ethical norms and religious regulations are particularly relevant. Malaysia is a highly intriguing example. It is an immature market, which practices active Islamic financing and formal Shariah vetting limiting investment in traditional banks, alcohol, gambling and some entertainment facilities. Islamic finance has been relatively small in the early 2000s but grew very fast since the mid-2000s, facilitated by introduction of dedicated Shariah equity indices in 2007 and due to

robust expansion of the Islamic banking and capital-market assets. Such developments imply that there can be variations in the pricing of the sin industries between an early age when the number of Shariah-compliant investors is small and a later period when the proportion of Islamic investors is significantly high. The division into 2000-2006 and 2007-2025 gives the thesis an opportunity to take into account this possible structural change in a transparent manner.

This thesis explains that the primary projections of the price of sin framework by Hong and Kacperczyk are applicable to the Malaysian equity market or not. In the first section of the analysis, the research question is whether the sin stocks in Malaysia can have higher risk-adjusted returns than an equivalent portfolio of non-sin consumer stocks calculated by sin-minus-consumer returns spreads based on both equal-weighted and value-weighted portfolios and estimated at the monthly horizon in relation to conventional factor models. Equal-weighted portfolios emphasize the performance of the typical stock, whereas value-weighted portfolios emphasize the outlook of an investor who invests capital based on the size of firms and contribute to the defense against any outcome that might have been driven primarily by small, illiquid firms. Part two probes with the question of whether the sin stocks are priced at systematically different valuation multiples when the size of firms, profitability, cash holdings, tangibility and research and development intensity, and a sin indicator is used to explain the cross-section of expected returns. Through one emerging market with high ethical and religious limits, and the opportunity of time-varying Islamic finance and alternative forms of portfolios, the thesis supplies evidence as to the strength of price of sin phenomenon beyond large developed market where it was originally observed.

Literature review

The study of so-called sin stocks - companies dealing with alcohol, tobacco, gambling and the like - is usually initiated by the premise that certain investors are ethically, religiously or reputational averse to these enterprises. Such an omission may cause a depression of the prices and an increase in expected returns when important marginal traders are constrained investors (Hong and Kacperczyk, 2009). Based on the U.S. statistics, Hong and Kacperczyk (2009) demonstrate that the less probable institutions to hold sin stocks are norm-constrained and have thinner coverage by analysts, but they experience higher returns on average when the usual risk factors are adjusted. Their evidence can be taken to mean that it is a price of sin: firms in favoured industries will trade at a discount to fundamentals.

Later studies have investigated the strength of this trend to other samples, definitions and benchmarks. Fabozzi, Ma, and Oliphant (2008) discover that the U.S. sin portfolios particularly the ones dominated by tobacco, alcohol and gaming do better than the broad market and sector standards on a risk adjusted basis. In a study of socially responsible (SRI) screens more generally, Statman and Glushkov (2009) demonstrate that the elimination of the so-called vice industries and biases in favor of high-ESG firms yields small returns differences, which are largely driven by style and industry viewpoints and not by pure alpha. In general, the U.S. evidence indicates that the sin premium is economically significant but statistically significant, in particular, when portfolios are designed to isolate the omitted industries.

A second stream of the literature examines the question of whether there are country and institutional environment differences in sin premia. Lobe and Walkshausl (2016) form global vice and virtue portfolios and demonstrate that relative performance depends on region, risk model and weighting scheme, also that sin outperformance is greatest in some but not all markets. Salaber (2013) concentrates on European sin stocks and documentation that their abnormal returns are

greater in nations with stronger religious standards, weaker shareholder security and more stringent short-selling measures, which was expected due to social and legal frictions that enhance mispricing. These works emphasize the fact that the price of sin is not a global one; it is determined by local standards, control and structure of the investor base.

It is also joined with the extensive literature on socially responsible and Islamic investing. The survey of SRI funds in several different regions by Renneboog, Ter Horst, and Zhang (2008) points to the conclusion that most of the funds do not significantly outperform the conventional funds after considering the style and the fees. Simultaneously, in the literature of Islamic equity indices, Shariah outliers (and exclusionary) portfolios that exclude standard financials and industries (alcohol and gambling) are observed to have risk/return profiles that are widely similar to those of their conventional counterparts, albeit with various sector exposures and market environment sensitivities. In the case of Malaysia in particular, Shariah-compliant equity investment development has been intimately linked with the expansion of the Islamic capital market: as of 2023, the portion of Malaysian capital market that is covered by Islamic assets constitutes approximately 64 percent, and the role of Shariah-screened instruments cannot be undervalued in economics.

In spite of this development, there are still some gaps that encourage the current research. First, the bulk of sin-stock evidence is based in the U.S. or on widely international samples; limited research has been done on a market with a largely Muslim population where religious standards and formal Shariah screening are used together to determine the investable universe. Second, in general past research sin stocks are compared to the entire market, or broad standards, but Hong and Kacperczyk (2009) state that what is relevant is comparison to otherwise similar non-sin companies. Third, the analysis of equal-weighted and value-weighted returns reported in many

papers, is the question of whether any sin premium can be attributed to small and illiquid firms, or is also found in portfolios weighted by market capitalisation, which are more realistic investment strategies. To fill these gaps, this thesis compares the sin with the similar non-sin consumer stocks in Malaysia, where Shariah-compliant investors play an economically important role, and compares equal-weighted and value-weighted portfolios between the time-series factor models and FamaMacBeth cross-sectional regressions.

