The Impact of Cultural Differences on Investor Preferences of company-Specific Characteristics and Investors Perception of Financial Statement Value Relevance

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Abstract

The purpose of this paper is to analyse the impact of culture on the preferences of investors regarding company-specific characteristics and value relevance of financial statement line items by performing fixed effects panel regression combined with the methodology of event study. This research adds to the literature streams of home bias and financial statement value relevance. The culture dimensions used are based on the research by Hofstede. The sample includes 1,324 companies over 19 countries. The findings indicate that there seems to be an impact of certain culture dimensions on certain preferences of investors regarding company-specific characteristics, and there seems to be an impact of certain culture dimensions on value relevance of certain financial statement line items. This is due to the fact that for all company-specific characteristics and financial statement line items that were found to be significant, their interaction terms with culture dimensions were also found to be significant. However, the findings are not robust and this conclusion is formulated with extreme caution due to the shortcomings presented in the final chapter of this research.

Keywords: culture, Hofstede, home bias, value relevance, abnormal stock returns, event study

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Contents

1 Introduction

The phenomenon of home bias has been widely documented in the finance world (Glassman & Riddick 2001; Lewis, 1999; Coval & Moskowitz, 1999; Tesar & Werner, 1995; Ke, Ng, & Wang, 2010). Equity home bias occurs when individuals hold too little of their wealth in foreign assets (Lewis, 1999). Despite the potential gains due to diversification by investing in foreign assets, there is strong evidence of home bias in the investment behavior of investors. The existing literature mostly attributes home bias to barriers of international investment, for example, presence of differential transaction costs, exchange rate fluctuations, variations in regulations and culture, governmental restrictions on foreign and domestic capital flows, foreign taxes, additional sources of risk for foreign investment or explicit omission of assets from investors opportunity set (Coval & Moskowitz, 1999; Glassman & Riddick, 2001).

Grinblatt & Keloharju (2001) found that three important familiarity attributes, namely companies' language, culture, and distance might contribute to shaping the preference of investors for certain stocks. Their research concluded that it might be the case that familiarity related effects could be one of the contributing factors to home bias (Grinblatt & Keloharju, 2001). Beugelsdijk & Frijns also showed that characteristics of a societal culture could contribute to understanding why some countries underinvest in foreign portfolio more than others (Beugelsdijk & Frijns, 2010). This research builds on the phenomenon of home bias and investigates the impact of culture on the preference of investors regarding companies with specific characteristics using Hofstede's cultural dimensions.

This research also investigates impact of culture on the differences in the value relevance of financial statement line items for the investors and its impact on the stock market. Financial statement line items are information that is conveyed by the managers to the investors through published financial statements. Research found that certain information from the financial statements, for example, other comprehensive earnings, net income, special items and sustainability reporting among others, are significantly correlated with stock prices (Nichols & Wahlen, 2004; Jones & Smith, 2011). Financial reports are said to be value relevant and that they help investors in making investment decisions. Ali & Hwang (1999) investigated the association between the measures of value

relevance with country-specific factors and concluded that indeed differences in the country- specific factors resulted in different value relevance for financial reports (Ali & Hwang, 1999). Zarzeski (1996) attempted to link the culture and the market forces to investor-oriented disclosure practices of enterprises across different countries. The research concluded that indeed differences in the cultural dimensions are associated with differences in the corporate disclosures (Zarzeski, 1996). The existing literature lends support to the notion that there might be differences in the value relevance of financial statement and managerial corporate disclosures due to cultural differences. The second part of this research investigates impact of culture on the differences in the value relevance of financial statement line items for the investors and its impact on the stock prices.

1.1 Research Question

The first part of this research examines the phenomenon of home bias by investigating the relationship between cultural dimensions and certain company specific characteristics that fit the preferences of the investors. It is assumed that investors invest in companies that with characteristics that fit their preferences, and this paper will establish the link between the cultural dimensions of the investors and their preferences. The second part of this research examines how investors in different cultures react to the information that are disclosed in the financial statements of the companies. It is predicted that due to differences in culture, investors would value different characteristics of the companies and financial statement line items differently. The main research question analyzed in this research paper is formulated as follows: **Are there any significant differences in the preferences of investors regarding company-specific characteristics and value relevance of financial statement line items among different culture?**

The first part of the analysis involves company-specific characteristics. It involves investigating the difference in the preferences of the investors in different countries characterized by different scores of Hofstede's culture dimensions. The second part of the analysis involves financial statement line items. Company-specific characteristics are evaluated from information released from the financial statements. Therefore, the value relevance of the information from financial

statement line items will be investigated.

1.2 Relevance and Contribution

This research adds to the existing literature regarding home bias. It gives insight as to the relationship between certain cultural characteristics and the preferences of the investors, hence giving an insight into behavioral biases and tendencies of the investors. Prior research has shown that there is a strong preference for investors to invest domestically even though a better portfolio can be formed by diversifying abroad (Ke et al., 2010; Coval & Moskowitz, 1999; Anderson, Fedenia, Hirschey, & Skiba, 2011). This paper links the dimension of culture to see the impact of culture on the preferences of certain company-specific characteristics. Therefore, this research adds to the stream of literature regarding investors' preferences of companies and home bias.

Additionally, the existing literature has only touched upon how differences in cultures impact different levels and/or quality of financial statement disclosures (Zarzeski, 1996; Hope, 2003). While these researches investigate how companies' managers behave in different countries regarding disclosure levels/quality of financial statement, this research sheds light on how investors belonging to different culture perceive and value the various information that is obtained from the financial statements prepared. Prior research have theorized that the fundamental values of companies are indicated by information released in the financial statements and that analysis of the financial statements can uncover values that are yet to be reflected in the stock prices (Greig, 1992). In this paper, the impact of culture on the valuation of stock prices is analyzed through the valuation of companies' fundamental values analyzed from financial statements. Therefore, this paper also adds to the stream of literature regarding value relevance of financial statement information.

Understanding how culture impacts investors' preference for company specific characteristics and investors' valuation of financial statement items will allow companies to gain insight on how to convey information effectively through financial statements and expand their activities based on their company characteristics in order to be familiar to the foreign investors and reduce home bias. Reducing home bias is important for efficient allocation of resources and proper

diversification and reduction of risks of investment portfolios.

1.3 Main Findings

The findings indicate that culture might have an impact on the value relevance of the financial statement line items. Culture might also have an impact on the preferences of investors regarding company-specific charactersitcs. There seems to be an impact of certain culture dimensions on certain preferences of investors regarding company-specific characteristics, and there seems to be an impact of certain culture dimensions on value relevance of certain financial statement line items. This is due to the fact that for all company-specific characteristics and financial statement line items that were found to be significant, their interaction terms with culture dimensions were also found to be significant. However, the findings are not robust and this conclusion is formulated with extreme caution due to the shortcomings presented in the final chapter of this research.

1.4 Structure and Overview

The structure of the paper is as follows: Chapter 2 is the literature review and hypotheses development, which contains the discussion of the relevant literature regarding value relevance, culture and home bias. Hypotheses will be developed following the literature review in this section. Chapter 3 contains the description of the data used in this analysis. It also contains the descriptive statistics and transformations of the data for the purpose of the analysis. Chapter 4 contains detailed description of the methodology and statistical analyses used to investigate the hypotheses developed. This chapter also contains descriptions of the pre-regression and post-regression diagnostics. Chapter 5 is the results section, which discusses the main findings and its implications. It also contains the results of the sensitivity analysis and pre & post regression diagnostic analyses. Chapter 6 contains the conclusions, shortcomings and possible future research recommendations.

2 Literature Review and Hypotheses Development

In this chapter, the relevant theoretical concepts are discussed. It contains the relevant literature review regarding the concept of CSR, home bias and financial statement value relevance and the previous findings of related empirical research. From the literature review, the theoretical framework is established and the hypotheses are derived.

2.1 Hofstede's culture dimensions

Culture can be defined as the collective programming of the mind that differentiates the people of one group from those of another (Hofstede, 1984). The four dimensions of culture include:

- Power distance: the extent to which people believe that people and status are distributed unequally and the extent to which they accept unequal distribution of power. In societies with a higher score of power distance, there is a more vertical hierarchical structure where there is less transparency and justification for actions. On the other side, people in countries with a lower score demand more information and justification regarding power inequality.
- Masculinity-femininity: the extent to which a society places emphasis on traditional masculine values such as competitiveness, assertiveness, etc. and the acquisition of material possessions, versus feminine values such as nurturing, helpfulness, care, etc. Material success is highly appreciated in countries with higher scores. On the other side of the spectrum, femininity exhibits preference for relationships, modesty, caring for the weak and quality of life.
- Individualism-collectivism: the degree to which a society places emphasis on the role of the individual as opposed to that of the group. Individualistic countries tend to have a lower levels of interdependence among individuals, with a preference of a loosely knit social framework. In collectivistic countries, there is a preference for a tightly knit social framework.

- Uncertainty avoidance: the extent to which people are uncomfortable with uncertain or unknown situations. Countries with a higher score of uncertainty avoidance prefer predictability and vice versa for countries with lower score of uncertainty avoidance (Gray, 1988; Beugelsdijk & Frijns, 2010)

For the purpose of this research, power distance, uncertainty avoidance and masculinity are used. Individualism is not used in this research as the variables that are part of this research are related to power distance, uncertainty avoidance and masculinity parts of the society.

2.2 Theoretical background: home bias, preferences and investments, and CSR & ESG Ratings

2.2.1 Phenomenon of Home Bias

A vast body of literature has documented the phenomenon of home bias since 1970s (French & Poterba, 1991; Tesar & Werner, 1995; Coval & Moskowitz, 1999). The puzzle of home bias is related to the phenomenon that the proportion of foreign assets held by domestic investors is too small relative to the predictions of standard portfolio theory (Lewis, 1999). Despite the diversification potential of investing in foreign stocks, there is strong evidence that home bias occurs quite frequently (Tesar & Werner, 1995). For example, Chan, Covrig & Ng (2005) concluded from their research that home bias existed in all the 48 countries-sample they have investigated.

The phenomenon of home bias has been attributed to barriers of international trade, for example, presence of differential transaction costs, governmental restrictions on foreign and domestic capital flows, foreign taxes, and additional risk of foreign investment (Glassman & Riddick, 2001; Coval & Moskowitz, 1999). However, various researches have shown that home bias can be attributed to behavioral aspects of the investors as well, rather than just the tangible barriers to international trade. The effect of home bias in foreign investment happens because tangible barriers of international trade do not fully account for the international asset allocation decisions of investors. Ke, Ng & Wang (2010) investigated home bias in US equity holdings of non-US-based

mutual funds from 22 countries. They found that foreign companies with local presence offer geographic proximity that increases familiarity, and lower cost of obtaining information. Additionally, there is a greater levels of home bias when facing increasing barriers of information flow. Managers with a different cultural background and a higher geographical distance from the US equity market are more likely to invest in foreign companies with US presence compared to companies without US presence, but the fund holdings of such stock portfolio do not perform better than passive portfolios that consist of all US stocks with local presence. Following these findings, research concluded that investors tend to invest in foreign stocks that have presence in their home country, but they also found results that seemed to suggest that the decisions of investors to invest in foreign companies with presence in the domestic country are influenced less by changes of information asymmetry or information-based familiarity and more likely by non-information familiarity bias. The decision to invest in close-by companies in the domestic market is not necessarily information driven; they concluded that familiarity-induced investments are driven by a behavioral bias (Ke, Ng & Wang, 2010).

Similar results can be found in other studies (Huberman, 2001; Zhu, 2002) regarding home bias. Other researchers have also attributed familiarity to causing home bias. Grinblatt and Keloharju (2001) hypothesized that the three attributes of familiarity, companies language, culture and distance might explain the behavioral bias (preference) of investors for certain companies. They investigated the phenomenon of home bias with relation to open market purchases and sales and also share ownership in the Finnish stock market. They found that geographic proximity, having local headquarters, the language the company uses to communicate and the culture all have an impact on the stockholdings and trade. Their research concluded that all the three familiarity attributes are indeed significant in contributing to investors preferences for certain stocks (Grinblatt & Keloharju, 2001).

Anderson et al. (2011) investigated the determinants of international diversification in institutionally managed portfolios. The sample consisted of 25 000 institutional portfolios from 60 countries that are traded in 80 different countries. They focused on analyzing whether portfolio allocations are conditional upon the behavior that is rooted in culture, more specifically, home-country bias and diversification across foreign markets. They concluded that country-

specific variables regarding cross-cultural behaviors contributed to explaining cross-sectional variation in degree of home bias and foreign diversification among institutional portfolios. More specifically, they found that countries with higher levels of uncertainty avoidance are associated with higher levels of home bias and are also less diversified overseas. Countries with higher levels of masculinity score have less levels of home bias and are more diversified overseas (Anderson et al., 2011).

Beugelsdijk & Frijns (2010) examined foreign bias (when investors invest in foreign markets, investors can allocate money to each market in accordance with their preferences, this is foreign bias) in international asset allocation. They hypothesized that a society's culture (they utilized Hofstede's cultural dimensions) play an important role in explaining the foreign bias. Their analyses concluded that some countries underinvest more than others and this is related to the differences in scores of Hofstedes cultural dimensions. More specifically, differences in the levels of uncertainty avoidance and individualism are associated with different levels of underinvestment (societies that have higher levels of uncertainty avoidance invest less in foreign equities and countries with higher levels of individualism invest more in foreign equities). Differences in the way investors from a country underinvest in other countries are associated with differences in the cultural distance of country pairs (country pairs with higher levels of cultural distance invest less in each other compared to country pairs with lower levels of cultural distance) (Beugelsdijk & Frijns, 2010).

2.2.2 Corporate Social Responsibility & ESG Ratings

Another aspect that is likely to be relevant in investment decisionss is sustainability reporting. Socially Responsible Investment (SRI) as an investment strategy is increasingly being used in the investment community. There is an increase in the number of asset managers and mutual funds in US, Canada and Europe that are engaging in SRI. SRI is related to the concept of corporate social responsibility (CSR). SRI involves implementing ethical screens in order to invest only in companies that have good records in CSR (Brammer, Brooks, & Pavelin, 2006).

There has been no consensus on the findings regarding CSR, SRI and superior stock returns. Research done by Berthelot et al., (2012) concluded that

investors attach a positive value to sustainability reports and that issuing such reports would result in receiving significant premiums in financial markets in Canadian companies (Berthelot et al., 2012). On the other hand, research done by Guerard in 1997 does not find any significant difference in the performance of investments which are ethically screened and the ones that were not (Brammer, Brooks, & Pavelin, 2006). It is theorized in this paper that the different results regarding the relationship between returns of stocks and sustainability of the companies can be attributed to differences in the culture and therefore investment behavior of the investors. The levels of sustainability of the companies can be determined from their ESG score, which takes into account environmental impact, social impact and the governance of the company.

2.2.3 Hypothesis Development

The behavioral argument of home bias is that investors are boundedly rational and use information in different ways (Chen, Johnson, Lin, & Liu, 2009) or that they price foreign stocks in different ways (Kang, Lee, & Park, 2010). Therefore, the society and culture (countries) of investors shape their preferences regarding in which companies to invest, which in turn, shape their investment behavior.

Company-specific characteristics have been found to have significant correlations with investment decisions (Ke et al., 2010; Dahlquist & Robertsson, 2001; Covrig, Lau, & Ng, 2006). Coval & Moskowitz (1999) found that three company characteristics, namely company size, leverage and output tradability have significant impact on the local equity preference (Coval & Moskowitz, 1999). Company size and leverage are also used as independent variables in other papers (Ke et al., 2010; Fama & French, 1992, 1993). The market-to-book ratio is also included as an independent variable as Fama (1992, 1993) found it to be a significant determinant to asset returns (Wang, Meric, Liu, & Meric, 2009) and it was also included in the analysis to determine home bias in foreign investments (Ke et al., 2010). Sustainability is also a company-specific characteristic that would impact investors' preferences in recent times (Berthelot, Coulmont, & Serret, 2012).

For this research, the first part of the analysis focuses on the characteristics of the companies. The characteristics investigated are sustainability, leverage and profitability of the companies.

The first component of sustainability is environment, which looks at the impact of companies' activities on factors that would impact the environment, such as its energy use, waste, pollution, natural resource conservation and animal treatment. The score evaluates how these factors relate to companies' activities, how those risks might impact companies and how companies manage those risks. The component of environment is related to masculinity score from Hofstede's culture component. The masculinity-femininity score shows the extent to which a society places emphasis on traditional masculine values such as competitiveness, assertiveness and the acquisition of material possessions, versus feminine values such as nurturing, helpfulness, care. It is hypothesized that countries with lower scores of masculinity would react more positively to an increase in the environmental score, indicating that investors in less masculine countries prefer companies that place emphasis on minimizing the negative impact of their actions on the environment. Therefore, the first hypothesis is as follows:

H1a: countries with higher scores of masculinity would react less positively to an increase in the environmental score than countries with lower scores of masculinity.

The second component of sustainability of the score is related to its social score. It looks at the relationships that companies have with the community and the people around the area that they operate in. This score considers local communities and community-building activities, supply chain issues, health, safety and operational issues of its workers, and the consideration of interests of various stakeholders that might conflict with the activities of companies. The component of social score is also related to the masculinity score from Hofstede's culture component. It is hypothesized that countries with lower scores of masculinity would react more positively to an increase in the social score, indicating that investors in less masculine countries prefer companies that place emphasis on relationship - building with communities and other stakeholders as well as operational issues of their employees and issues in their value chain. Therefore, the second hypothesis is as follows:

H1b: countries with higher scores of masculinity would react less positively to an increase in the social score than countries with lower scores of masculinity.

The third and final component of sustainability is related to the governance

score. This is related to transparency and accountability. Issues that affect the score of this component include, but not limited to, board independence, conflict of interest, salaries, severance payment, bonus and incentive structures. The component of governance is related to the power distance score from Hofstede's culture component. It relates to the extent to which people believe that people and status are distributed unequally and the extent to which they accept unequal distribution of power. It is hypothesized that countries with lower scores of power distance would react more positively to an increase in the governance score, indicating that investors from countries with less power distance prefer companies that place emphasis on accountability, transparency and potential conflict of interests, all of which can contribute to decreasing the unequal distribution of power. Therefore, the third hypothesis is as follows:

H1c: countries with higher scores of power distance would react less positively to an increase in the governance score than countries with lower scores of power distance.

The fourth hypothesis tested is related to the financial leverage. Financial leverage indicates how much a company uses debt to finance its activities. An increase in the financial leverage is an indication that the company is acquiring more debt this will result in higher future interest payments. This characteristic is related to uncertainty avoidance from Hofstede's culture component. It is theorized that countries with higher scores of uncertainty avoidance would react more negatively to an increase in the financial leverage than countries with lower scores of uncertainty avoidance. Therefore, the fourth hypothesis is as follows:

H1d: countries with higher scores of uncertainty avoidance would react more negatively to an increase in the financial leverage than countries with lower scores of uncertainty avoidance.

The fifth hypothesis tested is related to the profitability of a company, which is proxied by net income growth. Profitability and net income growth indicates the rate at which companies increase their profits. It is an indicator of companies' health and future prospects. This characteristic is related to masculinity from Hofstede's culture component, specifically to efficiency and competitiveness. It is theorized that countries with higher scores of masculinity would react more positively to an increase in net income growth. The fifth set of hypotheses tested is as follows:

H1e: countries with higher scores of masculinity would react more positively to an increase in net income growth than countries with lower scores of masculinity.