Data

The empirical test is informed by Malaysian listed equity in S&P compustat Global database accessed through Wharton research data services. The sample size in the universe is all firms that have country of incorporation is coded as Malaysia 2000 to 2025. According to the convention, I only omit financial firms that have SIC code 6000-6999 and those observations that have a missing total assets or common equity (Fama and French, 1992). The cleansed annual basics data give the total assets, ordinary share, debts, income, sales, cash, plant and equipment, and the research and development expenses of non-financial Malaysian companies.

The firm level of Sin and comparison industries is determined based on SIC and NAIC codes, in the footsteps of Hong and Kacperczyk (2009). When firms deal in alcohol, tobacco or gambling related business (alcohol and tobacco SIC ranges and related beverage, tobacco and gambling NAICS codes), then firms are grouped as sin. The wider consumer-demand dummy (GDUM) includes food manufactures, restaurants, hotels, entertainment and recreation companies, and the sin industries. Two indicators at the firm level are formed: SINDUM =1 when a firm has ever been in a sin industry; GDUM =1 when it has ever been in the broad consumer group, such that all sin firms will satisfy GDUM =1.

Daily security-level data are taken from Compustat Global Security Daily for the same Malaysian universe and merged with firm-level classifications via ISIN. Using the month-end flag, I retain the last trading day of each calendar month and compute simple monthly returns from the total return factor. For each month, I form equal-weighted portfolios for sin firms and for non-sin firms within GDUM, and define the sin-minus-comparables spread. I also construct value-weighted versions of these portfolios by weighting firms each month with lagged market capitalisation (price times shares outstanding at the end of the previous month). The resulting monthly sample spans 309 months from February 2000 to October 2025.

The systematic risk adjustment is based on the FamaFrench emerging markets factor set according to the Kenneth R. French Data Library (Fama and French, 2015) in the form of the market excess return (MktRF), the size (SMB), the value (HML) and a momentum factor in the vein of Carhart (1997). By calendar month all the factor series and the monthly risk-free rate are cleaned and combined with the portfolio returns; excess returns are calculated by taking differences between the risk-free rate.

In the case of the cross-sectional Fama-MacBeth regressions, I construct a monthly firm-level panel of returns, market capitalisation and turnover, and combine various issues into a single gvkey-month observation. This panel is combined with lagged annual fundamentals to get the book leverage, market-to-book, firm size, age, past twelve-month average return and past twelve-month average turnover, which is lagged one month in cross-sectional pricing tests (Fama and MacBeth, 1973). In the case of valuation and financing regressions, an annual panel of market-to-book, size, profitability, R&D intensity, cash holdings and tangibility is constructed consisting of December market capitalisation and annual fundamentals to which the SINDUM, GDUM and a clean-consumer dummy (ONEDIGDUM) are added. This panel, minus observations that do not satisfy

market-to-book and/or missing important variables, consists of a little more than 3,000 observations of 2000 to 2024, of which approximately five per cent of the observations are categorised as sin firms.

Methodology

This part explains the implementation of the empirical analysis, as closely as possible based on the framework presented in Hong and Kacperczyk (2009), adjusted to the Malaysian equity data. The major procedures are: (i) categorization of firms as sin and similar normal consumer industries, (ii) derivation of monthly portfolio returns and excess returns, (iii) time series factor regressions that test abnormal performance of sin stocks, (iv) Fama MacBeth cross sectional regressions of expected returns on sin dummies and firm specifications and (v) valuation regressions which test whether sin firms are traded at lower valuation multiples.

Throughout, firms are indexed by i and months by t . Monthly stock returns are denoted $R_{i,t}$, the risk free rate in month t is r_t , and excess returns are $EXMRET_{i,t} = R_{i,t} - r_t$. All returns are in decimal form at monthly frequency.

4.1 Classification of sin and comparable firms

Hong and Kacperczyk (2009) recommend the first step, which is to find a group of sin companies and a control group of non sin consumer firms. The industry codes of the Compustat Global are used to make the classification. Every company is coded into four-digit Standard Industrial Classification (SIC) codes and in some of the companies, six digits North American Industry Classification System (NAICS) codes.

There is an indicator variable $SINDUM_i$ that is developed at the firm level. It has a value of one when firm i deals in alcohol, tobacco, or gambling and one value of zero when firm i does not. The alcohol manufacturers are companies with SIC code 2080 to 2085 that include the manufacturing of beer, wine and spirits. The tobacco companies fall under SIC codes 2100-2199. The gambling related businesses are also targeted with NAICS codes of gambling industries (such as 7132, 713210, 713290 and directly related subcategories) and a small set of selected hospitality codes that are directly connected to casino operations. In case a firm is found in any of these industries under any of the cleaned annual fundamentals file, then it is counted as a sin firm in all years where financial data are present. Formally,

$$SINDUM_i = \begin{cases} 1 & \text{if firm } i \text{ belongs to alcohol, tobacco, or gambling industries} \\ 0 & \text{otherwise.} \end{cases}$$

Wider set of good consumption is also given following Hong and Kacperczyk. The $GDUM_i$ dummy is one in firms of consumer-oriented sector like food production, restaurants, entertainment, hotels, and leisure and also in the sin industries mentioned above. The group is built on SIC ranges of the food manufacturers, restaurants and bars, hotels, recreation and entertainment, along with the NAICS based gambling codes, and beverage or tobacco NAICS codes.

A second dummy $ONEDIGDUM_i$ is used to imitate the design of the paper, and it denotes companies operating in consumer goods, yet not being sin stocks. It takes the value of one when firms have $GDUM_i = 1$ and $SINDUM_i = 0$, and 0 otherwise.

These dummies are prepared at the firm level in the annual fundamental file, and combined into the daily and monthly data of the returns with identifiers like GVKEY or ISIN. At the firm

level, the sin, and consumer indicators do not change with time, and this is in line with the assumption that the stigma attached to alcohol, tobacco, or gambling is a property of the industry.

4.2 Portfolio construction and excess returns

The second process is the construction of time series of portfolio returns of sin stocks and the non sin consumer group. The daily price and total returns factors data of the Malaysian companies are obtained through Compustat Global Security Daily. On an individual firm day, the total return factor $TRFD_{i,d}$ is found to be the cumulative total return since a base date. The ratio of consecutive factors to one is calculated as the daily raw returns.

$$R_{i,d} = \frac{TRFD_{i,d}}{TRFD_{i,d-1}} - 1.$$

It is analysed on monthly frequency and based on month end observations. In the case of each firm, dates are transformed to monthly indices $m(t)$ and month end prices are determined with the help of end of month flag offered by Compustat. Monthly simple returns $R_{i,t}$ are gained through the compounding of daily returns in the month.

Equal weighted portfolios are made. $R_{sin,t}$, the sin portfolio, is the uncomplicated mean of the returns of all the firms that exist in that month and belong to $SINDUM_{i=1}$. The similar consumer portfolio return $R_{comp,t}$ is the mean of the returns of the firms with $ONEDIGDUM_i = 1$ in that month. Companies that do not record their returns are locked out that month.

Formally,

$$R_{sin,t} = \frac{1}{N_{sin,t}} \sum_{i:SINDUM_i=1} R_{i,t}, \quad R_{comp,t} = \frac{1}{N_{comp,t}} \sum_{i:ONEDIGDUM_i=1} R_{i,t},$$

where $N_{sin,t}$ and $N_{comp,t}$ denote the number of firms in each group in month t .

Monthly risk-free rates r_t are obtained either on the Emerging Markets factor files of Fama and French or on a short-term series of interest rates which is consistent with the factors. The excess returns on sin portfolio and on the corresponding portfolio are determined as

$$EX_{sin,t} = R_{sin,t} - r_t, \quad EX_{comp,t} = R_{comp,t} - r_t.$$

The main spread of interest is the difference in excess returns between sin stocks and their non sin consumer counterparts,

$$SPREAD_t = EX_{sin,t} - EX_{comp,t}.$$

This spread is the extent to which on average sin stocks earn in excess of a collection of similar consumer shares. The spread should be positive even after adjusting the standard risk factors provided that investors avoid sin industries due to ethical motives in a manner which is not reflected on the standard risk factors.

These portfolios and their value-weighted counterparts are also built as a robustness check. Monthly and firm market capitalisation in the month-end is calculated as price times outstanding shares. The capitalisation is lagged in portfolio weights and the weight of firm ii in month t is weighted by the market value of firm ii at the end of the previous month $t - 1$. In the sin and other groups, these weights are normalised to have a total of one and they are used to construct value-weighted portfolio returns and a value-weighted sin-minus-comparables spread.

4.3 Time series factor regressions

The third process involves testing the sin portfolio and the sin-vs.-comparable spread whether they generate abnormal returns as per the standard asset pricing models. The monthly factor data are collected out of the Fama-French emerging markets factor set that is available in the Kenneth R. French Data Library (Fama and French, 2015). The central specification is a Carhart type four-factor model, which incorporates the market excess return (MktRF), size factor (SMB), value factor (HML) and momentum factor (MOM) in the vein of Carhart (1997).

Following Hong and Kacperczyk (2009), linear factor models are estimated of the form

$$EX_{sin,t} = \alpha_{sin} + \beta'_{sin} F_t + \epsilon_{sin,t},$$

$$EX_{comp,t} = \alpha_{comp} + \beta'_{comp} F_t + \epsilon_{comp,t},$$

$$SPREAD_t = \alpha_{spread} + \gamma' F_t + \eta_t,$$

where F_t is the vector of factor returns. In the Carhart specification used in the main analysis,

$$F_t = (MKTRF_t, SMB_t, HML_t, MOM_t)'$$

The parameters α and β are estimated by ordinary least squares over the monthly sample from 2000 to 2024. The intercept α_{sin} measures the monthly abnormal return on the sin portfolio after adjusting for its factor exposures, while α_{comp} is the corresponding intercept for the comparable portfolio. The intercept α_{spread} captures the average risk adjusted difference in returns between sin stocks and their controls.