The control variables taken are the market-to-book ratio and GDP-growth. The market-to-book ratio is a company-specific characteristic that has been found in previous researches to have an impact on the stock returns (Fama 1992, 1993; Wang, Meric, Liu, & Meric, 2009), and is therefore taken into account to partially prevent issues with omitted variables. The GDP-growth reflects country-specific characteristics and therefore is used to account for country-specific differences.

2.3 Theoretical background: value relevance of financial statements

2.3.1 Value Relevance

Financial statement analysis allows investors to identify aspects of financial statements that are relevant to investment decisions. One major aspect of a company that can be evaluated from financial statement analysis is the company value. Analysis of published financial statements can be used to obtain information that may or may not be reflected in stock prices. Fundamental analysis posits that the value of a company is indicated by the information released in the financial statement (Ou & Penman, 1989). Therefore, investors place a valuation of a company based on their perception of the information released in the financial statements and make an investment decision accordingly. An accounting item is defined to be value-relevant if it has a predicted association with equity market values or share prices (Barth, Beaver, & Landsman, 2001). Specific information from a financial statement has been found to have value relevance in determining stock prices. In Ball and Brown (1968), it was found that the net income from financial statement has a correlation with the stock returns. Similar findings were found from other researches (Nichols & Wahlen, 2004). Therefore, net income (from continuing operations) in a financial statement is valued by the investors as informative.

The link behind net income and stock returns can be summarized with the

following three links:

1. Current period earnings can be used to infer about future periods earnings.
2. Predicted future period earnings can be used to develop expectations for future dividends.
3. Expectations of future dividends can be used to determine share value (Nichols & Wahlen, 2004).

Similarly, other line items in the financial statements provide information for investors to develop future expectations about profitability and dividends, which would be used to determine stock prices. Francis & Schipper (1999) in their research concluded that cash flow, accruals, earnings and balance sheet items are indeed value relevant (Francis & Schipper, 1999). Additionally, past research has shown that even though special items do not exhibit persistence (and other comprehensive income does), both special items and other comprehensive income gains and losses are indeed value relevant (Jones & Smith, 2011). The fundamental values such as profitability and leverage of companies are indicated by the information conveyed by the managers through financial statements. Stock values of the companies do not necessarily accurately reflect the fundamental values of the companies and may sometimes deviate from the fundamental values and slowly gravitates towards them. Intrinsic values derived from the information from financial statements can be used as a benchmark to compare the trading prices of stocks to identify overvalued and undervalued stocks (Ou & Penman, 1989).

Prior research has shown that different patterns of accounting exist and that the development of the individual national systems of financial reporting is related to environmental factors (Gray, 1988). Culture is one of the environmental factors that is related to the development of national systems of financial reporting. A large body of research exists regarding the influence of external environmental factors on the development of accounting system (Orij, 2010; Akman, 2011). A large body of empirical research supports the notion that cultural differences indeed account for some differences in financial reporting among different countries. The existing literature lends support to the notion that there might be differences in the value relevance and the managerial corporate disclosures due to cultural differences.

Companies use financial statements to convey information in order to reduce information asymmetry between managers and financial statement users. Logically, financial statements and accounting policies are prepared such in order to convey the most information regarding the companies characteristics to the financial statement users. If culture indeed has an impact on the development of accounting systems and that accounting systems are developed to convey information to reduce information asymmetry, then investigating the impact of culture on the value relevance of financial statement line items will allow managers to better convey company performance information and reduce information asymmetry even further.

As hypothesized in the first part of this analysis, investors from different cultural backgrounds will have different preferences regarding company-specific characteristics. Information about the company-specific characteristics is derived from information released in the financial statements. Therefore, differences regarding the value-relevance of information conveyed through the financial statement are investigated. This part of the analysis involves investigating how investors in different countries place relevance on the financial statement line items. Based on the literature review above, it is predicted that companies will value different line items and company specific characteristics differently.

Value relevance can be interpreted in two ways: the first measure of value relevance is the total return that can be earned by the market from knowledge regarding the financial statement information of companies. The second measure of relevance is related to the explanatory power of accounting information for measures of market value, which are the ability of earnings and values in the balance sheet to explain market values of equity (Francis & Schipper, 1999). The second measure of value relevance must be cautiously interpreted: over long periods, significant statistical association between accounting information and market values or returns might only indicate correlation and does not necessarily prove causality.

Value relevance is measured by the ability of the information released in the financial statements to capture or summarize information, regardless of the source of information, that affects values of company shares (Francis & Schipper, 1999). With the definition above, the issue of causality is avoided. This definition is also used as this paper aims to establish correlation between

market returns and information, not causality.

Francis & Schipper (1999) explain three contemporaneous relations between market value measures and accounting information, namely: earnings relation (the ability of earnings to explain market adjusted returns), balance sheet relations (ability of assets and liabilities to explain market equity values) and book value and earnings relation (ability of book values and earnings to examine market equity values). In their research, they analyzed the value relevance of various accounting information. The resulting analyses found that the value relevance of the book value of assets and liabilities combined with earnings have not decreased over time and are still value relevant.

2.3.2 Hypothesis Development

The line items whose value relevance will be investigated in this research include working capital, return on equity, financial leverage, net income growth and current ratio as they are variables used in fundamental analyses of stocks. These variables indicate the liquidity, leverage and profitability of the companies. All the different information from line items is related to different characteristics of a company (how leveraged it is, how liquid it is, etc.) and is therefore taken into account when making investment decisions. Therefore, this part of the research will investigate the impact of culture on the value relevance of the different line items in financial statements.

Working capital indicates the short-term financial health of a company. It is equal to current assets minus current liabilities. The working capital indicates the ability of a company to pay off its short-term creditors and it also gives an idea of the efficiency of a company. This information is related to the uncertainty avoidance component of the culture dimension. It is hypothesized that countries with higher scores of uncertainty avoidance will respond more positively to increases in the working capital. Therefore the first hypothesis of this part of the research can be formulated as follows:

H2a: countries with higher scores of uncertainty avoidance would react more positively to an increase in the working capital than countries with lower scores of uncertainty avoidance.

Return on equity is a measure of profitability, which measures net income produced by total equity at a particular period. It measures the efficiency of a company at producing profit. Return on equity is related to the masculinity component of the culture dimensions, specifically about the emphasis on competitiveness and profitability, which are traditional masculine values. It is hypothesized that countries with higher scores of masculinity will respond more positively to increases in the return on equity. Therefore, the third hypothesis of this part of this research can be formulated as follows:

H2b: countries with higher scores of masculinity would react more positively to an increase in the return on equity than countries with lower scores of masculinity.

Financial leverage is a measure of the debt a company is exposed to. It defines the total amount of debt relative to the total amount of equity. The higher that ratio is, the more leveraged a company is and therefore the higher is the risk that the company is exposed to. Financial leverage is related to the uncertainty avoidance component of the culture dimension. It is hypothesized that countries with higher scores of uncertainty avoidance will respond more negatively to an increase in the financial leverage. Therefore, the fourth hypothesis of this part of this research can be formulated as follows:

H2c: countries with higher scores of uncertainty avoidance would react more negatively to an increase in the financial leverage than countries with lower scores of uncertainty avoidance.

Net income growth is a measure of the growth of profit of a company. Net income growth is related to the masculinity component of the culture dimension, specifically to its efficiency and competitiveness. It is hypothesized that countries with higher scores of masculinity will respond more positively to an increase in the net income growth. Therefore, the fifth hypothesis of this part of the research can be formulated as follows:

H2d: countries with higher scores of masculinity would react more positively to an increase in the net income growth than countries with lower scores of masculinity.

The current ratio is the liquidity ratio that measures the ability of a company

to meet its short-term obligations. The current ratio is a **ratio** that indicates liquidity, while working capital is a **value** that indicates liquidity, and therefore both are included in the research. A current ratio that is less than 1 indicates that a company may have liquidity problems in meeting its short-term obligations. The current ratio is related to the uncertainty avoidance component of the culture dimension. It is hypothesized that countries with higher scores of uncertainty avoidance will respond more positively to an increase in the current ratio. Therefore, the sixth hypothesis of this part of this research can be formulated as follows:

H2f: countries with higher scores of uncertainty avoidance would react more positively to an increase in the current ratio than countries with lower scores of uncertainty avoidance.

The control variables taken are the market-to-book ratio and the GDP-growth. The market-to- book ratio is a company-specific characteristic that has been found to have an impact on stock returns, and is therefore taken into account to partially prevent issues with omitted variables. GDP growth reflects country-specific characteristics and therefore is used to account for country-specific differences.

3 Data

This chapter contains the description of the dataset acquired for this research. First, the operationalization of the variables is explained to determine the variables that will be used. This chapter also outlines the sample selection process, the variables downloaded and the descriptive statistics of the sample dataset. It also contains the correlations of the variables used. Additionally, it contains descriptions of the transformations done on the variables.

3.1 Operationalization of variables

The cultural biases explained in the previous chapter can be reflected in the stock returns. Publicly available information is processed, in the stock prices. Investors are not unbiased and these biases have various sources, although it is generally believed that it is due to the characteristics of investor behavior (Greig, 1992), which could be impacted by culture. In this case, the investor behavior can be proxied by the cumulative abnormal stock returns.

The items of interest in hypothesis 1 are the sustainability, which is proxied by environmental score, governance score and social score, financial leverage which indicates the bankruptcy risk that a company faces due to its debt and equity structure, and profitability which is proxied by net income growth. The market to book ratio and GDP growth are used as control variables.

For hypothesis 2, the line items included are the ones that are possibly used to make investment decisions. However, including a large number of variables might cause issues of multicollinearity and cause redundancy, therefore, the variables included is narrowed down to working capital as proxy for liquidity, net income growth as proxy for revenue, competitiveness and performance, financial leverage to indicate how leveraged a company is in terms of its assets, return on equity to indicate performance efficiency of a company and current ratio as proxy for the liquidity of a company. The market-to-book ratio and GDP-growth are once again used as control variables.

3.2 Sample selection process and data source

The sample used in this research consists of publicly listed companies in various countries and the cultural dimension scores of the countries where the companies are domiciled. All the relevant data regarding the independent variables are obtained from the Bloomberg Database and Datastream. Bloomberg database is a financial database that provides historical and current data regarding the bond market, equity market, foreign exchange rate market and macroeconomic data for countries and it also provides fundamentals analyses and information from the published financial statements of the publicly listed companies globally. The data for the abnormal returns is obtained from Datastream. Datastream is a global financial and macroeconomic data platform covering equities, stock market indices, currencies, company fundamentals, fixed income securities and key economic indicators for 175 countries and 60 markets.

The first part of the sample consists of the culture dimension scores and macroeconomic data for 111 countries. The culture dimension scores can be found from the website www.geerthofstede.nl/dimension-data-matrix. After removing countries with missing values for culture dimensions and certain sub-demographics, the number of countries is narrowed down to 69 countries. In addition to the culture dimension scores, macroeconomics data regarding the 69 countries between 2012-2015 are also obtained from website of IMF.

The second part of the sample consists of the financial statement data, fundamentals, and stock returns for publicly traded companies in various countries and the control variables. The initial sample consists of around 65,000 primary stocks of companies whose stocks are currently actively traded. Then, the number of companies is narrowed down to companies that publish their ESG score (Environmental, Social and Governance) score. Next, the number of companies is further narrowed down after filtering out companies located in countries for which the culture dimension scores are unavailable. The time frame of this research is 4 years (20012-2015). After filtering out the companies for which data is incomplete under the time frame, the final number of actively traded companies used in this sample is 1, 324, which spans over 19 countries. The list of companies and countries that are used in the sample can be found in Appendix A.1.

3.3 Variables in the dataset

Country-specific variables include the culture dimension scores and macroeconomic variables as well as the control variables. The culture dimension variables for countries are power distance (pdi), uncertainty avoidance (ui), and masculinity (mas). The macroeconomic variables include GDP growth.

Variables for hypothesis 1 are environmental score, social score, governance score, net income growth, and financial leverage. Variables for hypothesis 2 include working capital, current ratio, return on equity, net income growth, financial leverage, and total assets. The market-to-book ratio and GDP-growth are used as control variables in both the models.

3.4 Descriptive Statistics

3.4.1 Country culture dimension and GDP growth

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	P25	P75
Masculinity	5296	72.24	18.63	8	95	62	95
Uncertainty Avoidance	5296	59.65	26.94	8	94	35	92
Power Distance	5296	56.95	16.4	11	100	40	77
GDP Growth	5296	2.89	2.91	-2.82	9.48	1.36	5.29

Descriptive statistics of country-specific variables: culture dimension scores and annual GDP growth

The mean of the scores for masculinity is 72.2, which is the largest among the three cultural dimensions taken into account in this research. The maximum value is 95 and the minimum value is 8, which indicates quite a large range of values in the sample. The standard deviation for this variable is equal to

18.63 with the coefficient of variation of 0.26. The variability is quite low and is the lowest among the three culture dimensions. This variable seems to exhibit positive skewness. This is corroborated by boxplot and histogram, which can be found in Appendix B.1. The boxplot also shows the existence of one outlier.

The mean for uncertainty avoidance is 59.7. The maximum value is 94 and the minimum value is 4, which also indicates quite a large range of values in the sample. The standard deviation for this variable is equal to 26.93, with the coefficient of variation of 0.45, indicating low variability. However, the variability of uncertainty avoidance is higher than that of masculinity and power distance. With the mean being higher than the median, this variable seems to exhibit a positive skewness. This is further corroborated by the boxplot and histogram, which can be found in Appendix B.2. The boxplot does not show any outlier.

The mean for power distance is 57.0. The maximum value is 100 and the minimum value is 11, which also indicates quite a large range of values in the sample, similar to the score for masculinity and uncertainty avoidance. The standard deviation for this variable is equal to 16.40, with the coefficient of variation equals to 0.29. The variability of the variable is higher than that of masculinity, but lower than that of uncertainty avoidance. With the mean being almost the same value as the median, this variable seems to be only slightly positively skewed. This is further corroborated by the boxplot and histogram, which can be found in Appendix B.3. The boxplot does not show any outlier.

The mean annual GDP annual growth among all the countries in the sample is equal to 2.9%. The maximum value for GDP growth is equal to 9.5% and the minimum value is equal to -2.8%, which also indicates quite a large range. The standard deviation of this variable is equal to 2.91 and the coefficient of variation is equal to 1.006, indicating normal variability. The fact that the mean is greater than the median means that the variable is positively skewed. This is further corroborated by the boxplot and the histogram, which can be found in Appendix B.4.

3.4.2 ESG scores

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	P25	P75
environmental score	5296	24.61	15.86	1.38	82.17	11.63	37.98
social score	5296	28.74	14.62	3.13	82.46	17.54	38.6
governance score	5296	51.34	8.09	21.43	80.36	46.43	57.14

Descriptive statistics of sustainability scores

The mean of environmental score is 24.6, which is quite low (scores are between 0-100). The mean of this score is the lowest among all three components of the ESG. The highest score obtained in this dimension is 82.1 and the lowest score is 1.4, which indicates a very large range. The standard deviation for this score is 15.9, which is the highest among all the ESG components, and the coefficient of variation is equal to 0.64, indicating a low variability. With the mean being larger than the median, this variable exhibits positive skewness. This is further corroborated by the boxplot and histogram, which can be found in Appendix B.5. The boxplot also shows the presence of one outlier.

The mean of the social score is 28.7, which, similar to the environmental score, is quite low (similar reason as low mean for environmental score). The highest score obtained in this dimension is 82.5 and the lowest score is 3.1, which indicates a very large range. However, this range is lower than the range of the environmental score, but higher than the range of the governance scores. The standard deviation for this variable is 14.61, and the coefficient of variation is equal to 0.16, which is the lowest among all three ESG components. With the mean being very similar to the median, this variable exhibits approximate normal distribution. This is further corroborated by the boxplot and the histogram, which can be found in Appendix B.6. The boxplot shows the existence of several outliers.

The mean of the governance score is 51.3, which is not too high or too low.

The highest score obtained in this dimension is 80.4 and the lowest score is 21.4; the size of the range is the lowest among all three components of ESG. The standard deviation for this score is 8.09 with the coefficient of variation of 0.51, indicating low variability. With the mean being very similar to the median, this variable also exhibits approximate normal distribution. This is further corroborated by the histogram and the boxplot, which can be found in Appendix B.7. The boxplot shows the existence of several outliers.

The large range of values for social scores, environmental scores and governance scores could be due to the fact that the sample consists of companies from various countries that vary a lot in terms of how companies operate (in terms of their environmental and social impact, and their governance structure). Another reason is that the companies in the sample operate in various industries, which vary a lot in terms of their environmental and social externalities of their activities.

3.4.3 Cumulative Abnormal Returns

Table 3: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	P25	P75
market model CAR	5296	.02	.15	-.65	1.11	-.06	.1
mean model CAR	5296	.02	.17	-.72	1.18	-.08	.11

Descriptive statistics of CAR of market model and mean model

The mean value of CAR based on the market model is equal to 0.023, with the standard deviation of 0.15. The coefficient of variation is equal to 6.61, which is less than that of mean model CAR, indicating that market model CAR has less variability relative to its mean compared to mean model CAR. The maximum value for this variable is 1.11 and the minimum value is -0.65. However, this range is smaller than that of the CAR based on the mean model. The mean is approximately similar to the median. This indicates that this

variable is approximately normally distributed. This is further corroborated by the boxplot and the histogram, which can be found in Appendix B.8. The boxplot shows the existence of several outliers.

The average value of CAR based on the mean model is equal to 0.021, which is slightly smaller than the average of the CAR that is based on market model. The standard deviation is equal to 0.17, the coefficient of variation is equal to 8.10, the maximum value is equal to 1.18 and the minimum value is equal to -0.72. The standard deviation and the coefficient of variation are greater than that of the CAR that is based on the market model, indicating that while the mean is lower, there is a higher variability of the values around the mean when compared to the CAR based on market model. The variable is approximately normally distributed with several outliers, which can be seen from the boxplot and the histogram, which can be found in Appendix B.9.

3.4.4 Accounting information and company financial characteristics

Table 4: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	P25	P75
working capital	5296	1297.16	5916.13	-42919.58	131741	44.22	1108.32
current ratio	5296	1.95	2.49	.09	104.67	1.1	2.18
return on equity	5296	14.59	24.17	-31.53	1087.14	6.36	17.02
net income growth	5296	88.64	852.85	-5186	54660.1	-7.52	36.18
market to book ratio	5296	2.83	8.39	.24	505.17	1.04	3.07
financial leverage	5296	2.64	1.81	1.01	53.43	1.68	3.05
total asset	5296	14519.53	38890.53	32	684999	1080.19	11606.38

Descriptive statistics of company-specific variables

The mean value of the working capital of the companies in the sample is equal to 1297.165, with a standard deviation of 5916.129. The maximum value is equal to 131,741 and the minimum value is equal to -42919.58. The coefficient of variability is equal to 4.56, which indicates that there is a high variability of values of the working capital around its mean. The high variability can be attributed to outliers that can exist due to the large range of values for this variable. The mean is much larger than the median. This indicates that the variable is positively skewed. This can be corroborated by the histogram, which can be found in Appendix B.10. The boxplot shows the existence of several outliers.

The current ratio has a mean of 1.95, with a standard deviation of 2.49 and a coefficient of variation of 1.28, which indicates high variability of values around the mean. The maximum value is equal to 104.66 and the minimum value is equal to 0.094. The larger range and value of the coefficient of variation greater than 1 indicates high variability of the values around the mean of the current ratio. The mean is larger than the standard deviation. This indicates that the variable is positively skewed and this can be corroborated by the histogram, which can be found in Appendix B.11. The boxplot shows the existence of several outliers.