As comparison, I also approximate simpler forms: a CAPM where there is only a market factor, and a FamaFrench three factor model MktRF, SMB, HML. The models are both estimated in the equal-weighted and the value-weighted sin-minus-comparables spreads.

Because monthly returns should be expected to be serially correlated and heteroskedastic, particularly during emerging market conditions, the correction factors of the standard errors are implemented by the heteroskedasticity and autocorrelation consistent estimator of Newey and West (1987). Practically, the regressions are performed with a lag length of twelve, and that is why up to one year of serial correlation could be performed in terms of error terms. The test statistics so obtained give strong tests of the differences in intercepts with zero.

The CAPM specification is a restricted version of the model that includes only the market factor,

$$EX_{sin,t} = \alpha_{sin}^{CAPM} + \beta_{sin}^{MKT} MKTRF_t + \epsilon_{sin,t},$$

and similarly for the comparable portfolio and the spread. The Fama and French three factor model adds SMB and HML, while the Carhart model further adds momentum. Comparing the intercept estimates across these specifications helps to assess whether any sin premium can be explained by exposure to size, value, profitability, investment, or momentum.

4.4 Fama–MacBeth cross sectional return regressions

Time series factor models operate on portfolio averages and cross sectional variation is implicitly used only. The study is also based on the two step procedure of Fama and MacBeth (1973) to reflect the cross sectional tests in Hong and Kacperczyk (2009). This is a time-averaging method which regresses individual stock excess returns on monthly sin dummies and monthly firm level characteristics, and averages the slope coefficients across time.

These regressions are made on the monthly frequency panel. A one month ahead excess return $EXMRET_{i,t+1}$ of each firm and month is calculated. Firm characteristics are lagged in a way that only the information that can be observed at time t are used to explain the returns between t and time $t + 1$. Its key features are:

- $LOGSIZE_{i,t}$: natural logarithm of market capitalization of firm i at time t , end of year prices and outstanding shares.
- $LOGMB_{i,t}$: the natural logarithm of the market to book ratio, which is calculated as the market capitalization over the book equity (common equity) at the end of the fiscal years.
- $RET12_{i,t}$: the cumulative stock return in the twelve months before month t which is a proxy of past performance and momentum.
- $TURN12_{i,t}$: average turnover per month in the last twelve months, and is used to mean trading volume as a percentage of the stock outstanding.
- $BLEV_{i,t}$: book leverage ratio, which is a calculation of book debt as a ratio of total assets.
- $LOGAGE_{i,t}$: natural logarithm of the age of the firm, age is in terms of years since the first appearance of the firm in the database.

These characteristics are revised only on a fiscal year basis and are carried forward to monthly observations until the next annual report is made available so as to be in line with the annual accounting cycle. All the firm level variables are winorized at the tails where needed to restrict the effect of the extreme outliers.

For each month t , the following cross sectional regression is estimated:

$$\begin{aligned} EXMRET_{i,t} = & \alpha_{0,t} + \alpha_{1,t}SINDUM_i + \alpha_{2,t}GDUM_i + \alpha_{3,t}LOGSIZE_{i,t-1} + \\ & \alpha_{4,t}RET12_{i,t-1} + \alpha_{5,t}LOGMB_{i,t-1} + \alpha_{6,t}TURN12_{i,t-1} + \alpha_{7,t}BLEV_{i,t-1} + \\ & \alpha_{8,t}LOGAGE_{i,t-1} + \varepsilon_{i,t} . \end{aligned}$$

A baseline specification without the GDUM dummy is also estimated, where $EXMRET_{i,t}$ is regressed on $SINDUM_i$ and the three core controls $LOGSIZE_{i,t-1}$, $RET12_{i,t-1}$, and $LOGMB_{i,t-1}$. This mirrors the main cross-sectional tests in Hong and Kacperczyk (2009).

The Fama–MacBeth estimate of the effect of sin status on expected returns is the time series average of the monthly slope on $SINDUM_i$,

$$\overline{a_1} = \frac{1}{T} \sum_{t=1}^T a_{1,t}.$$

Asymptotic standard error of the $\overline{a_1}$ is calculated based on time series of $a_{1,t}$. In order to enable the possibility of serial correlation in these monthly coefficients, a Newey and West correction with 12 lags is once again implemented. The subsequent t statistic tests whether sin stocks obtain statistically differing average excess returns compared to other comparable firms extra control variables of size, past returns, valuation, liquidity, leverage, and age.

In the same way, the standard risk premia estimates including the size or value effects are obtained using the average slopes on firm characteristics through the Malaysian data.

4.5 Valuation regressions for market to book ratios

The last section of the methodology would discuss whether the sin stocks would be trading at lower valuation multiples, according to the conception that investors would need to be compensated to own a tainted company (price discounts would be present), or whether they would be more valuation-enhancing due to growth opportunities.

Another panel is prepared on an annual basis which is a combination of year end market capitalization with Compustat Global accounting information. The market to book ratio is calculated as per the firm and the fiscal year as being reported as:

$$MB_{i,t} = \frac{MKT CAP_{i,t}}{CEQ_{i,t}},$$

where $MKT CAP_{i,t}$ is the market value of equity at the end of December and $CEQ_{i,t}$ is common equity from the most recent annual financial statement. Observations with negative or missing book equity are excluded. The dependent variable in the valuation regressions is the natural logarithm of this ratio,

$$LOGMB_{i,t} = \ln(MB_{i,t}).$$

The base valuation regression model links $LOGMB_{i,t}$ with the sin dummy, non-sin consumer dummy and a number of control variables, which reflect profitability, growth prospects and financial structure.

Specifically,

$$\begin{aligned} LOGMB_{i,t} = & b_0 + b_1SINDUM_i + b_2ONEDIGDUM_i + b_3LOGSIZE_{i,t} + \\ & b_4ROE_{i,t} + b_5RDSALES_{i,t} + b_6CASH_AT_{i,t} + b_7TANG_{i,t} + \sum_y \lambda_y YEAR_{y,t} + u_{i,t} . \end{aligned}$$

$LOGSIZE_{i,t}$ is the logarithm of the market capitalization at the end of the year, $ROE_{i,t}$ is the ratio of the income before extraordinary items divided by the common stock, $RDSALES_{i,t}$ is the ratio of research and development spending to sales, $CASH_AT_{i,t}$ is the ratio of the cash to total assets and short-term investments, and $TANG_{i,t}$ is the ratio of net property, plant, and equipment to the total assets. The actual estimation has an indicator of missing research and development expenses to prevent the loss of observations in case of R&D being unreported.

The year dummies $YEAR_{y,t}$ adjusts against periodic changes in the valuation level that are not related to contemporary changes in interest rate or the macroeconomic environment like a shift in interest rates. The estimation assumes that regression is by pooled ordinary least squares on the annual panel and that the standard errors are clustered by firm, to permit the possibility of the arbitrary correlation of residuals across firms over time.

The coefficient b_1 is used to gauge the difference between the average market to book ratio of sin firms and that of other firms of the same size, profitability, investment, and tangibility, holding year effects constant. The negative value of b_1 will be congruent with a discount on the valuation of sin stocks. The coefficient b_2 represents the systematic difference in valuation between the wider group of consumers (not including sin firms) and the rest of the market.

Hong and Kacperczyk (2009) carry out similar regressions of United States firms with book to market and price to earnings ratios. The current research applies market to book ratios to Malaysian companies since such a measure is always reported in the Compustat Global data and is extensively used to conduct research on valuations in an emerging market.

4.6 Summary of alignment with Hong and Kacperczyk

In general, the empirical design is similar to the original sin stock paper. SIN and similar consumer industries are determined by the use of SIC and NAICS codes, portfolios are created as equal weighted averages of monthly returns, and time series factor regressions are utilized to test abnormal performance against standard asset pricing models. FamaMacBeth cross sectional regressions and valuation regressions are cross sectional regressions that use the sin status of individual stock excess returns on lagged firm characteristics and on valuation ratios respectively.

These primary changes are motivated by information access and the Malaysian environment. The universe is composed of Malaysian firms as opposed to global stocks, the factor returns are borrowed off the Fama and French Emerging Markets factor files and it has the specific composition of gambling and hospitality industries to be modified to fit the NAICS codes available in the Malaysian sample. Regardless of these discrepancies, the fundamental reasoning of the approach remains the same: in case an ethical exclusion has a pricing impact, the sin stocks are supposed to exhibit a characteristic pattern of returns and valuations, once the traditional origins of risk are managed.

Besides the equal-weighted sin and similar portfolios of Hong and Kacperczyk (2009), I also create value-weighted portfolios using lagged market capitalisation and re-estimate the time-

series factor models of the respective value-weighted sin -minus -comparables spread. This is to verify that there is no result that is dominated by small firms.

Results

In this section, the results are stated on (i) portfolio level performances of Malaysian sin stocks and their consumer comparables which are non-sin; (ii) subperiod performances around the growth of Islamic finance; (iii) FamaMacBeth cross-sectional returns regressions; and (iv) valuation and financing behaviour.

5.1 Descriptive statistics

Table 1 indicates the descriptive statistics of the monthly return spreads on the sin stocks and the similar non-sin consumer stocks. The equal-weighted spread has the average of 0.0005 per month with the standard deviation quite large (0.0191) sometimes very negative months (minimum -0.2475). Value-weighted spread is least volatile and its mean is 0.0021 and its standard deviation is 0.0080. In both examples sin minus analogous spreads vary a lot through time, and the unconditioned averages are economical minorities.