The mean of the return on equity in the sample is equal to 14.59, with the standard deviation of 24.17 and coefficient of variation of 1.66. This indicates high variability of data around the mean of return on equity. The maximum value is 1087.141 and the minimum value is 31.53, indicating a large range. The mean is larger than the median, indicating that the variable is positively skewed and this can be corroborated by the histogram, which can be found in Appendix B.12. A large range could indicate the presence of several influential outliers. This is corroborated by the boxplot, which can be found in Appendix B.12.

The mean of net income growth in the sample is equal to 88.64, with the standard deviation of 852.85 and coefficient of variation of 9.62. This indicates an extremely high variability of data around the mean of net income growth. The variability is the quite high when compared to sales growth. The maximum

The values for working capital and total asset is in $'000

value is 54660.1 and the minimum value is 5186, indicating a very large range. The mean is larger than the median. Keeping in mind the variability and range, this indicates that the variable is positively skewed and this can be corroborated by the histogram, which can be found in Appendix B.13. An extremely large range and extremely high variability indicate the presence of influential outliers. This is corroborated by the boxplot, which can be found in Appendix B.13. The boxplot shows the presence of one extremely influential outlier.

The mean of the market to book ratio in the sample is equal to 2.83, with a standard deviation of 8.39 and a coefficient of variation of 2.96. This indicates a high variability of data around the mean of the market to book ratio. The maximum value is 505.17 and the minimum value is 0.235, indicating a large range. The mean is larger than the median. Keeping in mind the variability and range, this indicates that the variable is positively skewed and this can be corroborated by the histogram, which can be found in Appendix B.14. An extremely large range and extremely high variability indicate the presence of several influential outliers. This is corroborated by the boxplot, which can be found in Appendix B.14. The boxplot shows the presence of three extremely influential outliers.

The mean of financial leverage in the sample is equal to 2.64, with a standard deviation of 1.81 and a coefficient of variation of 0.69. This indicates a low variability of data around the mean of leverage. The maximum value is 53.43 and the minimum value is 1.01, indicating a medium range. The mean is larger than the median. Keeping in mind the variability and range, this indicates that the variable is positively skewed and this can be corroborated by the histogram, which can be found in Appendix B.15. An extremely large range and extremely high variability indicate the presence of several influential outliers. This is corroborated by the boxplot, which can be found in Appendix B.15. The boxplot shows the presence of three extremely influential outliers.

The mean of total asset in the sample is equal to 14519.53 with a standard deviation of 38890.53 and a coefficient of variation of 2.68. This indicates a high variability of data around the mean of total assets. The maximum value is 684999 and the minimum value is 32.00, indicating a large range. The mean is much larger than the median. Keeping in mind the variability and range, this indicates that the variable is positively skewed and this can be corroborated

by the histogram, which can be found in Appendix B.16. An extremely large range and extremely high variability indicate the presence of several influential outliers. This is corroborated by the boxplot, which can be found in Appendix B.16. The boxplot shows the presence of multiple outliers.

3.5 Data Transformation

The variable financial leverage exhibits extreme skewness to the right and some influential outliers (Appendix B.17). Therefore, log transformation of the variable is done in order to solve this issue (Appendix B.17). After the log transformation, the log of financial leverage is still skewed to the right, however the skewness and the impact of the influential outliers have been significantly reduced.

3.6 Correlation

The complete correlation table can be found in the Appendix B.18 . The number of variables with significant correlation with one another is quite significant. Due to this, there could be issues of multicollinearity. Multicollinearity in this dataset could arise due to redundancies of data. During the regression of these variables, the software STATA automatically removes the redundancies, however, multicollinearity could remain within the dataset even after the removal of redundant variables.

The impact of multicollinearity is on the accuracy of the independent variables. When multicollinearity is present, the estimates of the impact of the independent variables on the dependent variable while controlling for other variables becomes less precise compared to the situation where the independent variables do not suffer from multicollinearity. Another issue with multicollinearity is that during estimation, the standard errors could also be inaccurate (it could be very large), leading to type II error where there is failure to reject a null hypothesis of no significant impact of the independent variable on the dependent variable when in reality there is significant impact of the independent variable on the dependent. There are two possible ways of dealing with multicollinearity. The

*,**, *** indicate significance at 10%, 5% and 2,5% respectively

first one is to remove one of the redundant variables, which STATA would to automatically, and the second one is to have a large sample size. The sample size of this research is 5296 company-year observations. In case that multicollinearity still exists, STATA would remove one of the redundant variables. Since the purpose of the research is to measure the impact of culture on company-characteristics and line items, the focus is on the sign of the coefficient, not the value itself. However, there would still be implications on the significance testing.

4 Methodology

This chapter outlines the methodology employed in this research. In this section, the event study and panel data methodologies are explained, the models to test the hypotheses outlined in the previous chapter are specified along with the details regarding the sensitivity analyses.

The methodology of this research involves two steps: the first step involves the methodology of an event study in order to estimate the cumulative abnormal returns, which are used as the dependent variable. The second step involves panel data regression in order to investigate the association between the company-specific characteristics/line items in financial statements and the cumulative abnormal returns.

4.1 Estimating the model using panel data

The methodology of this research involves the use of panel data. In a lot of researches, the issue of omitted variable bias exists, which arises when a variable that is not included in the model (omitted) is correlated with the variables included. However, the use of panel data can reduce the effects of omitted variable bias in the sense that the estimators may be more robust to the issue of incomplete model specification (Verbeek, 2012).

Using panel data method, there are two options on how to model the equations: model with fixed effects or model with random effects. When fixed effects model is used, it is assumed that there are particular characteristics of the companies (individuals) that could have an impact or bias the predictor or dependent variable, and these characteristics needs to be accounted for. An important assumption for fixed effects model is that the time-invariant characteristics (in this case, culture) are unique to each individual and are not correlated to each other. Therefore, for this research, fixed effects may be more appropriate. The issue of omitted variable bias is greater in random-effects model than fixed effects model, which is an issue when trying to imply causality. Since this research aims at only proving correlation, the issue is not as critical as when trying to prove causality. To determine which model is appropriate, the Hausman test is conducted and the results of the Hausman test will determine the use of the

type of panel data. For all models henceforth, the significance of the coefficients is tested at 10%, 5% and 1 % alpha levels.

4.2 Event Study (Abnormal Returns as dependent variable)

Using data regarding the companies and the financial market, an event study measures the actual impact of a specific event on the value of a company (MacKinlay, 1997). The rationale behind an event study can be summarized as follows: given rationality in an efficient marketplace, the impact of an event will be reflected in the prices of the stocks of companies. Therefore, the economic impact of an event can be measured using security prices observed in a specific window of time (MacKinlay, 1997). The stock price reactions to the news are represented by abnormal returns, which is defined as the stock returns that are adjusted for the daily stock price and taking into account market index movements (Cowan, 1992). In this research, the event that is being studied is the release of annual financial statements of the companies. From these financial statements, the characteristics of a company (such as leverage, liquidity, etc.) can be inferred. The correlation or association between company-specific characteristics and cumulative abnormal returns (over a specific event window) is studied. In corporate context, an event study method is used due to the fact that the size of the abnormal performance of stock prices at the time of the event provides a measure of the impact of the event that is unanticipated on the wealth of the companies shareholders (Kothari & Warner, 2004).

The first step in an event study is to determine the event of interest and the event window, which is the period over which the stock prices will be examined (MacKinlay, 1997). In this research, the event of interest is the release of the financial statement (as explained above) and the event window is comprised of 31 days: 15 days before the event date, the event date, and 15 days after the event date. This event window is considered to be a short-event window, and is used in this research in order to avoid confounding variables that have to be taken into account when long event window is used. The event window surrounds the days before and after the event date because it is assumed that the financial market anticipates and acquires information about the financial news from other sources and is still incorporating information after the event

date (a financial market is not perfectly efficient).

Abnormal returns are the actual stock returns minus the normal stock returns of the companies over the event window. In order to model the normal returns, there are multiple models that can be used. For the purpose of this research, both the market model (CAPM) and the mean model are used. The market model assumes that there is a stable linear relationship between the market return and the return of the stock (MacKinlay, 1997). The model parameters will be estimated by OLS using the observations in the estimation window. The model takes the following form:

$$R_{i,t} = \alpha + \beta_i R_{M,t} + \epsilon_{i,t}$$

Abnormal returns is the difference between the expected returns estimated by the above model and the actual returns. Coming to the mean model, the normal return is basically the mean of the returns during the estimation window and the abnormal return is the difference between the actual return and the mean of return during the event window. This method does not take into account the risk of the stock or the return on the market portfolio during the estimation period (Binder, 1998). The cumulative abnormal returns is the sum of the abnormal returns over the event window. The cumulative abnormal returns will be the dependent variable in the subsequent models. The estimation window needs to be defined in order to estimate the equation. The estimation window in this research will be the period before the event window and it will be 180 days before the event window. The event window is not included in the estimation window for the reason that the activities in the event window might bias the parameters under normal stock performance (MacKinlay, 1997).

4.3 Analysis of culture, home bias, preferences and investment

This section describes the methodology for investigating the impact of culture on the preferences of investors regarding company-specific characteristics of the stocks that they invest in. The analysis involves a panel-data regression of the company specific characteristics and culture dimension scores on the CAR of the sample companies. The aim is to analyze the impact of culture dimension

scores on the response coefficients of the company specific characteristics. The regression equation for the analysis is as follows:

$$CAR = \alpha + \sum \beta_{i,t}\ company\ specific\ characteristics + \sum \gamma_{i,t}\ control\ variables + \sum \vartheta_{i,t}\ interaction\ terms + \ e_{i,t}$$

where
subscript i denotes a specific company,
subscript t denotes year,
β denotes the response coefficient for each company specific characteristics,
ϑ is the coefficient for the interaction term.

The culture dimensions are country and time specific. In this model, the interaction term is the variable of interest. The interaction term is the interaction terms between the company-specific characteristics and the culture dimension and it indicates the impact of culture dimension regarding the effect of changes in the company-specific characteristic on the stock returns.

The first set of hypotheses that tested is as follows: an increase in the environmental score has a significant positive impact on the cumulative abnormal returns, and countries with higher scores of masculinity react less positively to an increase in the environmental score than countries with lower scores of masculinity. The hypotheses for this are formulated as follows:

Hypothesis 1:
H_0: the coefficient of the environmental score does not differ significantly from zero.
H_a: the coefficient of the environmental score is significant and positive

Hypothesis 2:
H_0: the coefficient of the interaction term of environmental score does not differ significantly from zero.
H_a: the coefficient of the interaction term of environmental score is significant and negative

The second set of hypotheses that is tested is as follows: an increase in the social score has a significant positive impact on the cumulative abnormal

returns, and countries with higher scores of masculinity react less positively to an increase in the social score than countries with lower scores of masculinity. The hypotheses for this are formulated as follows:

Hypothesis 3:
H_0: the coefficient of the social score does not differ significantly from zero.
H_a: the coefficient of the social score is significant and positive

Hypothesis 4:
H_0: the coefficient of the interaction term of social score does not differ significantly from zero
H_a: the coefficient of the interaction term of social score is significant and negative

The third set of hypotheses that is tested is as follows: an increase in the governance score has a significant positive impact on the cumulative abnormal returns, and countries with higher scores of power distance react less positively to an increase in the governance score than countries with lower scores of power distance. The hypotheses for this are formulated as follows:

Hypothesis 5:
H_0: the coefficient of the governance score does not differ significantly from zero.
H_a: the coefficient of the governance score is significant and positive

Hypothesis 6:
H_0: the coefficient of the interaction term of governance score does not differ significantly from zero.
H_a: the coefficient of the interaction term of governance score is significant and negative

The fourth set of hypotheses that is tested is as follows: an increase in the financial leverage has a significant negative impact on the cumulative abnormal returns, and countries with higher scores of uncertainty avoidance react more negatively to an increase in the financial leverage than countries with lower scores of uncertainty avoidance. The hypotheses for this are formulated as follows:

Hypothesis 7:

H_0: the coefficient of the log financial leverage does not differ significantly from zero.
H_a: the coefficient of the log financial leverage is significant and negative

Hypothesis 8:
H_0: the coefficient of the interaction term of log financial leverage does not differ significantly from zero.
H_a: the coefficient of the interaction term of log financial leverage is significant and negative

The fifth set of hypotheses that is tested is as follows: an increase in the net income growth has a significant positive impact on the cumulative abnormal returns, and countries with higher scores of masculinity react more positively to an increase in the net income growth than countries with lower scores of masculinity. The hypotheses for this are formulated as follows:

Hypothesis 9:
H_0: the coefficient of the net income growth does not differ significantly from zero.
H_a: the coefficient of the net income growth is significant and positive

Hypothesis 10:
H_0: the coefficient of the interaction term of net income growth does not differ significantly from zero.
H_a: the coefficient of the interaction term of net income growth is significant and positive

4.4 Analysis of culture and value relevance of financial statements

This section describes the methodology for investigating the impact of culture on the value relevance placed by the investors regarding line items from financial statements released by the companies in the sample. Similar to the previous analysis, the analysis involves panel regression of the financial statement line items and culture dimensions on the stock returns of all the sample companies. The aim is to analyze the impact of culture dimension scores on the response coefficients of the financial statement line items. The regression equation for the

analysis is as follows:

$$CAR = \alpha + \sum \beta_{i,t}\ financial\ statement\ line\ items + \sum \gamma_{i,t}\ control\ variables + \sum \vartheta_{i,t}\ interaction\ terms + \ e_{i,t}$$

where
subscript i denotes a specific company,
subscript t denotes year,
β denotes the response coefficient for line item,
ϑ is the coefficient for the interaction term.

As mentioned before, the culture dimension variables are country and time specific. In this model, the interaction term is the variable of interest. The interaction term is the interaction terms between the financial statement line item and the culture dimension and it indicates the impact of culture dimension regarding the value relevance of the financial statement line item.

The first set of hypotheses that is tested is as follows: an increase in the financial leverage has a significant negative impact on the cumulative abnormal returns, and countries with higher scores of uncertainty avoidance react more negatively to an increase in the financial leverage than countries with lower scores of uncertainty avoidance. The hypotheses for this are formulated as follows:

Hypothesis 1:
H_0: the coefficient of the log financial leverage does not differ significantly from zero.
H_0: the coefficient of the log financial leverage is significant and negative

Hypothesis 2:
H_0: the coefficient of the interaction term of log financial leverage does not differ significantly from zero
H_0: the coefficient of the interaction term of log financial leverage is significant and negative

The second set of hypotheses that is tested is as follows: an increase in the working capital has a significant positive impact on the cumulative abnormal

returns, and countries with higher scores of uncertainty avoidance react more positively to an increase in the working capital than countries with lower scores of uncertainty avoidance. The hypotheses for this are formulated as follows:

Hypothesis 3:
H_0: the coefficient of the working capital does not differ significantly from zero.
H_0: the coefficient of the working capital is significant and positive

Hypothesis 4:
H_0: the coefficient of the interaction term of working capital does not differ significantly from zero
H_0: the coefficient of the interaction term of working capital is significant and negative

The third set of hypotheses that is tested is as follows: an increase in the net income growth has a significant positive impact on the cumulative abnormal returns, and countries with higher scores of masculinity react more positively to an increase in the net income growth than countries with lower scores of masculinity. The hypotheses for this are formulated as follows:

Hypothesis 5:
H_0: the coefficient of the net income growth does not differ significantly from zero.
H_0: the coefficient of the net income growth is significant and positive

Hypothesis 6:
H_0: the coefficient of the interaction term of net income growth does not differ significantly from zero
H_0: the coefficient of the interaction term of net income growth is significant and positive

The fourth set of hypotheses that is tested is as follows: an increase in the return on equity has a significant positive impact on the cumulative abnormal returns, and countries with higher scores of masculinity react more positively to an increase in the return on equity than countries with lower scores of masculinity. The hypotheses for this are formulated as follows:

Hypothesis 7:
H_0 the coefficient of the return on equity does not differ significantly from zero.

H_0: the coefficient of the return on equity is significant and positive

Hypothesis 8:
H_0: the coefficient of the interaction term of return on equity does not differ significantly from zero
H_0: the coefficient of the interaction term of return on equity is significant and positive

The fifth set of hypotheses that is tested is as follows: an increase in the current ratio has a significant positive impact on the cumulative abnormal returns, and countries with higher scores of uncertainty avoidance react more positively to an increase in the current ratio than countries with lower scores of uncertainty avoidance. The hypotheses for this are formulated as follows:

Hypothesis 9:
H_0: the coefficient of the current ratio does not differ significantly from zero.
H_0: the coefficient of the current ratio is significant and positive

Hypothesis 10:
H_0: the coefficient of the interaction term of current ratio does not differ significantly from zero
H_0: the coefficient of the interaction term of current ratio is significant and positive

4.5 Regression method

Due to the presence of multiple outliers in the sample for various variables, panel regression of data will be done in three different ranges of values separately in order to reduce the impact of influential outliers. By dividing the data into three distinct clusters in terms of their size, the problem of extreme non-normality and extremely influential outliers can be reduced. This method also serves as an additional method of sensitivity analysis.

For the main research, the regressions will be done in the following ranges:

1. Companies with total assets value below the 25^{th} percentiles - small companies

2. Companies with total assets value above the 75^{th} percentiles - large companies

3. Companies with total assets value between the 25^{th} and 75^{th} percentiles - medium companies

For the sensitivity analysis, the regressions will be done in the following ranges:

1. Companies with total assets value below the 10^{th} percentiles - small companies

2. Companies with total assets value above the 90^{th} percentiles - large companies

3. Companies with total assets value between the 10^{th} and 90^{th} percentiles - medium companies

The theoretical argument of performing the analysis is that investors might prioritize different company-specific characteristics and line items for different company sizes. For example, investors might prioritize net income growth of a small company more than that of a large company. Clustering the companies by size enables the analyses of the differences in the response of investors to different line items and company characteristics for small, medium and large companies, and then further investigate the impact of culture on these reactions to give a more thorough analysis of this research.

4.6 Sensitivity Analysis

Sensitivity analysis is performed in order to test the robustness of the results. For the sensitivity analysis, the dependent variable of market model CAR is replaced with mean model CAR. Additionally, the definition of small, medium and large companies are altered.

4.7 Pre- and post- regression analysis

For each of the models estimated, diagnostics tests are done in order to gauge the appropriateness of the model and the precision of the significance testing. The first test done on the models estimated is the Hausman test. The Hausman test is used in order to test which model is more appropriate for the data that is available: fixed effects model or the random effects model. The second diagnostic test done is measuring the Variance Inflation Factor (VIF) to gauge the possibility of multicollinearity in the dataset. After the models are estimated, the models are then tested for heteroscedasticity and autocorrelation in the dataset. Finally, a q-q plot and the histograms of the residuals are plotted in order to assess the normality of the residuals.

5 Results and Analysis

This chapter presents the model specifications and corresponding tests and the main results for hypotheses 1 and 2 outlined in the methodology section. Additionally, the findings of the sensitivity analysis are also presented in order to investigate the robustness of the main findings

5.1 Model Specification and Diagnostics tests results

5.1.1 Hypothesis 1

The following are the results of the diagnostic tests for the models of hypothesis 1. Hausman test is done in order to determine whether fixed effects model or random effects model is more appropriate in this situtation. Wald test is test for heteroscedasticity. Wooldridge test is test for autocorrelation and VIF is test for multicollinearity (values above 20 are considered problematic)

Table 5: Diagnostic Tests Results

Model	Hausman Test	Wald test	Wooldridge test	VIF
Small	0.0000	0.0000	0.0132	115.14
Medium	0.0000	0.0000	0.4110	22.64
Large	0.0000	0.0000	0.08339	26.21

Diagnostic test results for hypothesis 1. Hausman test for choice of fixed effects versus random effects, Wald test for heteroscedasticity, Wooldridge test for autocorrelation, VIF for multicollinearity

The results of the Hausman test for all the three models (small companies, medium companies and large companies) indicate that there are systematic differences in the coefficients of the independent variables estimated through fixed effects panel regression and random effects panel regression (p-value = 0.0000). Therefore, for the purpose of this hypothesis, fixed effects panel regression will be used. The results of VIF test for multicollinearity indicate that all the three

models suffer from high levels of multicollinearity (very high for small companies). This can be explained by the presence of interaction variables. In order to tackle the issue of multicollinearity, mean centering was done on some of the main variables for all the three models, but it did not reduce the mean value of VIF, and therefore is not implemented for the purpose of this regression.

The results of the Wald test for heteroscedasticity show that all the three models suffer from heteroscedasticity (p value = 0.0000). The results of the Wooldridge test for autocorrelation show that only the model with small companies suffers from autocorrelation (p value = 0.0132). In order to account for the heteroscedasticity and autocorrelation in the model, this research uses the cluster standard error option during the estimation, which is robust to heteroscedasticity, autocorrelation and intra-group correlation. The cluster variable used is the companies.

After the estimation of the fixed effects panel regression with cluster standard errors, the residuals of the model are then plotted in order to test the normality of the residuals (Appendix C.1.1). As can be seen from the Q-Q plot of residuals and the histogram of residuals, the residuals are more-or-less normally distributed for all the three models, with the exception of some outliers.

5.1.2 Hypothesis 2

The following are the results of the diagnostic tests for the models of hypothesis 2. Hausman test is done in order to determine whether fixed effects model or random effects model is more appropriate in this situtation. Wald test is test for heteroscedasticity. Wooldridge test is test for autocorrelation and VIF is test for multicollinearity (values above 20 are considered problematic)

Table 6: Diagnostics Test Results

Model	Hausman Test	Wald test	Wooldridge test	VIF
Small	0.0000	0.0000	0.0000	112.21
Medium	0.0000	0.0000	0.0000	15.76
Large	0.0000	0.0000	0.0000	19.84

Diagnostic test results for hypothesis 2. Hausman test for choice of fixed effects versus random effects, Wald test for heteroscedasticity, Wooldridge test for autocorrelation, VIF for multicollinearity

The results of the Hausman test for all the three models indicate that for all the three models (small companies, medium companies and large companies), there are systematic differences in the coefficients of the independent variables estimated through fixed effects panel regression and random effects panel regression (p-value = 0.0000). Therefore, for the purpose of this hypothesis, fixed effects panel regression will be used. The results of VIF test for multicollinearity indicate that only the model with small companies suffers from a high level of multicollinearity. In order to tackle the issue of multicollinearity, mean centering was done on some of the main variables for all the three models, but it did not reduce the mean value of VIF, and therefore is not implemented for the purpose of this regression.

The results of the Wald test for heteroscedasticity show that all the three models suffer from heteroscedasticity (p value = 0.0000). The results of the Wooldridge test for autocorrelation show all the three models from autocorrelation. In order to account for the heteroscedasticity and autocorrelation in the model, this research will use the cluster standard error option during the estimation, which is robust to heteroscedasticity, autocorrelation and intra-group correlation. The cluster variable used is the companies.

After the estimation of the fixed effects panel regression with cluster standard errors, the residuals of the model are then plotted in order to test the normality of the residuals (Appendix C.1.1). As can be seen from the Q-Q plot

of residuals and the histogram of residuals, the residuals are more-or-less normally distributed for all the three models, with the exception of some outliers.

5.2 Hypothesis 1: Impact of culture on preferences of investors regarding company-specific characteristics.

The tables below show the output regarding the regression of the model for hypothesis 1 (the full output table can be found in Appendix C.2.1). The tables include the coefficient for the independent variables, the autocorrelation and -heteroscedasticity robust standard errors and p-values associated with the independent variables. In accordance with the Hausman test results, fixed effects panel regression is used. The results of the autocorrelation and heteroscedasticity test can be found in Appendix C.1.1. The regression is done on three different clusters: smaller companies in the sample (total assets less than 25^{th} percentile), medium sized companies in the sample (total assets between 25^{th} and 75^{th} percentile) and larger companies in the sample (total assets greater than the 75^{th} percentile). The R^2 values reported for fixed effects panel regression consist of within, between and overall R^2. Between R^2 tells us how much the model accounts for the variance between separate panel units. Within R^2 tells us how much the model accounts for the variance within the panel unit. Overall R^2 is a weighted average of both the values. In order to quantify the fit of the model in predicting the cumulative abnormal returns of the companies, we will focus on the within R^2 value. The adjusted R^2 value is also not used for the same reason as R^2.

Table 7: Regression table Hypothesis 1

	(Small companies)		(Medium Companies)		(Large Companies)	
	CAR		CAR		CAR	
gdpgrowth	0.00872	(1.51)	-0.00101	(-0.30)	0.00230	(0.51)
logmtb	-0.182***	(-6.97)	-0.150***	(-7.53)	-0.135***	(-8.14)
logleverage	0.0643	(0.43)	0.105	(1.51)	0.345***	(2.76)
uai × logleverage	0.000941	(0.35)	-0.000257	(-0.21)	-0.00402*	(-1.76)
netincomegrowth	-0.0000925	(-1.25)	0.000279***	(2.57)	-0.0000618**	(-2.22)
netincomegrowth × mas	0.000000988	(1.27)	-0.00000466***	(-2.81)	0.00000110**	(2.15)
escore	-0.00362	(-0.68)	-0.000980	(-0.37)	-0.00520	(-1.57)
escore × mas	0.0000395	(0.63)	0.00000302	(0.08)	0.0000988*	(1.92)
sscores	0.0134***	(2.69)	0.00767***	(3.16)	-0.000865	(-0.21)
sscores × mas	-0.000131**	(-2.08)	-0.0000880***	(-2.59)	0.00000418	(0.06)
gscore	0.0177*	(1.75)	-0.00358	(-0.84)	0.00815***	(2.31)
gscore × pdi	-0.000280*	(-1.78)	0.0000399	(0.49)	-0.000172***	(-2.45)
Constant	-0.0953	(-0.69)	0.0984	(1.32)	-0.000339	(-0.00)
Observations	1324		2648		1324	
Within R^2	0.078		0.083		0.087	
Adjusted R^2	0.069		0.079		0.078	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.025$

5.2.1 Small companies

Within R^2 value is equal to 0.0779. This means that the model accounts for about 8% of the variation in the cumulative abnormal returns. The F statistic is 10.14 with p value of 0.0000, which means that the model jointly has significant better predictive power and is a better fit compared to using the intercept only model.

The coefficient for environmental score is equal to -0.036 with a p-value of 0.498. The first null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. For small companies, a change in the environmental score does not have a significant impact on the cumulative abnormal returns. The interaction term of environmental score and masculinity is 0.00004 with p-value of 0.527. Therefore, the second null hypothesis also cannot be rejected at alpha levels of 2.5%, 5% and 10% for small companies, countries with higher scores of masculinity do not react differently to a change in the environmental score than countries with lower scores of masculinity.

The social score has a coefficient of 0.0134, with a p-value of 0.007. Therefore, the third null hypothesis is rejected at 2.5%, 5% and 10% alpha levels. For small companies, an increase (decrease) in the social score has a significant positive (negative) impact on the cumulative abnormal returns. The interaction term has a coefficient of -0.0001, with a p-value of 0.038. Therefore, at 5% and 10% alpha, the fourth null hypothesis is rejected. For small companies at 5% and 10% alpha, countries with higher scores of masculinity react less positively (negatively) to an increase (decrease) in the social score than countries with lower scores of masculinity.

The governance score has a coefficient of 0.0177, with a p-value of 0.081. Therefore, the fifth null hypothesis is rejected at 10% alpha levels for small companies at 10% alpha, an increase (decrease) in the governance score has a significant positive (negative) impact on the cumulative abnormal returns. However, the fifth null hypothesis cannot be rejected at 2.5% and 5% alpha levels. The interaction term has a coefficient of -0.000280, with a p-value of 0.075. At 10% alpha levels, the sixth null hypothesis is rejected. Countries with higher scores of power distance react less positively (negatively) to an increase (decrease) in the governance score than countries with lower scores of power

distance. However, the sixth null hypothesis cannot be rejected at 2.5% and 5% alpha levels.

The log of financial leverage has a coefficient of 0.064, with a p-value of 0.670. Therefore, for small companies, the seventh null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the percentage of financial leverage does not have a significant impact on the cumulative abnormal returns. The interaction term for log leverage has a coefficient of 0.0009, with a p-value of 0.728. Therefore, the eighth null hypothesis cannot be rejected at alpha levels of 2.5%, 5% and 10%. Countries with higher scores of uncertainty avoidance do not react differently to a percentage change in the financial leverage than countries with lower scores of uncertainty avoidance.

Net income growth has a coefficient of -0.00009 with a p-value of 0.212. Therefore, the ninth hull hypothesis cannot be rejected at alpha levels of 2.5%, 5% and 10%. A change in the net income growth does not have a significant impact on the cumulative abnormal returns. The interaction term for net income growth has a coefficient of 9.88×10^{-7} with a p-value of 0.206. Therefore, the tenth null hypothesis cannot be rejected at alpha levels of 2.5%, 5% and 10%. Countries with higher scores of masculinity do not react differently to an increase in the net income growth than countries with lower scores of net income growth.

5.2.2 Medium companies

Within R^2 value is equal to 0.0832. This means that the model accounts for about 8% of the variation in the cumulative abnormal returns. The F statistic is 8.65 with p value of 0.0000, which means that the model jointly has significant better predictive power and is a better fit compared to using the intercept only model.

The coefficient for environmental score is equal to -0.0010 with a p-value of 0.709. Therefore, the first null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the environmental score does not have a significant impact on the cumulative abnormal returns. The interaction term of environmental score and masculinity is 0.000003 with p-value of 0.934. Therefore, the second null hypothesis also cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of masculinity do not react differently

to an increase in the environmental score than countries with lower scores of masculinity.

The social score has a coefficient of 0.0077, with a p-value of 0.002. Therefore, the third null hypothesis is rejected at 2.5%, 5% and 10% alpha levels. An increase (decrease) in the social score has a significant positive (negative) impact on the cumulative abnormal returns. The interaction term has a coefficient of -0.00009, with a p-value of 0.010. Therefore, at 2.5%, 5% and 10% alpha levels, the fourth null hypothesis is rejected. Countries with higher scores of masculinity react less positively (negatively) to an increase (decrease) in the social score than countries with lower scores of masculinity.

The governance score has a coefficient of -0.0036, with a p-value of 0.399. Therefore, for medium sized companies, the fifth null hypothesis is not rejected at 2.5%, 5% and 10% alpha levels. A change in the governance score does not have a significant impact on the cumulative abnormal returns. The interaction term has a coefficient of -0.00004, with a p-value of 0.622. Therefore, the sixth null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of power distance do not react differently to a change in the governance score than countries with lower scores of power distance.

The log of financial leverage has a coefficient of 0.105 with a p-value of 0.131. Therefore, the seventh null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the percentage of the financial leverage of the company does not have a significant impact on the cumulative abnormal returns. The interaction term has a coefficient of -0.00026 with a p-value of 0.834. Therefore, the eighth null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a percentage change in financial leverage than countries with lower scores of uncertainty avoidance.

The net income growth has a coefficient of 0.00028 with a p-value of 0.010. Therefore, the ninth null hypothesis can be rejected at 2.5%, 5% and 10% alpha levels. An increase (decrease) in the net income growth has a significant positive (negative) impact on the cumulative abnormal returns. The interaction term has a coefficient of -4.66×10^{-6} with a p-value of 0.05. Therefore, the tenth null hypothesis can be rejected at 2.5%, 5% and 10% alpha levels. However, the results do not favor the alternative hypothesis of a positive interaction term.

For medium sized companies, countries with higher scores of masculinity react less positively to an increase in the net income growth than countries with lower scores of masculinity.

5.2.3 Large companies

Within R^2 value is equal to 0.0865. This means that the model accounts for about 9% of the variation in the cumulative abnormal returns.The F statistic is 7.67 with p value of 0.0000, which means that the model jointly has significant better predictive power and is a better fit compared to using the intercept only model.

The coefficient for environmental score is equal to -0.0052 with a p-value of 0.117. Therefore, the first null hypothesis cannot be rejected at alpha levels 2.5%, 5% and 10%. A change in the environmental score does not have a significant impact on the cumulative abnormal returns. The interaction term of environmental score and masculinity has a coefficient of 0.00010, with a p-value of 0.056. Therefore, at alpha of 10%, the second null hypothesis can be rejected. At alpha of 10%, countries with higher scores of masculinity react less positively (negatively) to an increase (decrease) in the environmental score than countries with lower scores of masculinity.

The coefficient for the social score is equal to -0.0009 with a p-value of 0.835. Therefore, the third null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the social score does not have a significant impact on the cumulative abnormal returns. The interaction term of social score and masculinity has a coefficient of 0.000004 with a p-value of 0.949. Therefore, the fourth null hypothesis also cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of masculinity do not react differently to an increase in the social score than countries with lower scores of masculinity.

The coefficient for the governance score is equal to 0.00815 with a p-value of 0.015. Therefore, the fifth null hypothesis can be rejected at 2.5%, 5% and 10% alpha levels. An increase (decrease) in the governance score has a significant positive (negative) impact on the cumulative abnormal returns. The interaction term of governance score and power distance has a coefficient of -0.00017 with a p-value of 0.015. Therefore, the sixth null hypothesis can be rejected at alpha

levels of 2.5%, 5% and 10%. Countries with higher scores of power distance react less positively (negatively) to an increase (decrease) in governance score compared to countries with lower scores of power distance.

The coefficient of log of financial leverage is 0.345 with a p-value of 0.006. Therefore, the seventh null hypothesis can be rejected at 2.5%, 5% and 10% alpha levels. However, the results do not favor the alternative hypothesis of a negative coefficient of log of financial leverage. For large-sized companies, an increase (decrease) in the percent change of financial leverage has a significant positive (negative) impact on the cumulative abnormal returns. The interaction terms of log of financial leverage and uncertainty avoidance has a coefficient of -0.00402 with a p-value of 0.079. Therefore, the eighth null hypothesis is rejected at 10% alpha levels. At 10% alpha levels, countries with higher scores of uncertainty avoidance react less positively (negatively) to an percent increase (decrease) in the financial leverage compared to countries with lower scores of uncertainty avoidance.

The coefficient of net income growth is -0.00006 with a p-value of 0.027. Therefore, the ninth hypothesis can be rejected at 5% and 10% alpha levels. However, the results do not favor the alternative hypothesis of a positive coefficient of net income growth. For large sized companies at alpha 5% and 10%, an increase (decrease) in the net income growth has a significant negative (positive) impact on the cumulative abnormal returns. However, the null hypothesis cannot be rejected at 2.5% alpha levels. The coefficient for the interaction terms of net income growth is 1.1×10^{-6} with a p-value of 0.032. Therefore, the ninth hypothesis can be rejected at 5% and 10% alpha levels. At 5% and 10% alpha levels, countries with higher scores of masculinity react less negatively (positively) to an increase (decrease) in the net income growth compared to countries with lower scores of masculinity.

5.3 Hypothesis 2: Impact of culture on value relevance of financial statement line items

The tables below shows the output regarding the regression of the model for hypothesis 2 (the full output table can be found in Appendix C.2.2). The tables include the coefficient for the independent variables, the autocorrelation and

- heteroscedasticity robust standard errors and p-values associated with the independent variables. In accordance with the Hausman test results (Appendix C.1.2), fixed effects panel regression is used. The results of the autocorrelation and heteroscedasticity test can be found in Appendix C.1.2. The regression is done on three different clusters: smaller companies in the sample (total assets less than 25^{th} percentile), medium sized companies in the sample (total assets between 25^{th} and 75^{th} percentile) and larger companies in the sample (total assets greater than the 75^{th} percentile). The R^2 values reported for fixed effects panel regression consist of within, between and overall R^2. Between R^2 tells us how much the model accounts for the variance between separate panel units. Within R^2 tells us how much the model accounts for the variance within the panel unit. Overall R^2 is a weighted average of both the values. In order to quantify the fit of the model in predicting the cumulative abnormal returns of the companies, we will focus on the within R^2 value.

Table 8: Regression table Hypothesis 1

	(Small companies)		(Medium Companies)		(Large Companies)	
	CAR		CAR		CAR	
gdpgrowth	0.00938	(1.55)	-0.00205	(-0.61)	0.00315	(0.70)
logmtb	-0.175***	(-6.70)	-0.151***	(-7.37)	-0.131***	(-7.66)
logleverage	0.0124	(0.08)	0.0500	(0.51)	0.264*	(1.94)
uai × logleverage	0.00106	(0.38)	0.000496	(0.31)	-0.00287	(-1.20)
netincomegrowth	-0.000108	(-1.51)	0.000296***	(2.70)	-0.0000508*	(-1.72)
netincomegrowth × mas	0.00000115	(1.53)	-0.00000488***	(-2.94)	0.000000922*	(1.72)
workingcapital	0.0000135	(0.04)	-0.0000408	(-1.28)	-0.00000231	(-0.63)
workingcapital × uai	-0.00000323	(-0.55)	0.000000324	(0.58)	2.71e-08	(0.37)
returnonequity	0.00172	(0.28)	0.000252	(0.24)	-0.00160	(-0.54)
returnonequity × mas	-0.0000128	(-0.15)	-0.00000181	(-0.09)	0.0000264	(0.56)
currentratio	-0.00628	(-1.14)	-0.0200	(-0.89)	-0.00839	(-0.51)
currentratio × uai	0.0000694	(0.44)	0.000243	(0.78)	0.0000142	(0.03)
Constant	0.0442	(0.70)	0.0831	(1.61)	-0.000328	(-0.01)
Observations	1324		2648		1324	
Within R^2	0.080		0.082		0.071	
Adjusted R^2	0.062		0.078		0.072	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.025$

5.3.1 Small companies

Within R^2 value is equal to 0.0708. This means that the model accounts for about 7% of the variation in the cumulative abnormal returns. The F statistic is 9.06 with p value of 0.0000, which means that the model jointly has significant better predictive power and is a better fit compared to using the intercept only model. Even though in the model none of the variables are individually significant, the coefficients are jointly significant.

The coefficient for log leverage is equal to 0.01242, with a p-value of 0.937. Therefore, the first null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A percent change in the financial leverage does not have a significant impact on the cumulative abnormal returns. The interaction term of log leverage and uncertainty avoidance has a coefficient of 0.00106 with a p-value of 0.701. Therefore, the second null hypothesis also cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a percent change in the financial leverage than countries with lower scores of uncertainty avoidance.

The coefficient for working capital is equal to 0.00106, with a p-value of 0.97. Therefore, the third hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the working capital does not have a significant impact on the cumulative abnormal returns. The interaction term of working capital and uncertainty avoidance has a coefficient of -3.23×10^{-6} with a p value of 0.586. Therefore, the fourth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a change in the working capital than countries with lower scores of uncertainty avoidance.

The coefficient for net income growth is equal to -0.00011, with a p-value of 0.132. Therefore, the fifth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the net income growth does not have a significant impact on the cumulative abnormal returns. The interaction term of net income growth and masculinity has a coefficient of 1.15×10^{-6} with a p-value of 0.127. Therefore, the sixth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of masculinity do not react differently to a change in the net income growth than countries with lower scores of masculinity.