5.2 Portfolio regressions: equal- versus value-weighted spreads

Table 2 presents Carhart four-factor regressions for the equal-weighted sin portfolio, the equal-weighted comparable consumer portfolio, and their spread over the full sample (February 2000–October 2025). The sin portfolio earns a statistically significant positive abnormal return of about 0.33% per month ($\alpha = 0.00325$, $t = 5.53$), while the comparable portfolio also delivers a positive alpha of roughly 0.27% per month ($\alpha = 0.00271$, $t = 2.46$). However, the equal-weighted

spread between the two portfolios has an alpha that is economically and statistically close to zero ($\alpha = 0.00054$, $t = 0.47$).

This is the same conclusion made by CAPM and FamaFrench three-factor specifications (not tabulated): both sin and non-sin consumer portfolios show positive abnormal performance in comparison to global emerging-market factors, but the distinction between the two cannot be determined on equal-weighted terms.

Table 7 makes a direct comparison of equal-weighted and value-weighted spreads. The spread alpha value (equal-weighted) is 0.03 month under the CAPM, as well as the value-weighted alpha is statistically significant at about 0.21 month ($\alpha = 0.00209$, $t = 4.87$). Equal-weighted spread alpha of the Carhart four-factor model equals zero ($\alpha = 0.00048$, $t = 0.41$), whereas value-weighted spread still has a strong positive abnormal return of about 0.22% per month ($\alpha = 0.00221$, $t = 5.53$).

All these findings point towards the conclusion that a portfolio consisting of equal-weight stocks does not demonstrate any obvious sin premium, but a value-weighted portfolio to a market capitalisation does show that sin stocks in Malaysia perform about 2½-3% better than other similar non-sin consumer firms after the addition of more standard risk factors. The sin effect is thus more applicable to a representative dollar invested as opposed to the average stock.

5.3 Subperiod analysis and Islamic finance development

To test the hypothesis of how the sin stocks might have been varied as Islamic capital market capital grew in Malaysia, the sample will be divided into early period (2000-2006) and later period (2007-2025). The division is driven by the launch of the Shariah equity indices and the speedy expansion of our Islamic banking and Islamic funds since 2007.

Table 3 gives the regressions of the sin-minus-comparable spread in each subperiod in terms of four factors. The spread alpha is positive and statistically significant at standard levels ($\alpha = 0.00462$, $t = 2.85$) or an abnormal monthly return of approximately 0.46 per month or a yearly abnormal return of over 5 percent. By comparison in the later period the spread alpha is also negative, but only slightly so ($\alpha = -0.00064$, $t = -0.51$).

Therefore, the equal-weighted sin stocks perform better than similar consumer firms up to 2007, but not after that because the Islamic capital market is more advanced and the equity investment that is Shariah compliant is more prevalent. This trend, in combination with the value-weighted outcomes of the entire sample, is in line with the existence of a sin premium that becomes more concentrated in the older years and/or in the bigger and more actively-traded companies.

5.4 Cross-sectional Fama–MacBeth return regressions

Table 4 summarizes the Fama-MacBeth cross sectional regressions of one month ahead excess returns on the sin dummy and lagged firm characteristics. The time-series mean of the coefficient on the sin dummy is negative and zero ($t = -1.37$) but not statistically significant ($\bar{\alpha}_{\text{SINDUM}} = 0.00120$). That is, controlling size, past returns, and turnover, sin status does not command a positive cross sectional risk premium; indeed, the point estimate is negative.

Firm characteristics act in a broad manner as anticipated. The excess returns accrue higher in larger firms ($\bar{\alpha}_{\text{LOGSIZE}} = 0.00106$, $t = 3.97$), by past 12-month returns predict higher returns in the future ($\bar{\alpha}_{\text{RET12}} = 0.17343$, $t = 2.32$), and high-turnover stocks earn lower future returns ($\bar{\alpha}_{\text{TURN12}} = -0.18186$, $t = -4.71$). Such estimations show that there are size, momentum and liquidity effects in the Malaysian market, whereas sin status does not exhibit independent, statistically significant effect in the cross-section.

5.5 Valuation and financing patterns

Table 5 presents pooled regressions of log market to book ratio on sin and consumer dummies and ordinary firm level controls. This coefficient of sin dummy is positive (0.6661) and marginally significant ($t = 1.64$) which means that sin firms are not trading at a discount in the market compared to other firms and rather on the contrary, the point estimate indicates that sin stocks have higher market-to-book ratios after adjusting the size, profitability, growth proxies, cash holdings, tangibility, and year effects. The non-sin consumer dummy is negligible and insignificant (0.0988, $t = 0.51$), which means that the valuation of the overall consumer group is comparable with the rest of the market.

Table 6 studies capital structure, cash holdings, profitability and sales. In both book and market leverage the sin dummy is near the value of zero and not significant whereas the non-sin consumer dummy is negative and statistically significant as it indicates a lower leverage of consumer firms as compared to other market participants. Sin firms are much less liquid (in terms of cash) compared to other firms (CASH_AT coefficient on SINDUM = -0.0680, $t = -2.24$), but they are not systematically different (when control variables are added) regarding returns on assets or log sales.