The coefficient for return on equity is equal to 0.00172, with a p-value of 0.776. Therefore, the seventh hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the return on equity does not have a significant impact on the cumulative abnormal returns. The interaction term of return on equity and masculinity has a coefficient of -0.00001 with a p-value of 0.883. Therefore, the eighth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of masculinity do not react differently to a change in the return on equity than countries with lower scores of masculinity.

The coefficient for current ratio is equal to -0.00628, with a p-value of 0.255. Therefore, the ninth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the current ratio does not have a significant impact on the cumulative abnormal returns. The interaction term of current ratio and uncertainty avoidance has a coefficient of 0.00007 with a p-value of 0.661. Therefore, the tenth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a change in the current ratio than countries with lower scores of uncertainty avoidance.

5.3.2 Medium companies

Within R^2 value is equal to 0.0821. This means that the model accounts for about 8% of the variation in the cumulative abnormal returns. The F statistic is 8.17 with p value of 0.0000, which means that the model jointly has significant better predictive power and is a better fit compared to using the intercept only model. Even though in the model only variables related to net income are significant, the coefficients are jointly significant.

The coefficient for log leverage is equal to 0.05002, with a p-value of 0.61. Therefore, the first null hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A percent change in the financial leverage does not have a significant impact on the cumulative abnormal returns. The interaction term of log leverage and uncertainty avoidance has a coefficient of 0.00050 with a p-value of 0.753. Therefore, the second null hypothesis also cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a percent change in the financial leverage than countries with lower scores of uncertainty avoidance.

For medium sized companies in the sample, the coefficient for working capital is equal to -0.0004, with a p-value of 0.202. Therefore, the third hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the working capital does not have a significant impact on the cumulative abnormal returns. The interaction term of working capital and uncertainty avoidance has a coefficient of -3.24×10^{-7} with a p value of 0.561. Therefore, the fourth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a change in the working capital than countries with lower scores of uncertainty avoidance.

The coefficient for net income growth is equal to 0.00030, with a p-value of 0.007. Therefore, the fifth hypothesis can be rejected at 2.5%, 5% and 10% alpha levels. An increase (decrease) in the net income growth has a significant positive (negative) impact on the cumulative abnormal returns. The interaction term of net income growth and masculinity has a coefficient of -4.88×10^{-6} with a p-value of 0.003. Therefore, the sixth hypothesis can be rejected at 2.5%, 5% and 10% alpha levels. However, the results do not favor the alternative hypothesis of a positive coefficient of interaction term of net income growth. Countries with higher scores of masculinity react less positively (negatively) to an increase (decrease) in the net income growth than countries with lower scores of masculinity.

The coefficient for return on equity is equal to 0.00025, with a p-value of 0.813. Therefore, the seventh hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the return on equity does not have a significant impact on the cumulative abnormal returns. The interaction term of return on equity and masculinity has a coefficient of -1.81×10^{-6} with a p-value of 0.932. Therefore, the eighth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of masculinity do not react differently to a change in the return on equity than countries with lower scores of masculinity.

The coefficient for current ratio is equal to -0.02004, with a p-value of 0.374. Therefore, the ninth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the current ratio does not have a significant impact on the cumulative abnormal returns. The interaction term of current ratio and uncertainty avoidance has a coefficient of 0.00024 with a p-value of 0.437. Therefore, the tenth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels.

Countries with higher scores of uncertainty avoidance do not react differently to a change in the current ratio than countries with lower scores of uncertainty avoidance.

5.3.3 Large companies

Within R^2 value is equal to 0.08. This means that the model accounts for about 8% of the variation in the cumulative abnormal returns. The F statistic is 15.82 with p value of 0.0000, which means that the model jointly has significant better predictive power and is a better fit compared to using the intercept only model. Even though in the model only variables related to net income growth and leverage are individually significant, all the coefficients are jointly significant.

The coefficient for log leverage is equal to 0.26432, with a p-value of 0.054. Therefore, the first null hypothesis can be rejected at 10% alpha levels. However, the result does not favor the alternative hypothesis of negative coefficient. At alpha of 10%, a percent increase (decrease) in the financial leverage has a significant positive (negative) impact on the cumulative abnormal returns. However, the first null hypothesis cannot be rejected at 2.5% and 5% alpha levels. The interaction term of log leverage and uncertainty avoidance has a coefficient of -0.00287 with a p-value of 0.23. Therefore, the second null hypothesis also cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a percent change in the financial leverage than countries with lower scores of uncertainty avoidance.

The coefficient for working capital is equal to -2.31×10^{-6}, with a p-value of 0.532. Therefore, the third hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the working capital does not have a significant impact on the cumulative abnormal returns. The interaction term of working capital and uncertainty avoidance has a coefficient of 2.71×10^{-8} with a p value of 0.711. Therefore, the fourth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a change in the working capital than countries with lower scores of uncertainty avoidance.

The coefficient for net income growth is equal to -0.00005, with a p-value of 0.086. Therefore, the fifth hypothesis can be rejected at 10% alpha levels. How-

ever, the result does not favor the alternative hypothesis of positive coefficient. An increase (decrease) in the net income growth has a significant positive (negative) impact on the cumulative abnormal returns. However, the fifth hypothesis cannot be rejected at 2.5% and 5% alpha levels. The interaction term of net income growth and masculinity has a coefficient of 9.22×10^{-7} with a p-value of 0.087. Therefore, the sixth hypothesis can be rejected at 10% alpha levels. Countries with higher scores of masculinity react less negatively (positively) to an increase (decrease) in the net income growth than countries with lower scores of masculinity. However, the sixth hypothesis cannot be rejected at 2.5% and 5% alpha levels.

The coefficient for return on equity is equal to -0.0016, with a p-value of 0.589. Therefore, the seventh hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the return on equity does not have a significant impact on the cumulative abnormal returns. The interaction term of return on equity and masculinity has a coefficient of 0.00003 with a p-value of 0.577. Therefore, the eighth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of masculinity do not react differently to a change in the return on equity than countries with lower scores of masculinity.

The coefficient for current ratio is equal to -0.00839, with a p-value of 0.607. Therefore, the ninth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. A change in the current ratio does not have a significant impact on the cumulative abnormal returns. The interaction term of current ratio and uncertainty avoidance has a coefficient of 0.00001 with a p-value of 0.979. Therefore, the tenth hypothesis cannot be rejected at 2.5%, 5% and 10% alpha levels. Countries with higher scores of uncertainty avoidance do not react differently to a change in the current ratio than countries with lower scores of uncertainty avoidance.

5.4 Discussion

Discussions are based on results significant at 5% alpha levels.

5.4.1 Hypothesis 1

For small companies, the only company-specific characteristics that had an impact on the cumulative abnormal returns are the social score of a company. As the social score increases, there is a positive significant impact on the cumulative abnormal returns indicating that the financial market is responding positively to the increase. The positive impact of the increase in the social score is less in countries with higher masculinity scores. The positive impact is because a higher social score indicate that a company are taking into account social factors and externalities of their actions and are aware of issues such as human rights violations, child labor. The financial market responds positively to the fact that companies consider the impact their actions have on the communities that they engage with over the course of their business. However, countries with higher scores of masculinity care less about feminine values such as community impact, and therefore while the overall reaction would still be positive, it becomes less positive in more masculine countries as people care less about values such as community impact and engagement.

For medium-sized companies, the company-specific characteristics that had an impact on the cumulative abnormal returns are the social score and the net income growth of the company. As a company grows larger, concerns regarding the social impact (as described above) of the activities of the companies increase as well. The findings regarding the social score and the impact of culture on it is the same for medium companies as they are for the small companies. Additionally, for medium-sized companies, net income growth has a positive impact on the cumulative abnormal returns. This is logical as the growth of medium-sized companies sends out a positive signal to the market about the growth and potential growth of the company in the future. However, the result of the interaction term goes against the hypothesis that the interaction term would be positive, as it is found that countries with a higher scores of masculinity react less positively to the increase in the growth compared to countries with lower scores of masculinity. Countries with a higher scores of masculinity should respond positively to an increase in growth as a masculine society favors traditional economic values such as net income growth. A possible reason for this particular result could be attributed to an omitted variable bias. An example could be the impact of expected net income growth. If the financial market is unable to predict the net income growth properly and therefore the

net income growth is unexpected, then the market might not be convinced that the net income growth is not a singular incident. Another reason could be that net income does not accurately reflect the operations of a company, as it includes non-operating components such as taxes, and therefore the model is mis-specified by using net income growth.

For large companies, the variables that are significant include the financial leverage of the company, net income growth and governance score. The impact of net income growth is the same for a large company as it is for the medium companies, and the impact of culture on the reaction to the net income growth is also the same for large companies as they are for medium companies. For the governance score, the financial market reacts positively to an increase in the governance score. This could be because as companies grow larger, companies are vulnerable to issues such as excessive executive compensation, board independence and therefore an increase in the score send the market a signal that the company is being governed properly. Countries with a higher scores of power distance react less positively to this increase, as such countries are characterized by large power inequality. Therefore, excessive executive compensation or similar issues are not objected as much in countries with a relatively larger power distance as in countries with a relatively lower power distance. Hence, an improvement in this area doesnt generate as much positive reaction in large power distance countries as in countries with lower power distance. Increase in financial leverage has a positive reaction on the market, which is an unexpected result. The reason could also be the presence of a confounding variable, which is the reason of the increase in the financial leverage. An increase in the financial leverage could lead to a reduction in the weighted average cost of capital, depending on the required rate of return on equity and debt, and tax rate. A reduction in the weighted average cost of capital increases the present value of the anticipated future cash flows. This could lead to a positive reaction in the market. Countries with a higher scores of uncertainty avoidance react less positively to an increase, which is logical since introducing more debt into a company might not be preferred by investors that have a high scores of uncertainty avoidance.

It needs to be mentioned that the R^2 levels of all three models are quite low (around 7% - 8% for each model). Additionally, the models suffer from multicollinearity, which would render the significance levels inaccurate. The presence

of multicollinearity has an impact on the standard errors being incorrectly estimated, in the sense that they tend to be quite large, rendering the variables insignificant. This could explain the presence of a lot of insignificant results, which are in opposition with previous literature. Model misspecifications due to confounding variables and the omitted variable bias might also cause issues in extracting any conclusions from the findings.

5.4.2 Hypothesis 2

At alpha levels of 5%, none of the financial statement line items is significant in any of the three regressions with the exception of net income growth in the model regressed for medium firms. For medium firms, an increase in the net income growth has a positive reaction in the market, which is an expected result. However, countries with higher masculinity scores react less positively to this increase (the explanation for this has been given in hypothesis 1 medium firms). There are a few possible reasons why the majority of the variables is insignificant. The first reason could be that the value relevance of the line items has decreased over time, and that the stock market reacts more to arbitrage activities or institutional investors that have a longer-term point of view. The institutional investors therefore might not react significantly during release of financial statements, but might do so during times of recession or company scandals. Therefore, the market is no longer reacting to financial statement line items (with the exception of earnings for medium sized firms). Another reason could be the problem of multicollinearity, which causes the standard errors to be large. As can be seen from the values of the VIF, they are quite large for small firms and borderline problematic for large firms; both models did not have any significant values. Therefore, due to multicollinearity, strong conclusions cannot be inferred from the results.

It needs to be mentioned that the R^2 levels of all three models are quite low (around 7% - 8% for each model). Model misspecification due to confounding variables and the omitted variable bias might also cause issues in extracting any conclusions from the findings.

5.5 Sensitivity Analysis

In this research, two different sensitivity analyses are done per model. The first sensitivity analysis is done by changing the dependent variable from the market model CAR to the mean model CAR. The second sensitivity analysis is done by changing the cluster of companies, where small companies are defined by those with total asset less than 10^{th} percentile, medium companies are defined as those with total asset between 10^{th} and 90^{th} percentile, and large companies are defined as those with total assets greater than the 90th percentile.

5.5.1 Hypothesis 1

Table 9: Regression Hyp 1 Mean Model CAR

	(Small companies) CAR		(Medium Companies) CAR		(Large Companies) CAR	
gdpgrowth	-0.00110	(-0.19)	-0.00707*	(-1.77)	-0.0102*	(-1.76)
logmtb	-0.137***	(-4.97)	-0.129***	(-6.42)	-0.136***	(-6.27)
logleverage	0.0264	(0.15)	0.231***	(2.95)	0.554***	(3.06)
uai × logleverage	-0.000682	(-0.23)	-0.00431***	(-3.00)	-0.00827***	(-2.52)
netincomegrowth	-0.000145***	(-2.68)	0.000113	(0.89)	-0.000100***	(-2.55)
netincomegrowth × mas	0.00000154***	(2.70)	-0.00000122	(-0.70)	0.00000177***	(2.30)
escore	0.00731	(1.33)	0.00279	(0.74)	-0.00704*	(-1.78)
escore × mas	-0.0000718	(-1.04)	-0.0000369	(-0.69)	0.000120*	(1.94)
sscores	0.00150	(0.31)	0.00626**	(1.98)	-0.00706	(-1.38)
sscores × mas	0.0000284	(0.46)	-0.0000429	(-0.96)	0.000122	(1.52)
gscore	0.0250***	(2.32)	0.00378	(0.77)	0.00765	(1.56)
gscore × pdi	-0.000401***	(-2.34)	-0.000111	(-1.21)	-0.000167*	(-1.65)
Constant	-0.0290	(-0.19)	0.175*	(1.84)	0.0449	(0.42)
Observations	1324		2648		1324	
Within R^2	0.047		0.054		0.079	
Adjusted R^2	0.038		0.050		0.070	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.025$

Table 10: Regression table Hyp 1 Market model CAR 10 and 90 percentiles cutoff

	(Small companies)		(Medium companies)		(Large companies)	
	CAR		CAR		CAR	
gdpgrowth	0.0363***	(3.77)	-0.00169	(-0.63)	0.00206	(0.29)
logmtb	-0.152***	(-4.55)	-0.157***	(-10.55)	-0.111***	(-4.39)
logleverage	-0.182	(-0.57)	0.169***	(2.79)	0.0107	(0.08)
uai × logleverage	0.00596	(0.97)	-0.00117	(-1.09)	0.00151	(0.61)
netincomegrowth	0.000338	(1.10)	-0.00000944	(-0.24)	-0.0000720**	(-2.13)
netincomegrowth × mas	-0.00000621	(-1.28)	0.000000115	(0.28)	0.00000123**	(2.07)
escore	-0.00679	(-0.99)	0.00112	(0.55)	-0.0150***	(-3.02)
escore × mas	0.0000708	(0.75)	-0.0000190	(-0.66)	0.000250***	(3.01)
sscores	0.0164**	(2.01)	0.00500***	(2.65)	-0.00309	(-0.67)
sscores × mas	-0.000155	(-1.26)	-0.0000568**	(-2.11)	0.0000568	(0.77)
gscore	0.0196	(1.11)	-0.000136	(-0.05)	0.0137**	(2.22)
gscore × pdi	-0.000281	(-1.10)	-0.0000156	(-0.28)	-0.000301**	(-2.34)
Constant	-0.281	(-1.19)	0.0696	(1.23)	0.0282	(0.26)
Observations	529		4238		529	
Within R^2	0.101		0.073		0.093	
Adjusted R^2	0.080		0.071		0.072	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.025$

For the first sensitivity analysis, as can be seen from table 9, for small companies, the impact of governance scores and the impact of power distance on governance score becomes significant when the dependent variable is changed from market model CAR into mean model CAR. The social score becomes insignificant, and the net income growth and impact of culture on net income growth becomes significant. An increase in governance score has a positive impact on the financial market, and countries with larger power distance values react less positively to the increase. Just like previous findings, an increase in net income growth leads to a negative reaction in the market, and countries with higher scores of masculinity react less negatively. When the definition of small companies is changed (from less than 25^{th} percentile to less than 10^{th} percentile), the impact of masculinity on changes in the social score becomes insignificant. While the financial market react positively to increases in the social score, the reaction does not differ in countries with different scores of masculinity (insignificant interaction term of social score and masculinity).

For medium sized companies, when the dependent variable is changed to mean model CAR, financial leverage becomes significant and the impact of uncertainty avoidance on leverage also becomes significant. An increase in financial leverage has a positive impact on the financial market, and countries with higher scores of uncertainty avoidance react less positively to the increase. The impact of masculinity on social score becomes insignificant and net income growth and impact of masculinity on reaction to the net income growth also becomes insignificant. When the definition of medium-sized companies is changed (from between 27th to 75th percentile to between 10^{th} and 90^{th} percentile), financial leverage again becomes significant, however there is no impact of uncertainty avoidance score on the extent of the reaction of investors in the financial market. Net income growth and the impact of masculinity on the reaction to the net income growth also becomes insignificant, and the impact of masculinity on the reaction to a change in the social score also becomes insignificant.

For large companies, when the dependent variable is changed to mean model CAR, governance score and impact of power distance on the reaction of governance score becomes insignificant. When the definition of large companies is changed, financial leverage becomes insignificant and environmental score and the impact of masculinity on environmental score becomes significant. However, the result for that is unexpected, as an increase in environmental score is associ-

ated with a negative reaction in the financial market while countries with higher scores of masculinity react less negatively to the increase in the environmental score.

Therefore, the findings for hypothesis 1 are therefore not robust when the dependent variable is changed or when the definition of small, medium, large companies are changed.

5.5.2 Hypothesis 2

Table 11: Regression table Hyp 2 Mean Model CAR

	(Small companies)		(Medium Companies)		(Large companies)	
	CAR		CAR		CAR	
gdpgrowth	0.000513	(0.08)	-0.00829**	(-2.09)	-0.00848	(-1.45)
logmtb	-0.139***	(-5.02)	-0.126***	(-6.22)	-0.126***	(-5.70)
logleverage	0.133	(0.79)	0.181	(1.62)	0.532***	(2.57)
uai × logleverage	-0.00284	(-0.99)	-0.00379**	(-2.13)	-0.00804**	(-2.21)
netincomegrowth	-0.000146***	(-2.83)	0.000118	(0.87)	-0.0000770**	(-2.09)
netincomegrowth × mas	0.00000156***	(2.86)	-0.00000137	(-0.74)	0.00000138*	(1.88)
workingcapital	0.000892**	(2.13)	0.0000414	(1.12)	-0.00000285	(-0.63)
workingcapital × uai	-0.0000155***	(-2.40)	-0.000000703	(-1.01)	2.95e-08	(0.32)
returnonequity	-0.00733	(-1.06)	-0.000371	(-0.33)	-0.00450	(-1.08)
returnonequity × mas	0.000119	(1.20)	0.00000727	(0.32)	0.0000688	(1.05)
currentratio	-0.00792	(-1.04)	-0.0345	(-1.25)	0.00228	(0.10)
currentratio × uai	0.000127	(0.56)	0.000460	(1.03)	-0.000154	(-0.21)
Constant	0.115*	(1.72)	0.171***	(2.95)	0.0502	(0.66)
Observations	1324		2648		1324	
Within R^2	0.043		0.043		0.066	
Adjusted R^2	0.034		0.039		0.057	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.025$

Table 12: Regression table Hyp 2 10th, between 10th and 90th, 90th percentiles

	(Small companies)		(Medium companies)		(Large companies)	
	CAR		CAR		CAR	
gdpgrowth	0.0395***	(3.94)	-0.00244	(-0.92)	0.00720	(0.96)
logmtb	-0.142***	(-4.48)	-0.156***	(-10.24)	-0.105***	(-4.25)
logleverage	-0.173	(-0.55)	0.160**	(2.23)	-0.0133	(-0.07)
uai × logleverage	0.00467	(0.87)	-0.00105	(-0.86)	0.00155	(0.48)
netincomegrowth	0.000406	(1.18)	-0.0000136	(-0.34)	-0.0000730**	(-2.14)
netincomegrowth × mas	-0.00000729	(-1.33)	0.000000160	(0.38)	0.00000123**	(2.01)
workingcapital	0.000132	(0.14)	-0.0000264*	(-1.78)	-0.00000291	(-0.67)
workingcapital × uai	0.00000101	(0.06)	0.000000323	(1.29)	3.89e-08	(0.46)
returnonequity	0.00295	(0.30)	-0.0000690	(-0.07)	-0.00226	(-0.47)
returnonequity × mas	-0.0000411	(-0.26)	0.00000159	(0.08)	0.0000339	(0.43)
currentratio	-0.00208	(-0.29)	0.00250	(0.24)	-0.0280	(-0.37)
currentratio × uai	-0.000119	(-0.62)	-0.0000556	(-0.23)	0.000145	(0.10)
Constant	-0.105	(-1.00)	0.0491	(1.35)	0.0284	(0.40)
Observations	529		4238		529	
Within R^2	0.097		0.072		0.063	
Adjusted R^2	0.076		0.069		0.042	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.025$

When testing hypothesis 2 for small companies, changing the dependent variable makes financial leverage insignificant, while turning working capital and net income growth significant. An increase in working capital is associated with a positive market reaction, which is expected, but countries with higher scores of uncertainty avoidance react less positively to the increase, which is unexpected. Net income growth also becomes significant, where an increase is associated with a negative reaction in the market, and countries with higher masculinity scores react less negatively compared to countries with lower masculinity scores. When the definition of small companies is changed, financial leverage becomes insignificant.

For medium sized companies, when the dependent variable is changed, the impact of uncertainty avoidance on the reaction to changes in financial leverage becomes significant. Countries with higher scores of uncertainty avoidance react less positively (negatively) to increase (decrease) in the financial leverage. Additionally, net income growth and impact of masculinity on the reaction to the net income growth becomes insignificant. When the definition of medium-sized companies is changed, net income growth and the impact of masculinity on the reaction to the net income growth becomes insignificant.

For large sized companies, changing the dependent variable resulted in financial leverage becoming significant, and the impact of uncertainty avoidance on the reaction to changes in the financial leverage becomes significant. Additionally, net income growth also becomes significant.

Therefore, similar to the findings for hypothesis 1, the findings of hypothesis 2 are therefore not robust when the dependent variable is changed or when the definition of small, medium, large companies are changed.

6 Conclusion, Shortcomings and Recommendations

The purpose of this paper is to analyse the impact of culture on the preferences of investors regarding company-specific characteristics and value relevance of financial statement line items. The main research question of the paper is as follows: **"Are there any significant differences in the prefereces of in-**

vestors regarding the firm-specific characteristics and value relevance of financial statement line items among different culture?"

It aims to add to the literature stream of home bias phenomenon where investors have preferences for investments in their home country despite possible diversification benefits of including foreign investments, and to the literature stream of value relevance of financial statement line items. In this chapter, the conclusions of the research are presented, along with the shortcomings and recommendations of future research.

The first part of this research examines the phenomenon of home bias by investigating the relationship between cultural dimensions and certain company specific characteristics that fit the preferences of the investors. In other words, it is assumed that investors invest in companies that fit the characteristics similar to their preferences, and this paper will establish the link between the cultural dimensions of the investors and their preferences. The second part of this research examines how investors in different cultures react to the information regarding the company presented through specific line items that are disclosed in the financial statements of the companies. It is predicted that due to differences in cultures, investors would value different characteristics of the companies and financial statement line items differently.

6.1 Conclusion

The first set of hypotheses aimed at investigating the impact of culture on the reaction or preferences of firm-specific characteristics such as leverage, and sustainability. The first set of hypotheses hypothesized that culture has an impact on the preferences of investors regarding firm specific characteristics.

The existence of home bias documented to previous literature led to the hypothesis that different cultures will have an impact on the reaction or preferences of investors to firm-specific characteristics. Therefore, fixed effects panel regression with interaction variables of the firm-specific characteristic and culture was done to investigate this. The first noticeable thing is that there seems to be a size effect when firms are clustered by their size, there are differences in the impact of culture on the preferences conditional upon the firm size. For small firms, only the social score of the ESG of the firm is significant, and mas-

culinity has an impact on the reaction to the social score. However, the other variables were insignificant. For medium-sized firms, both social score and net income growth are significant, and masculinity has an impact on the reaction of both the variables. For large firms, only the governance score matters, and power distance has an impact on the reaction of governance scores. The sensitivity analyses done revealed that the results are not robust; they are sensitive to the definition of small, medium and large firms, and they are also sensitive in the way that the cumulative abnormal returns are calculated (mean model versus CAPM-model).

The second set of hypotheses aimed at investigating the impact of culture on the value relevance of financial statement line items such as working capital and leverage. The second set of hypotheses hypothesized that culture has an impact on the value relevance of financial statements. Therefore, a fixed panel regression with interaction variables of the financial statement line items and culture was done to investigate this. The first noticeable thing is that there also seems to be a size effect when firms are clustered by their size, there are differences in the impact of culture on the value relevance conditional upon the firm size. For small firms, none of the financial statement line items were found to be significant. For medium-sized firms, only net income growth was found to be significant, and masculinity has an impact on the value relevance of net income growth. For large firms, again, none of the financial statement line items was significant. The sensitivity analyses done revealed that the results are not robust; similar to hypothesis 1, they are sensitive to the definition of small, medium and large firms, and they are also sensitive in the way that the cumulative abnormal returns are calculated (mean model versus CAPM-model).

To answer the research question of this research paper, the results indicate that culture might have an impact on the value relevance of the financial statement line items and firm-specific characteristics of the firm. There seems to be a correlation between certain culture dimensions and certain reaction or preferences to firm-specific characteristics, and there seems to be a correlation between certain culture dimensions and value relevance of certain financial statement line items. This is due to the fact that for all firm-specific characteristics and financial statement line items that were found significant, their interaction terms with culture dimensions were also found to be significant. However, this conclusion is formulated with caution due to the shortcomings presented below.

6.2 Shortcomings and Recommendations

The main shortcoming of this research lies in the restriction of the methodology and its assumptions. The first shortcoming is that the methodology relies upon the assumption that the financial market reaction is appropriately proxied by the cumulative abnormal returns, and that the financial market evaluates the firm-specific characteristics on the day that the financial statement is released (the fundamental data entry date in Bloomberg). However, it is very much possible (and likely) that the market continuously evaluates and accurately predict different firm-specific characteristics throughout the financial year from various indicators such as analysts predictions, news of scandals related to sustainability and selling of new shares from the company. In case this is true, the financial market has already incorporated the information throughout the financial year and therefore there is lack of reaction to the firm-specific characteristics and financial statement line items. A possible solution for this issue could be to look at the release of analysts expectations of a firm throughout the year, along with any major news related to sustainability or stock issuance and use those events as the event date, instead of the release of the financial statement.

Another shortcoming is that it is assumed that the investors in the stock market tailor their investments in accordance to their personal preferences, and they react to any news or information released about those firms in the market. However, this is a very weak assumption due to the presence of multiple institutional investors in multiple countries whose activities have a much larger and significant impact on the stock prices of the companies than individual investors. There is also the impact of institutional traders who trade based on market and stock volatility instead of firm fundamentals that would also have an impact on stock movement. Their activities however are based on a trading strategy using momentum instead of firm fundamentals, which would interfere with the impact of the activities of normal investors. A possible solution to tackle this issue is to change the methodology instead of looking at the overall aggregate market, it is a better approach to gather data through a survey directed at individuals with their own investments or analysts at various institutional investment companies. By using a survey to gather data, the link between firm-specific characteristics and preferences of investors or analysts can be concluded more strongly.

The final shortcoming lies in the characteristic of the dataset used in this

research. The dataset used in this research suffers from a large degree of multicollinearity, which could render the significant testing inaccurate. With multicollinearity, there is a high chance of committing a type 2 error, which happens when there is failure to reject the null hypothesis of no significance when there is indeed statistical significance. This is caused due to large values of standard errors, which happens when there is a high scores of multicollinearity (VIF above 20). Another issue related to the data is the non-normality of the data and the presence of outliers. Although this research tries to minimize the impact of outliers and non-normality, it was still a significant issue. To reduce this issue, one recommendation could be to obtain more varied sampling of data or different variables that could be used as proxy for the firm-specific variables (quick ratio instead of current ratio, for example). Enlarging the dataset to include more varied firms could lessen the issue of outliers and non-normality of the data. It would also be prudent to include the same number of firm-year observations for each country so there is no bias in the dataset (this bias exists in the dataset used in the research). Additionally, while the issue of omitted variable bias is reduced by the implementation of fixed panel regression, there could be omitted variables or confounding variables that were not included that could have caused inaccurate estimation or inaccurate conclusion.

6.3 Additional discussions

The methodology of this research is built upon certain assumptions. The first assumption is that the estimation of the abnormal returns is based on the mean model and the CAPM-model. The second assumption made is that the reaction of the (financial) market is within the event window specified and that the information that is released regarding the firm-specific characteristics and the financial statement line items were released on the date on which the financial statement is published. The third assumption is that market reaction and stock price changes occur due to reaction to information released about the firms in the sample. In this section, the validity of the assumptions is discussed.

6.3.1 Assumptions of CAPM

The theory of the CAPM is developed based on the assumptions of a financial market that is populated by well-informed market participants, the market is frictionless without the existence of transaction costs, taxes, liquidity and transaction restrictions. The final assumption is that the market is characterized by market participants that are rational and risk-averse (David W. Mullins, n/a). While simplifications of assumptions are necessary in order to develop the model, the validity of CAPM as the foundation to proxy market reactions through the estimation of cumulative abnormal returns is questionable.

6.3.2 Assumptions of event study and information release

The assumption of the event study and information release is that the reaction of the financial market is within the event window specified and that the information that is released regarding the firm-specific characteristics and the financial statement line items were released on the date on which a financial statement is published. The validity of the assumption is questionable due to several reasons. Due to the presence of financial analysts forecasts of net income and release of quarterly earnings throughout the year, with additional information from various media regarding sustainability, leverage, etc., investors are continuously absorbing information throughout the financial year. The reaction to those information releases also happens throughout the financial year, making it very difficult to identify the event date and the estimation window.

6.3.3 Assumptions of stock market price movements

The final assumption is that the movement in the stock prices is driven by investment decisions and reactions to information released in the market. However, the validity of this assumption is also questionable. Due to the presence of institutional traders who trade based on market volatility, and the presence of quantitative trading strategies that are increasingly being used, it is impossible to isolate that financial market movement that happens solely due to reactions to the information released in financial statements. The technique of quantitative trading people uses mathematical models and algorithms with inputs such

as price, volatility, volume and historical trading data to identify trading opportunities. The inputs do not necessarily include firm-specific characteristics or financial statement information. Additionally, information regarding economic activity (interest rates, quantitative easing, etc.) and political stability (election results, referendum results) can have a significant short-term impact on the financial market that would significantly affect the prices in the estimation window and the event window, rendering the estimation of abnormal returns imprecise. This issue together with the issue of the event window and estimation window (in the previous paragraph) casts doubt on the reliability of the short-term event window methodology that is widely used in finance and accounting literature.

6.3.4 Added value to home bias, value relevance and accounting and culture literature streams

This research aims to add to the existing literature regarding research into home bias. It will give insight as to the relationship between certain cultural characteristics and the preferences of investors, hence giving an insight in behavioral biases and tendencies of the investors. Additionally, this research analyzes the impact of culture on the valuation of stock prices through the valuation of the fundamental values analyzed from financial statements. Therefore, this paper also adds to the stream of literature regarding value relevance of financial statement information. Despite the shortcomings and the questionable validity of the assumptions, this research is one of the first studies (to the knowledge of the author) that investigates culture from the perspective of investors when it comes to value relevance. Additionally, it is one of the first researches (to the knowledge of the author) that attempts to establish a direct link between culture and the preference of investors regarding the type of firms they invest in. The results of this paper indicate that cultural differences may play a role in shaping the preferences of the investors, and that culture may also affect the value relevance of financial statement line items. More research in this field is warranted in order to reduce home bias and increase the effectiveness of financial statements in conveying information to investors that would ultimately impact their investment decisions.

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Appendix A: List of firms in the sample

Firm Name	**SEDOL**	**Country**
OESTERREICH.POST	B1577G7	Austria
PALFINGER AG	5700350	Austria
PROXIMUS	B00D9P6	Belgium
SOLVAY SA-A	4821100	Belgium
UCB SA	5596991	Belgium
UMICORE	4005001	Belgium
BM&FBOVESPA SA	B2RHNV9	Brazil
CEMIG-PREF	B1YBRG0	Brazil
DURATEX SA	B27WY88	Brazil
ECORODOVIAS	B5720R0	Brazil
ENERGIAS DO BRAS	B0D7494	Brazil
ETERNIT	B01GYT3	Brazil
EVEN	B1VD2Z3	Brazil
NATURA	B014K55	Brazil
SABESP	B1YCHL8	Brazil
TIM PART	2292560	Brazil
AGRIUM INC	2213538	Canada
ATCO LTD-CLASS I	2060615	Canada
CAE INC	2162760	Canada
CAMECO CORP	2166160	Canada
CAN NATL RAILWAY	2180632	Canada
CANADIAN PACIFIC	2793115	Canada
CANADIAN TIRE-A	2172286	Canada
CCL INDS B	2159795	Canada
CELESTICA INC	2263362	Canada
CGI GROUP INC-A	2159740	Canada
COGECO COMMUNICA	BZCDFX9	Canada
EMERA INC	2650050	Canada
FORTIS INC	2347200	Canada
GILDAN ACTIVEWEA	2254645	Canada
IMPERIAL OIL	2454241	Canada
METRO INC	2583952	Canada
POTASH CORP SAS	2696980	Canada
RAINBOW DEPART-A	B4KDJQ5	Canada
ROGERS COMMUNI-B	2169051	Canada
SAPUTO INC	2112226	Canada

Firm Name	SEDOL	Country
SNC-LAVALIN GRP	2763884	Canada
STANTEC INC	2854238	Canada
TELUS CORP	2381093	Canada
TOROMONT INDS	2897103	Canada
WEST FRASER TIMB	2951098	Canada
WESTJET AIRLINES	BYN2G91	Canada
ZHEJIANG WEIXI-A	B619MD4	Canada
AGILE GROUP HOLD	B0PR2F4	China
AIER EYE HSPTL-A	B4W4ZY6	China
AIR CHINA LTD-A	B1B8WM5	China
ANGEL YEAST CO-A	6281508	China
ANHUI CONCH-H	6080396	China
ANHUI HELI CO-A	6022257	China
ANTA SPORTS PROD	B1YVKN8	China
AVIC AIRCRAFT-A	6004017	China
AVIC AVIATION -A	6479024	China
BAIYUNSHAN PH-H	6084387	China
BAONENGYUAN-A	6384708	China
BAOSHAN IRON &-A	6307954	China
BAOSHENG SCIEN-A	B0225Q4	China
BEIJING BEILU-A	B4T0826	China
BEIJING CAPITA-A	6320887	China
BEIJING CISRI-A	B4ZFZX5	China
BEIJING ELECT-A	6089586	China
BEIJING NEW BU-A	6112006	China
BEIJING ORIENT-A	B3CTJX1	China
BEIJING SHIJI-A	B23GZV4	China
BEIJING TIAN-A	6116666	China
BEIJING URBAN-A	6138239	China
BEIJING YAN-A	6012827	China
BEIJING ZHONGK-A	6242442	China
CHANGJIANG & J-A	6531139	China
CHANGYUAN GRO-A	6569419	China
CHENGDU GUIBAO-A	B4TSYL1	China
CHENGDU XINGRO-A	6103970	China
CHINA AEROSPAC-A	6981789	China
CHINA ANIMAL-A	6135207	China
CHINA BLUECHEM-H	B1DN3X6	China

Firm Name	SEDOL	Country
CHINA COM CONS-H	B1JKTQ6	China
CHINA GEZHOUBA-A	6377214	China
CHINA INTERNAT-A	B42G7J1	China
CHINA JUSHI CO-A	6146845	China
CHINA NATIONAL-A	6564919	China
CHINA NATIONAL-A	B58R0Z2	China
CHINA NONFERRO-A	6018223	China
CHINA NORTHERN-A	6042017	China
CHINA RAIL CN-H	B2PFVH7	China
CHINA RAIL GR-H	B297KM7	China
CHINA RAILWAY -A	6112103	China
CHINA RAILWAY-A	6350378	China
CHINA RESOURCE-A	6089597	China
CHINA RESOURCE-A	6187446	China
CHINA SPACESAT-A	6018858	China
CHINA STATE -A	B3Y6LV2	China
CHINA UNITED-A	6547998	China
CHINA WUJI CO-A	6012526	China
CHINA YANGTZE-A	6711630	China
CHONGQING THRE-A	6018869	China
CINDA REAL EST-A	6079026	China
CITYCHAMP DART-A	6113430	China
CNOOC	B00G0S5	China
COMMODITIES CI-A	6529532	China
CPT TECHNOLOGY-A	6581736	China
CRRC CORP LTD-A	B3CPT84	China
CSG HOLDING CO-B	6196174	China
DAZHONG TRANS-B	6800787	China
DONG E-E-JIAO-A	6276719	China
DYMATIC CHEMIC-A	B1643K3	China
FANGDA SPECIAL-A	6694065	China
FIBERHOME TELE-A	6388885	China
FINANCIAL ST-A	6177685	China
FOSHAN ELEC-B	6345255	China
FUJIAN DONGBAI-A	6353526	China
FUJIAN MINDONG-A	6270595	China
FUJIAN NANPING-A	B4MNNL6	China
FUJIAN SBS ZIP-A	B1KKBT2	China

Firm Name	SEDOL	Country
GD POWER DEVEL-A	6107284	China
GEM CO LTD-A	B5KQVW1	China
GEMDALE CORP-A	6320973	China
GOERTEK INC -A	B2R9WZ2	China
GOLDLOK TOYS-A	B5MLMC1	China
GRANDBLUE ENV-A	6312022	China
GREAT WALL MOT-H	6718255	China
GREE ELECTRIC-A	6990257	China
GUANGDONG ELEC-B	6393210	China
GUANGDONG HIGH-A	6121080	China
GUANGDONG TAPA-A	B2R82S2	China
GUANGHUI ENERG-A	6247964	China
GUANGSHEN RAIL-A	B1L37D6	China
GUANGXI LIUGON-A	6389316	China
GUANGZHOU BAIY-A	6610221	China
GUANGZHOU DEVE-A	6012816	China
GUOMAI-A	B1JB4S6	China
HAN'S LASER -A	B01KLZ0	China
HARBIN PHARMA-A	6409883	China
HENAN REBECCA -A	6654661	China
HENAN SHUAN-A	6128780	China
HENAN TONGLI C-A	6136727	China
HESTEEL CO LTD-A	6878331	China
HISENSE ELEC-A	6718857	China
HOMEY AQUATIC -A	B00MQG3	China
HONGBAOLI GROU-A	B23QBK5	China
HONGRUN CONSTR-A	B19GRK4	China
HUAFA INDUSTRI-A	6742243	China
HUALAN BIOLOGI-A	B01KM02	China
HUANENG POWER-H	6099671	China
HUAXIN CEMENT-B	6802686	China
HUAYU AUTOM-A	6801713	China
HUBEI XINGFA-A	6156048	China
HUNAN TV & BRO-A	6140182	China
IFLYTEK CO LTD-A	B2R0YF9	China
INZONE GROUP-A	6100506	China
JIANGSU KANION-A	6545839	China
JIANGSU YANGHE-A	B55JM22	China