Combining both the valuation and financing findings, there is no indication of systematic sin discount in the prices or a particular pattern in capital structure of sin firms. Rather, Malaysian sin stocks seem to be at least equally rated as other companies and to have very similar leverage with the key distinction being somewhat lower cash wealth.

6. Discussion

The results of this thesis can give a subtle perspective on the price of sin in a market that is largely Muslim and Islam based in terms of finances. On the one hand, sin stocks in Malaysia have the positive abnormal returns in comparison with global emerging-market factors, on the other hand, the same applies to non-sin consumer firms. The spread of sin and similar consumer stocks is numerically nearer to zero, and statistically non-significant, indicating that the average sin share does not perform better than its clean consumer counterparts after controlling by common risk factors.

Simultaneously, the extensions demonstrate two significant dimensions. To begin with, in the value-weighted portfolios, the sin-minus-consumer spread has an accentual positive alpha of 0.2 percent per month with a statistically significant t-value of +0.003. It means that when considering the performance of the representative dollar invested, the performance of Malaysian sin stocks has been higher than similar consumer firms within the sample period. Second, the subperiod analysis reveals that the sin stocks have a big positive abnormal spread prior to 2007, and this benefit is gone after Islamic capital market and Shariah-compliant equity products are more advanced. Combined, these findings are evidence of stronger sin premium in the initial years and stronger among other large firms.

The story is further qualified by cross-sectional and gain and loss evidence. The FamaMacBeth regressions fail to indicate a strong sin premium on expected returns, the sin dummy coefficient is slightly negative and no longer significant when size, momentum and liquidity controls are added. The regressions of valuation reveal no sin discount in market-to-book ratios; on the contrary, the sin firms exhibit relatively higher multiples than other firms, their

leverage is equivalent, yet their cash holdings are slightly lower. The trends indicate that an effect on sin by any Malaysian is less pronounced than the one, which has been reported in the United States and Europe and may be partially compensated by a high demand of high-cashflow and consumer-related business and the particular institutional characteristics of the Islamic and conventional investor base in Malaysia.

7. Conclusion

The thesis question is whether sin stocks in Malaysia pay off with high fares or are characterized by low prices when compared to similar clean consumer companies within the period 2000-2025. Sin firms in alcohol, tobacco and gambling sectors are determined using Compustat Global data and compared to a wide range of non-sin consumer enterprises. Empirical design-Hong and Kacperczyk (2009) incorporate portfolio-level factor regressions, Fama Macbeth cross-sectional tests and valuation regressions.

The primary finding is that, the risk-adjusted returns of Malaysian sin stocks on equal-weighted basis do not provide a considerably higher incentive compared to consumer stocks. The small alpha in all factor models is statistically insignificant in the sin-minus-comparables spread. Conversely, the sin premium of value-weighted portfolios is positive and significant at about 0.2 per month, even when the traditional FamaFrench and momentum factors are held constant, indicating that any price of sin is clustered in larger sin firms.

The cross-sectional Fama-Macbeth regression reveals no satisfactory return premium that is correlated with the sin status after taking into account the size, momentum, turnover, and valuation. Regression-based valuations also do not find evidence of a sin discount: sin firms have

the same or slightly greater market-to-book ratios and they are not found to be systematically more restricted with respect to leverage or profitability, but have smaller cash holdings.

In general, the classic perspective of the sin stocks as underpriced and with high abnormal returns is not strongly supported by the evidence in Malaysia. Rather, the prices of sin seem small and non-homogeneous, and there is a low value-weighted premium and no evident discount in the valuations. Future research would provide a stronger connection on how these patterns to the development of Islamic finance, the investor base of the individual firms and trading frictions in the Malaysian equity market.

Appendix

Table 1. Descriptive statistics for monthly sin–minus–comparable return spreads.

Variable	N	Mean	SD	Min	Max
spread_ew	309	0.0005054	0.0191038	-0.2474952	0.1070511
spread_vw	309	0.0021106	0.0080319	-0.0326754	0.0822171

Table 2. Carhart four-factor regressions for equal-weighted portfolios, 2000–2025

Dependent variables: excess return on sin portfolio (EXSINP), excess return on comparable consumer portfolio (COMP_EXCESS), and their difference (SPREAD).

	EXSINP	COMP_EXCESS	SPREAD
α	0.00325	0.00271	0.00054
	(5.53)	(2.46)	(0.47)
MktRF	-0.00009	-0.01937	0.01928
	(-0.01)	(-1.26)	(1.24)
SMB	-0.03630	0.01863	-0.05493
	(-1.63)	(0.63)	(-1.38)
HML	-0.00387	-0.04055	0.03668
	(-0.20)	(-1.31)	(1.06)
MOM	-0.01331	0.04381	-0.05712
	(-0.91)	(1.35)	(-1.58)
N	309	309	309

Table 3. Sin–minus–comparable spread by Islamic finance subperiod, Carhart four-factor model

Dependent variable: SPREAD (sin minus comparable consumer excess return).