Firm Name	SEDOL	Country
JIANGXI CHANGY-A	6536703	China
JIANGXI GANYUE-A	6242624	China
JIANGZHONG PHM-A	6504313	China
JILIN AODONG P-A	6086297	China
JILIN SINO-MIC-A	6329141	China
JINLING HOTEL-A	B1VGBD3	China
JINZHOU PORT-B	6115414	China
JOINCARE PHARM-A	6352318	China
JONJEE HIGH-TE-A	6999889	China
KEDA CLEAN ENE-A	6546650	China
LENOVO GROUP	6218089	China
LETONG CHEMICA-A	B4L8BY1	China
LIANHE CHEMICA-A	B39N4W0	China
LIANYUNGANG -A	B1VKWT8	China
LIJIANG YULONG-A	B02L9B4	China
LUTHAI TEXTILE-B	6036957	China
MARKOR INTL HO-A	6301280	China
MAYINGLONG PHA-A	B013FX5	China
MENGNIU DAIRY	B01B1L9	China
MESNAC CO LTD -A	B1FPYF9	China
NANFENG VENT-A	B4JQ222	China
NEUSOFT CORP-A	6802471	China
NINGBO SHANSHA-A	6616887	China
NINGXIA YOUNGL-A	6591780	China
OCEANWIDE HOLD-A	6781365	China
OFFSHORE OIL-A	6439794	China
PETROCHINA-H	6226576	China
POLY REAL ESTA-A	B19RB38	China
QINGHAI SALT-A	6110107	China
RISESUN REAL -A	B23D6F6	China
RIZHAO PORT -A	B1G2SZ7	China
SAIC MOTOR-A	6086974	China
SANY HEAVY IND-A	6648824	China
SDIC POWER HOL-A	6412687	China
SEAGULL KITCH -A	B1GJ5Z7	China
SH INTL PORT -A	B1G9126	China
SHANDONG HI-SP-A	6517021	China
SHANDONG HUATA-A	6288479	China

Firm Name	SEDOL	Country
SHANDONG SUN -A	B1G5XV7	China
SHANG BAOSIGHT-B	6835422	China
SHANG ZHANGJIA-A	6801791	China
SHANGHAI FOSUN-A	6121187	China
SHANGHAI INDUS-A	6818962	China
SHANGHAI JINFE-A	6800710	China
SHANGHAI MECHA-B	6797436	China
SHANGHAI YIMIN-A	6818081	China
SHANGHAI ZHIXI-A	6694560	China
SHANXI LANHUA-A	6134839	China
SHANXI LU'AN -A	B1CWSY0	China
SHANXI XISHAN-A	6281519	China
SHENERGY CO LT-A	6817958	China
SHENGYI TECH C-A	6128779	China
SHENYANG JINSH-A	6336204	China
SHENZ YAN TIAN-A	6015569	China
SHENZ ZHENYE-A	6803065	China
SHENZEN OVERSE-A	6036991	China
SHENZHEN CLOU-A	B1R0FJ3	China
SHENZHEN ENERG-A	6780403	China
SHENZHEN GAS -A	B4ZV210	China
SHENZHEN TIANY-A	B5M7KT2	China
SICHUAN CHUAN-A	6313092	China
SICHUAN TUOPAI-A	6814517	China
SICHUAN XICHAN-A	6527978	China
SINOCHEM INTL-A	6203104	China
SINOMA INTERNA-A	B0762D7	China
SUNING UNIVERS-A	6486228	China
SUNSHINE CITY -A	6354574	China
SUZHOU GOLD -A	B1GGYB7	China
TAHOE GROUP CO-A	6009380	China
TANGSHAN SANYO-A	6623694	China
TASLY PHARMAC-A	6541525	China
TBEA CO LTD-A	6003973	China
TIAN DI -A	6546070	China
TIANJIN PORT -A	6878870	China
TIANJIN TIANYA-A	6355931	China
TIANJIN ZHONGX-A	6218733	China

Firm Name	SEDOL	Country
TIBET CHEEZHEN-A	B40CDV5	China
TSINGHUA TONG-A	6093060	China
TSINGTAO BREW-A	6902854	China
VATTI CORP LTD-A	B02P7R8	China
WANHUA CHEMIC-A	6314932	China
WANXIANG QIAN-A	6932323	China
WEIFU HIGH TEC-B	6944953	China
WHIRLPOOL CHIN-A	B01ZX26	China
WULIANGYE YIBI-A	6109901	China
XIAMEN ITG GRO-A	6662909	China
XIAN INTERNA-A	6983934	China
XINHU ZHONGBAO-A	6158594	China
XINJIANG YIL-A	6168935	China
XINXING DUCTIL-A	6108793	China
XJ ELECTRIC-A	6007685	China
YABAO PHARMACE-A	6545981	China
YANTAI CHANGYU-B	6043645	China
YGSOFT INC-A	B19PMC8	China
YINGKOU PORT-A	6439686	China
YOUNGOR GROUP-A	6131012	China
YUEYANG XINGCH-A	6107187	China
YUNNAN BAIYAO-A	6984045	China
YUNNAN CHIHONG-A	B00SNZ9	China
ZHANGZHOU PIEN-A	6632162	China
ZHEJIANG CHINT-A	B5V7S33	China
ZHEJIANG DON-A	6055662	China
ZHEJIANG GUYU-A	6993580	China
ZHEJIANG HAILI-A	B2N6LQ1	China
ZHEJIANG JUHUA-A	6118383	China
ZHEJIANG LONGS-A	6673280	China
ZHEJIANG NHU-A	B01KBG1	China
ZHEJIANG WEIXI-A	B01KBH2	China
ZHEJIANG YANKO-A	6269623	China
ZHENGZHOU YUT-A	6990718	China
ZHONGSHAN BROA-A	B2QR2Y6	China
ZHONGTIAN FINA-A	6997140	China
ZIJIN MINING-H	6725299	China
ZOOMLION HEAVY-A	6289977	China

Firm Name	SEDOL	Country
CARGOTEC OYJ-B	B09M9L0	Finland
KONE OYJ-B	B09M9D2	Finland
NESTE OYJ	B06YV46	Finland
NOKIAN RENKAAT	B07G378	Finland
ORION OYJ-CL B	B17NY40	Finland
RAISIO OYJ-V	5446632	Finland
TIETO OYJ	5479702	Finland
VAISALA OYJ-A SH	5932357	Finland
WARTSILA OYJ ABP	4525189	Finland
ACCOR SA	5852842	France
ADP	B164FY1	France
AIRBUS SE	4012250	France
ALTRAN TECH	4907732	France
ARKEMA	B0Z5YZ2	France
ATOS SE	5654781	France
BIC	5298781	France
BIOMERIEUX	B01MJR4	France
BONDUELLE SCA	5481989	France
BUREAU VERITAS S	B28DTJ6	France
CAPGEMINI	4163437	France
DANONE	B1Y9TB3	France
EIFFAGE	B13X013	France
ESSILOR INTL	7212477	France
HERMES INTL	5253973	France
IMERYS SA	B011GL4	France
JCDECAUX SA	7136663	France
KERING	5505072	France
L'OREAL	4057808	France
LEGRAND SA	B11ZRK9	France
M6-METROPOLE TEL	5993901	France
MICHELIN	4588364	France
ORANGE	5176177	France
PERNOD RICARD SA	4682329	France
PUBLICIS GROUPE	4380429	France
REMY COINTREAU	4741714	France
RENAULT SA	4712798	France
REXEL SA	B1VP0K0	France
SAINT GOBAIN	7380482	France

Firm Name	SEDOL	Country
SCHNEIDER ELECTR	4834108	France
SEB SA	4792132	France
SODEXO	7062713	France
SUEZ	B3B8D04	France
TOTAL SA	B15C557	France
VALEO SA	BDC5ST8	France
VINCI SA	B1XH026	France
A.G. BARR	B6XZKY7	Great Britain
ABERDEEN ASSET	3128	Great Britain
ASHMORE GROUP PL	B132NW2	Great Britain
ASSOC BRIT FOODS	673123	Great Britain
BABCOCK INTL GRP	969703	Great Britain
BBA AVIATION PLC	B1FP891	Great Britain
BELLWAY PLC	90498	Great Britain
BERKELEY GROUP	B02L3W3	Great Britain
BODYCOTE PLC	B3FLWH9	Great Britain
BOOKER GROUP PLC	B01TND9	Great Britain
BOVIS HOMES GRP	185929	Great Britain
BREWIN DOLPHIN	176581	Great Britain
BROWN (N) GROUP	B1P6ZR1	Great Britain
CAPITA PLC	B23K0M2	Great Britain
CARILLION PLC	736554	Great Britain
CRANSWICK PLC	231888	Great Britain
CROPPER (JAMES)	234605	Great Britain
DAILY MAIL TST A	945736	Great Britain
DEBENHAMS PLC	B126KH9	Great Britain
DECHRA PHARMA	963318	Great Britain
DEVRO PLC	267043	Great Britain
DIAGEO PLC	237400	Great Britain
DRAX GROUP PLC	B1VNSX3	Great Britain
DS SMITH PLC	822011	Great Britain
DUNELM GROUP	B1CKQ73	Great Britain
EASYJET PLC	B7KR2P8	Great Britain
ELECTROCOMPONENT	309644	Great Britain
ESSENTRA PLC	B074435	Great Britain
EUROMONEY INSTL	688666	Great Britain
FIDESSA GROUP PL	759023	Great Britain
GEM DIAMONDS LTD	B1P8H48	Great Britain

Firm Name	SEDOL	Country
GLAXOSMITHKLINE	925288	Great Britain
GREENE KING PLC	B0HZP13	Great Britain
GREGGS PLC	B63QSB3	Great Britain
HALFORDS GRP PLC	B012TP2	Great Britain
HALMA PLC	405207	Great Britain
HARGREAVES LANSD	B1VZ0M2	Great Britain
HAYS PLC	416102	Great Britain
HOWDEN JOINERY G	557681	Great Britain
IMI PLC	BGLP8L2	Great Britain
INMARSAT PLC	B09LSH6	Great Britain
INTERNATIONAL PE	B1YKG04	Great Britain
INTERSERVE PLC	152815	Great Britain
ITV PLC	3398649	Great Britain
KCOM GROUP PLC	744825	Great Britain
KIER GROUP PLC	491563	Great Britain
KINGFISHER PLC	3319521	Great Britain
LOK'N STORE GRP	727611	Great Britain
MARKS & SPENCER	3127489	Great Britain
MENZIES (JOHN)	579005	Great Britain
MILLENNIUM & COP	562254	Great Britain
MITCHELLS & BUTL	B1FP6H5	Great Britain
MITIE GROUP	465740	Great Britain
MORGAN ADVANCED	602729	Great Britain
NATIONAL GRID PL	B08SNH3	Great Britain
NEXT PLC	3208986	Great Britain
PAGEGROUP PLC	3023231	Great Britain
PAYPOINT PLC	B02QND9	Great Britain
PENNON GRP PLC	B18V863	Great Britain
PERSIMMON	682538	Great Britain
PROVIDENT FIN	B1Z4ST8	Great Britain
PZ CUSSONS PLC	B19Z143	Great Britain
RECKITT BENCKISE	B24CGK7	Great Britain
REDROW PLC	728238	Great Britain
RELX NV	4148810	Great Britain
RELX PLC	B2B0DG9	Great Britain
RENISHAW PLC	732358	Great Britain
RESTAURANT GROUP	B0YG1K0	Great Britain
RPS GROUP PLC	759476	Great Britain

Firm Name	SEDOL	Country
SAGE GROUP	B8C3BL0	Great Britain
SAVILLS PLC	B135BJ4	Great Britain
SCHRODERS PLC	240549	Great Britain
SENIOR PLC	795823	Great Britain
SEPURA LTD	B1ZBLD4	Great Britain
SEVERN TRENT	B1FH8J7	Great Britain
SKY PLC	141192	Great Britain
SMITHS GRP PLC	B1WY233	Great Britain
SPECTRIS PLC	330860	Great Britain
SPIRENT COMM	472609	Great Britain
SPORTS DIRECT IN	B1QH8P2	Great Britain
SSE PLC	790873	Great Britain
STHREE PLC	B0KM9T7	Great Britain
TALKTALK TEL	B4YCDF5	Great Britain
TRAVIS PERKINS	773960	Great Britain
UBM PLC	BD9WR06	Great Britain
ULTRA ELECTRONIC	912332	Great Britain
UNILEVER NV-CVA	B12T3J1	Great Britain
UNITED UTILITIES	B39J2M4	Great Britain
VICTREX PLC	929224	Great Britain
VITEC GROUP PLC	929666	Great Britain
VP PLC	928696	Great Britain
WEIR GROUP PLC	946580	Great Britain
WETHERSPOON (JD)	163895	Great Britain
WH SMITH PLC	B2PDGW1	Great Britain
WHITBREAD PLC	B1KJJ40	Great Britain
WILLIAM HILL	3169889	Great Britain
WPP PLC	B8KF9B4	Great Britain
XAAR PLC	157081	Great Britain
ASM PACIFIC	6002453	Hong Kong
CATHAY PAC AIR	6179755	Hong Kong
CHINA MERCHANTS	6416139	Hong Kong
CHINA OVERSEAS	6192150	Hong Kong
CHINA RESOURCES	6972459	Hong Kong
CHINA ZHONGWANG	B3VZ220	Hong Kong
HANG LUNG PPT	6030506	Hong Kong
HENDERSON LAND D	6420538	Hong Kong
HK&S HOTELS	6436386	Hong Kong

Firm Name	SEDOL	Country
HKEX	6267359	Hong Kong
HONG KG AIRCRAFT	6435264	Hong Kong
HONG KG CHINA GS	6436557	Hong Kong
HOPEWELL HLDGS	6140290	Hong Kong
HUTCHTEL HK	B3XH0P3	Hong Kong
HYSAN DEV	6449629	Hong Kong
JOHNSON ELEC H	BP4JH17	Hong Kong
KERRY PPT	6486314	Hong Kong
LEE & MAN PAPER	6693772	Hong Kong
LUK FOOK HLDGS I	6536156	Hong Kong
MTR CORP	6290054	Hong Kong
NEW WORLD DEV	6633767	Hong Kong
NWS HOLDINGS	6568353	Hong Kong
ORIENT OVERSEAS	6659116	Hong Kong
POWER ASSETS	6435327	Hong Kong
SA SA INTL HLDGS	6003401	Hong Kong
SHK PPT	6859927	Hong Kong
SINO LAND	6810429	Hong Kong
SWIRE PACIFIC-A	6867748	Hong Kong
TOWNGAS CHINA	6345460	Hong Kong
WHARF HLDG	6435576	Hong Kong
EXPERIAN PLC	B19NLV4	Hungary
AARTI INDUS LTD	B0VX289	India
ADITYA BIRLA NUV	6100421	India
AIA ENGINEERING	B0QDXM5	India
ALKYL AMINES	BQRQWK6	India
AMARA RAJA BATT	B8BGVX2	India
AMBUJA CEMENTS	B09QQ11	India
APAR INDUSTRIES	B01WBY5	India
ASIAN PAINTS LTD	BCRWL65	India
ASTRAL POLY	BR2NB24	India
BAJAJ AUTO LTD	B2QKXW0	India
BALAJI AMINES	B03RN31	India
BALLARPUR INDUS	6143501	India
BALMER LAWRIE	6152745	India
BERGER PAINTS	BV8TBJ1	India
BHARAT ELECTRON	BF1THH6	India
BHARAT FORGE CO	B0C1DM3	India

Firm Name	SEDOL	Country
BHARAT PETROL	6099723	India
BHARTI AIRTEL	6442327	India
BIRLA CORP LTD	6152626	India
BOMBAY BURMAH TR	B7F8TD3	India
BRITANNIA INDS	6124777	India
CAIRN INDIA	B1G2NN0	India
CAMLIN FINE SCIE	BQQM960	India
CARBORUNDUM UNIV	B6X5768	India
CENTURY PLYBOARD	B03KTQ5	India
CHAMBAL FERTILIS	6099938	India
CIPLA LTD	B011108	India
DABUR INDIA LTD	6297356	India
DALMIA BHARAT SU	B0MTK48	India
DEEPAK FERTIL	6374754	India
DIVI LABS LTD	6602518	India
DLF LTD	B1YLCV0	India
ESS DEE ALUMINIU	B1CWSZ1	India
EXCEL CROP CARE	6724401	India
EXCEL INDS LTD	6150619	India
GAIL INDIA LTD	6133405	India
GODAWARI POWER	B125Z82	India
GRASIM INDS LTD	BYQKH33	India
GREAT EASTERN SH	B1GKL41	India
GUJARAT FLUOROCH	B0LWM42	India
HEG LTD	6399887	India
HERCULES HOISTS	6082433	India
HIKAL LTD	BW38Q95	India
HINDUSTAN UNILEV	6261674	India
HINDUSTAN ZINC	6139726	India
HONDA SIEL POWER	6807595	India
HSIL LTD	B0TLX93	India
IFGL REFRACTORY	B0TMCP5	India
INDIAN OIL CORP	6253767	India
INFOSYS LTD	6205122	India
INSECTICIDES	B1MH737	India
ITC LTD	B0JGGP5	India
JAI CORP LTD	B0VFLZ5	India
JK CEMENTS LTD	B0CJ800	India

Firm Name	SEDOL	Country
JSW STEEL LTD	BZBYJJ7	India
KIRLOSKAR FERR	6289427	India
LARSEN & TOUBRO	B0166K8	India
MAITHAN ALLOYS	B2RHXS6	India
MAN INDUSTRIES	6325097	India
MANGALAM CEMENT	6150589	India
MARUTI SUZUKI IN	6633712	India
NATL PEROXIDE	B15K7L1	India
NESTLE INDIA LTD	6128605	India
NOCIL LTD	6124904	India
NTPC LTD	B037HF1	India
OIL & NATURAL GA	6139362	India
PI INDUSTRIES	B992PT3	India
RALLIS INDIA LTD	B60CMV2	India
RASHTRIYA CHEMS	6101101	India
RELIANCE INDS	6099626	India
SARDA ENERGY MIN	B03J360	India
SHILPA MEDICARE	BYZX1D1	India
SOLAR INDUSTRIES	BYZ9NH7	India
STEEL AUTHORITY	6121499	India
SUDARSHAN CHEM	BRC0Q31	India
SUN PHARMA INDU	6582483	India
TAMIL NADU NEWSP	6101651	India
TATA CONSULTANCY	B01NPJ1	India
TATA GLOBAL BEVE	6121488	India
TATA MOTORS LTD	B611LV1	India
TIL LTD	6337928	India
TINPLATE CO LTD	6312754	India
TORRENT PHARMA	B0XPSB8	India
TORRENT POWER LT	B1JLL30	India
TRANSPORT CORP	B1JMNW6	India
TUBE INV INDIA	B157CB7	India
ULTRATECH CEMENT	B01GZF6	India
UNITED BREWERIES	B1683V6	India
UPL LTD	B0L0W35	India
UTTAM GALVA STEE	6919735	India
VINATI ORGANICS	B03F993	India
VIVIMED LABS LTD	BDFBX54	India