	2000–2006 (early)	2007–2025 (late)
α	0.00462	-0.00064
	(2.85)	(-0.51)
MktRF	0.00551	0.02445
	(0.28)	(1.26)
SMB	-0.00630	-0.07577
	(-0.13)	(-1.45)
HML	-0.02563	0.04327
	(-0.71)	(0.87)
MOM	-0.09029	-0.04388
	(-2.30)	(-1.01)
N	83	226

Table 4. Fama–MacBeth cross-sectional regressions of excess returns

Dependent variable each month: EXMRET (one-month-ahead excess return). Table shows time-series averages of slope coefficients.

Predictor	Mean coefficient	t-statistic
SINDUM	-0.00120	-1.37
LOGSIZE (t-1)	0.00106	3.97
RET12 (t-1)	0.17343	2.32
TURN12 (t-1)	-0.18186	-4.71

Table 5. Valuation regression for market-to-book ratios

Dependent variable: LOGMB (log market-to-book equity).

Predictor	Coefficient	t-statistic
SINDUM	0.66610	1.64
ONEDIGDUM	0.09884	0.51
LOGSIZE	0.23739	8.13
ROE	0.10267	2.14
RDSALES	-0.20978	-0.37
RDSALES_miss	0.08648	0.86
CASH_AT	0.69202	2.06
TANG	0.00884	0.05

Model statistics. N = 3,014 firm-year observations; R² = 0.3330; year fixed effects included; standard errors clustered by firm (173 clusters).

Table 6. Capital structure, cash holdings, profitability, and sales: coefficients on sin and consumer dummies

Each column is a separate regression with firm-year controls and year fixed effects (not shown). Entries are coefficients on SINDUM and ONEDIGDUM with t-statistics in parentheses.

	Book leverage (BLEV)	Market leverage (MLEV)	Cash/assets (CASH_AT)	ROA (PROFIT_ROA)	Log sales (LOGSALES)
SINDUM	-0.00488	3.08×10^{-7}	-0.06804	0.03907	0.05621
	(-0.09)	(1.14)	(-2.24)	(0.96)	(0.24)
ONEDIGDUM	-0.09803	-5.12×10^{-7}	0.01811	0.00953	-0.61304
	(-2.65)	(-2.33)	(0.81)	(0.55)	(-2.17)
N	3,013	3,013	3,014	3,014	2,997
R ²	0.063	0.116	0.127	0.021	0.663

Table 7. Equal-weighted versus value-weighted sin–minus–comparable spreads

Panel A shows CAPM regressions; Panel B shows Carhart four-factor regressions. Dependent variable: sin–minus–comparable excess return spread.

Panel A. CAPM

	Equal-weighted spread	Value-weighted spread
α	0.00030	0.00209
	(0.23)	(4.87)
MktRF	0.03364	0.00544
	(1.79)	(0.86)
N	308	308

Panel B. Carhart four-factor model

	Equal-weighted spread	Value-weighted spread
α	0.00048	0.00221
	(0.41)	(5.53)
MktRF	0.01875	-0.00172
	(1.21)	(-0.26)
SMB	-0.05538	-0.07533
	(-1.39)	(-3.28)
HML	0.04273	-0.00460
	(1.11)	(-0.22)
MOM	-0.05815	-0.00898
	(-1.59)	(-0.81)
N	308	308

References

Bank Negara Malaysia. (2007). *Annual report 2006*. Bank Negara Malaysia.

Bursa Malaysia. (n.d.). *FTSE Bursa Malaysia EMAS Shariah Index*. Retrieved [Month day, year], from <https://www.bursamalaysia.com>

Carhart, M. M. (1997). On persistence in mutual fund performance. *Journal of Finance*, 52(1), 57–82.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *Journal of Finance*, 47(2), 427–465.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33(1), 3–56.

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, 116(1), 1–22.

Fama, E. F., & French, K. R. (n.d.). *Fama/French 5 factors (2×3): Emerging markets [Data set]*.

Kenneth R. French Data Library. Retrieved [Month day, year], from https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, 81(3), 607–636.

Fabozzi, F. J., Ma, K. C., & Oliphant, B. (2008). Sin stock returns. *Journal of Portfolio Management*, 35(1), 82–94. research.ftserussell.com

Hong, H., & Kacperczyk, M. (2009). The price of sin: The effects of social norms on markets. *Journal of Financial Economics*, 93(1–2), 15–36. [Securities Commission Malaysia](#)

Kim, I., & Venkatachalam, M. (2011). Are sin stocks paying the price for accounting sins? *Journal of Accounting, Auditing & Finance*, 26(2), 415–442. [Securities Commission Malaysia](#)

Lobe, S., & Walkshäusl, C. (2016). Vice versus virtue investing around the world. *Review of Managerial Science*, 10(2), 303–344. [Bursa Malaysia](#)

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, 55(3), 703–708.

Salaber, J. (2013). The determinants of sin stock returns: Evidence on the European market. *Journal of Banking & Finance*, 37(12), 4389–4407. research.ftserussell.com

Securities Commission Malaysia. (2023). *Islamic capital market*. Securities Commission Malaysia. Retrieved [Month day, year], from <https://www.sc.com.my>