Firm Name	SEDOL	Country
ZEE ENTERTAINMEN	6188535	India
ACEA SPA	5728125	Italy
ATLANTIA SPA	7667163	Italy
CEMENTIR HOLDING	7148624	Italy
ENEL SPA	7144569	Italy
ADEKA CORP	6054904	Japan
AEON CO LTD	6480048	Japan
AEON MALL CO LTD	6534202	Japan
AICA KOGYO CO	6010047	Japan
AICHI CORP	6010092	Japan
AICHI STEEL CORP	6010207	Japan
AIPHONE CO LTD	6021492	Japan
AIR WATER INC	6441465	Japan
AISIN SEIKI CO	6010702	Japan
AJINOMOTO CO INC	6010906	Japan
ALFRESA HOLDINGS	6687214	Japan
ALPHA CORP	6744186	Japan
ALPHA SYSTEMS	6149985	Japan
ANEST IWATA CORP	6468141	Japan
ANRITSU CORP	6044109	Japan
AOHATA CORP	6124078	Japan
AOYAMA TRADING	6045878	Japan
ARAKAWA CHEM	6185837	Japan
ASAHI GLASS CO	6055208	Japan
ASAHI GROUP HOLD	6054409	Japan
ASAHI HOLDINGS I	B60DQZ7	Japan
ASAHI KASEI CORP	6054603	Japan
ASICS CORP	6057378	Japan
AT-GROUP CO LTD	6010274	Japan
AXIAL RETAILING	6408976	Japan
AZBIL CORP	6985543	Japan
BANDO CHEM INDUS	6075068	Japan
BELC CO LTD	6098913	Japan
BIC CAMERA INC	B194YN0	Japan
BML INC	6197876	Japan
BOURBON CORP	6494210	Japan
BRIDGESTONE CORP	6132101	Japan
BROTHER INDS LTD	6146500	Japan

Firm Name	SEDOL	Country
BULL-DOG SAUCE	6152002	Japan
CANON ELECTRONIC	6172390	Japan
CANON INC	6172323	Japan
CANON MARKETING	6172453	Japan
CEMEDINE CO LTD	6182708	Japan
CENTRAL GLASS CO	6184306	Japan
CENTRAL JAPAN RL	6183552	Japan
CHIYODA CORP	6191704	Japan
CHUETSU PULP & P	6195706	Japan
CHUGAI PHARMA CO	6196408	Japan
CHUGOKU MARINE	6196000	Japan
CI TAKIRON CORP	6870887	Japan
CKD CORP	6160050	Japan
CLARION CO LTD	6201164	Japan
CLEANUP CORP	6203513	Japan
COCA-COLA BOTTLE	6163286	Japan
COMSYS HOLDINGS	6687247	Japan
CONEXIO CORP	B0YHYY8	Japan
COSEL CO LTD	6199742	Japan
CREATE SD HD	B3V2XQ2	Japan
CTI ENGINEERING	6222370	Japan
DAI-DAN CO LTD	6661735	Japan
DAICEL CORP	6250542	Japan
DAIFUKU CO LTD	6250025	Japan
DAIHEN CORP	6661843	Japan
DAIICHI SANKYO	B0J7D91	Japan
DAIKEN CORP	6250401	Japan
DAIKIN INDS	6250724	Japan
DAINICHI COLOR	6250962	Japan
DAISEKI CO LTD	6263164	Japan
DAITO TRUST CONS	6250508	Japan
DAIWA HOUSE INDU	6251363	Japan
DENKA CO LTD	6309820	Japan
DENSO CORP	6640381	Japan
DENTSU INC	6416281	Japan
DIC CORP	6250821	Japan
DISCO CORP	6270948	Japan
DKS CO LTD	6250683	Japan

Firm Name	SEDOL	Country
DMW CORP	6262309	Japan
DON QUIJOTE HOLD	6269861	Japan
DOWA HOLDINGS CO	6278306	Japan
DTS CORP	6255699	Japan
DUSKIN CO LTD	B1GVJ73	Japan
DYNIC CORP	6290786	Japan
EAGLE INDUSTRY	6296706	Japan
EARTH CHEMICAL	B0NHMM3	Japan
EAST JAPAN RAIL	6298542	Japan
EISAI CO LTD	6307200	Japan
EIZO CORP	6451817	Japan
ELECTRIC POWER D	B02Q328	Japan
EXEDY CORP	6250412	Japan
EZAKI GLICO	6327703	Japan
FAMILYMART UNY H	6331276	Japan
FAST RETAILING	6332439	Japan
FOSTER ELECTRIC	6349008	Japan
FP CORP	6329947	Japan
FUJI CO LTD	6356246	Japan
FUJI ELECTRIC CO	6356365	Japan
FUJI MEDIA HOLDI	6036582	Japan
FUJI OIL HOLDING	6356848	Japan
FUJI SOFT INC	6357001	Japan
FUJICCO CO LTD	6355113	Japan
FUJIKURA KASEI	6356729	Japan
FUJIMI INC	6355276	Japan
FUJITEC CO LTD	6356826	Japan
FUJITSU FRONTECH	6357261	Japan
FUJITSU GENERAL	6364283	Japan
FUKUSHIMA INDS	6355210	Japan
FURUKAWA BATTERY	6357528	Japan
GLOBERIDE INC	6251482	Japan
GLORY LTD	6374226	Japan
GOLDWIN INC	6376169	Japan
GS YUASA CORP	6744250	Japan
H2O RETAILING	6408705	Japan
HAMAMATSU PHOTON	6405870	Japan

Firm Name	SEDOL	Country
HANKYU HANSHIN H	6408664	Japan
HANWA CO LTD	6408824	Japan
HAPPINET CORP	6042675	Japan
HARMONIC DRIVE	6108179	Japan
HASEKO	6414401	Japan
HEIWADO CO LTD	6419611	Japan
HIBIYA ENGINEER	6437970	Japan
HIOKI E E CORP	6428446	Japan
HIRATA CORP	B1GZ9S6	Japan
HIROSE ELECTRIC	6428725	Japan
HIROSHIMA GAS	6428673	Japan
HISAMITSU PHARM	6428907	Japan
HITACHI CHEMICAL	6429126	Japan
HITACHI CONST MA	6429405	Japan
HITACHI KOKI CO	6429182	Japan
HITACHI METALS	6429201	Japan
HITACHI TRANSPOR	6429234	Japan
HITACHI ZOSEN	6429308	Japan
HOKKAIDO CHUO BU	6431295	Japan
HOKKAIDO GAS CO	6431347	Japan
HOKUETSU KISHU P	6433105	Japan
HOKURIKU GAS CO	6433194	Japan
HOKUTO CORP	6432715	Japan
HONDA MOTOR CO	6435145	Japan
HORIBA LTD	6437947	Japan
HOSHIZAKI CORP	B3FF8W8	Japan
HOUSE FOODS GROU	6440503	Japan
HOYA CORP	6441506	Japan
IBIDEN CO LTD	6456102	Japan
IHI CORP	6466985	Japan
IMASEN ELEC INDU	6509954	Japan
IMPERIAL HOTEL	6458700	Japan
INABA DENKI SANG	6459219	Japan
INAGEYA	6461645	Japan
INPEX CORP	B10RB15	Japan
ISAMU PAINT	6466725	Japan
ITO EN LTD	6455789	Japan
ITOCHU CORP	6467803	Japan

Firm Name	SEDOL	Country
ITOCHU ENEX CO	6467825	Japan
ITOCHU TECHNO SO	6200194	Japan
IWATANI CORP	6468204	Japan
IZUMI	6468152	Japan
J FRONT RETAILIN	B23TC12	Japan
J-OIL MILLS INC	6512747	Japan
JAMCO CORP	6468787	Japan
JAPAN AVIAT ELEC	6470351	Japan
JAPAN OIL TRANSP	6470823	Japan
JAPAN TOBACCO	6474535	Japan
JAPAN WOOL TEXT	6470704	Japan
JASTEC	6471848	Japan
JGC CORP	6473468	Japan
JICHODO CO LTD	6485850	Japan
JOSHIN DENKI	6479604	Japan
JSP CORP	6468356	Japan
JSR CORP	6470986	Japan
KAGOME	6480770	Japan
KAKEN PHARM	6481643	Japan
KANADEN CORP	6483304	Japan
KANDENKO CO LTD	6483586	Japan
KANEKA CORP	6483360	Japan
KANEMATSU CORP	6483467	Japan
KANSAI PAINT	6483746	Japan
KATO SANGYO CO	6484181	Japan
KAWAI MUSICAL IN	6484460	Japan
KDDI CORP	6248990	Japan
KEIHAN HOLDINGS	6487232	Japan
KEIHIN CORP	6487328	Japan
KEIKYU CORP	6487306	Japan
KEIO CORP	6487362	Japan
KEISEI ELEC RAIL	6487425	Japan
KEIYO GAS	6487469	Japan
KIKKOMAN CORP	6490809	Japan
KINDEN CORP	6492924	Japan
KING JIM	6492593	Japan
KINTETSU GROUP H	6492968	Japan
KINTETSU WORLD	6282211	Japan

Firm Name	SEDOL	Country
KISSEI PHARM CO	6494061	Japan
KITO CORPORATION	B2354J2	Japan
KITZ CORP	6494276	Japan
KOA CORP	6495860	Japan
KOBAYASHI PHARM	6149457	Japan
KODENSHA	6496067	Japan
KOITO MFG CO	6496324	Japan
KOMATSU LTD	6496584	Japan
KOMERI CO LTD	6496250	Japan
KONAMI HOLDINGS	6496681	Japan
KONICA MINOLTA	6496700	Japan
KONISHI CO LTD	6485861	Japan
KOSE CORP	6194468	Japan
KROSAKI HARIMA	6498007	Japan
KUBOTA CORP	6497509	Japan
KURARAY CO LTD	6497662	Japan
KUREHA CORP	6497907	Japan
KURITA WATER IND	6497963	Japan
KVK CORP	6501217	Japan
KYB CORP	6485009	Japan
KYOCERA CORP	6499260	Japan
KYOKUYO CO LTD	6498706	Japan
KYOSAN ELEC MFG	6499163	Japan
KYOWA EXEO CORP	6499420	Japan
KYOWA KIRIN	6499550	Japan
LAWSON INC	6266914	Japan
LION CORP	6518808	Japan
LIXIL GROUP CORP	6900212	Japan
MAEDA ROAD CONST	6554727	Japan
MAKITA CORP	6555805	Japan
MANDOM CORP	6560973	Japan
MARUBENI CORP	6569464	Japan
MARUICHI STL TUB	6569505	Japan
MARUZEN SHOWA UN	6569624	Japan
MAX CO LTD	6574220	Japan
MEC CO LTD	6315407	Japan
MEDIPAL HD	6782090	Japan
MEGMILK SNOW	B3ZC078	Japan

Firm Name	SEDOL	Country
MEIDENSHA CORP	6575900	Japan
MEIJI HD	B60DQV3	Japan
MEIWA CORP	6576389	Japan
MINEBEA MITSUMI	6642406	Japan
MINISTOP CO LTD	6583851	Japan
MITSUB LOGISTICS	6596848	Japan
MITSUBISHI CHEMI	B0JQTJ0	Japan
MITSUBISHI CORP	6596785	Japan
MITSUBISHI ESTAT	6596729	Japan
MITSUBISHI HEAVY	6597067	Japan
MITSUBISHI RESEA	B3WPWZ2	Japan
MITSUBISHI TANAB	6870984	Japan
MITSUBOSHI BELTI	6596989	Japan
MITSUI & CO	6597302	Japan
MITSUI FUDOSAN	6597603	Japan
MITSUI HOME CO	6599397	Japan
MITSUI MINING &	6597346	Japan
MITSUI SUGAR CO	6597562	Japan
MITSUI-SOKO HOLD	6597647	Japan
MIURA CO LTD	6597777	Japan
MIZUNO CORP	6597960	Japan
MOCHIDA PHARM	6598004	Japan
MORINAGA & CO	6602604	Japan
MORINAGA MILK IN	6602648	Japan
MOS FOOD SERVICE	6605830	Japan
MURATA MFG CO	6610403	Japan
MUSASHI SEIMITSU	6135229	Japan
NABTESCO CORP	6687571	Japan
NACHI-FUJIKOSHI	6619905	Japan
NAGATANIEN HOLDI	6619842	Japan
NAGOYA RAILROAD	6619864	Japan
NAKAYO INC	6620877	Japan
NANKAI ELEC RAIL	6621472	Japan
NATORI CO LTD	6182054	Japan
NEC NETWORKS & S	6619422	Japan
NETUREN CO LTD	6629540	Japan
NGK SPARK PLUG	6619604	Japan
NH FOODS LTD	6640767	Japan

Firm Name	SEDOL	Country
NHK SPRING CO	6619648	Japan
NICCA CHEMICAL	6637866	Japan
NICHIAS CORP	6641146	Japan
NICHIBAN CO LTD	6638427	Japan
NICHIHA CORP	6638331	Japan
NICHIREI CORP	6640864	Japan
NIDEC CORP	6640682	Japan
NIFCO INC	6639163	Japan
NIHON KOHDEN	6639970	Japan
NIHON NOHYAKU	6470362	Japan
NIHON PARKER CO	6640529	Japan
NIHON TOKUSHU TO	6640262	Japan
NIPPO CORP	6640789	Japan
NIPPON DENSETSU	6640325	Japan
NIPPON ELEC GLAS	6642666	Japan
NIPPON EXPRESS	6642127	Japan
NIPPON FINE CHEM	6641298	Japan
NIPPON FLOUR	6640745	Japan
NIPPON PAINT HOL	6640507	Japan
NIPPON ROAD CO	6642462	Japan
NIPPON SEIKI	6642536	Japan
NIPPON SHINYAKU	6640563	Japan
NIPPON SHOKUBAI	6470588	Japan
NIPPON SIGNAL CO	6642525	Japan
NIPPON SODA CO	6640585	Japan
NIPPON TELEGRAPH	6641373	Japan
NISHIKAWA RUBBER	6646862	Japan
NISSAN CHEM INDS	6641588	Japan
NISSAN MOTOR CO	6642860	Japan
NISSAN SHATAI	6642901	Japan
NISSHIN OILLIO	6641049	Japan
NISSHIN SEIFUN	6640961	Japan
NISSHINBO HD	6642923	Japan
NISSIN ELECTRIC	6641663	Japan
NISSIN FOODS HOL	6641760	Japan
NITTO BOSEKI CO	6641083	Japan
NITTO DENKO CORP	6641801	Japan
NITTO KOHKI CO	6625894	Japan

Firm Name	SEDOL	Country
NITTO SEIKO CO	6641856	Japan
NITTOC CONSTRUCT	6643175	Japan
NOF	6640488	Japan
NOK	6642428	Japan
NOMURA REAL ESTA	B1CWJM5	Japan
NOMURA RESEARCH	6390921	Japan
NSK LTD	6641544	Japan
NTT DATA CORP	6125639	Japan
NTT DOCOMO INC	6129277	Japan
OBAYASHI ROAD	6656441	Japan
ODAKYU ELEC RAIL	6656106	Japan
OILES CORP	6657530	Japan
OJI HOLDINGS COR	6657701	Japan
OKAMOTO INDS INC	6657767	Japan
OKAMURA CORP	6657842	Japan
OKINAWA ELEC PWR	6658050	Japan
OMRON CORP	6659428	Japan
ONO PHARMA	6660107	Japan
ONWARD HOLDINGS	6483821	Japan
OPTEX GROUP CO L	6660914	Japan
ORIENTAL LAND CO	6648891	Japan
OSAKA GAS CO LTD	6661768	Japan
OSAKA ORGANIC	6661962	Japan
OSAKA SODA CO LT	6661780	Japan
OSAKI ELECTRIC	6662006	Japan
OSG CORP	6655620	Japan
OTSUKA CORP	6267058	Japan
PAC INDUSTRIAL	6666202	Japan
PANAHOME CORP	6625720	Japan
PARCO	6670582	Japan
PENTA-OCEAN CONS	6680804	Japan
PRIMA MEAT PACK	6703400	Japan
RAITO KOGYO	6721004	Japan
RIKEN CORP	6740203	Japan
RIKEN TECHNOS CO	6739900	Japan
RINNAI CORP	6740582	Japan
RION CO LTD	6743064	Japan
ROHTO PHARM	6747367	Japan

Firm Name	SEDOL	Country
RYODEN CORP	6763006	Japan
RYOHIN KEIKAKU	6758455	Japan
RYOSAN CO LTD	6763200	Japan
S & B FOODS INC	6764504	Japan
SAIBU GAS CO LTD	6767826	Japan
SAKAI CHEM INDUS	6769402	Japan
SAKATA INX CORP	6769833	Japan
SAN-AI OIL CO	6772808	Japan
SANKYO CO/	6775432	Japan
SANKYU INC	6775380	Japan
SANTEN PHARM	6776606	Japan
SANYO CHEMICAL	6776800	Japan
SAPPORO HOLDINGS	6776907	Japan
SATO HOLDINGS CO	6777579	Japan
SECOM CO LTD	6791591	Japan
SEINO HOLDINGS	6793423	Japan
SEIREN CO LTD	6793520	Japan
SEKISUI CHEM CO	6793821	Japan
SEKISUI JUSHI	6793843	Japan
SEKISUI PLASTICS	6793865	Japan
SENKO GROUP HOLD	6795203	Japan
SENSHU ELECTRIC	6795612	Japan
SEVEN & I HOLDIN	B0FS5D6	Japan
SHIKOKU CHEMICAL	6804303	Japan
SHIMADZU CORP	6804369	Japan
SHIMANO INC	6804820	Japan
SHIMIZU CORP	6804400	Japan
SHIMOJIMA CO LTD	6829414	Japan
SHIN NIPPON AIR	6805920	Japan
SHIN-ETSU CHEM	6804585	Japan
SHIN-ETSU POLYME	6805704	Japan
SHINKO SHOJI CO	6804972	Japan
SHINTO PAINT	6805180	Japan
SHINWA CO LTD	6167813	Japan
SHIONOGI & CO	6804682	Japan
SHIZUOKA GAS CO	6419956	Japan
SHOWA AIRCRAFT	6805403	Japan
SHOWA DENKO K K	6805469	Japan

Firm Name	SEDOL	Country
SHOWA SANGYO	6805607	Japan
SINTOKOGIO LTD	6804626	Japan
SMC CORP	6763965	Japan
SODA NIKKA CO	6818810	Japan
SOFTBANK GROUP C	6770620	Japan
SOKEN CHEMICAL	6338910	Japan
SOTETSU HOLDINGS	6767202	Japan
STANLEY ELEC CO	6841106	Japan
SUMINOE TEXTILE	6858452	Japan
SUMITOMO DAINIPP	6250865	Japan
SUMITOMO ELEC IN	6858708	Japan
SUMITOMO FOREST	6858861	Japan
SUMITOMO HEAVY	6858731	Japan
SUMITOMO MET MIN	6858849	Japan
SUMITOMO OSAKA	6858548	Japan
SUMITOMO REALTY	6858902	Japan
SUMITOMO SEIKA	6793605	Japan
SUZUKEN CO LTD	6865560	Japan
SUZUKI CO LTD	6321868	Japan
SUZUKI MOTOR	6865504	Japan
SYSMEX CORP	6883807	Japan
T HASEGAWA CO	6899268	Japan
T&K TOKA	6038469	Japan
TAIHO KOGYO	6145455	Japan
TAIKISHA LTD	6869959	Japan
TAIYO HOLDINGS	6871783	Japan
TAKARA HOLDINGS	6870382	Japan
TAKASAGO INTL	6870360	Japan
TAKASAGO THERMAL	6870520	Japan
TAKASHIMAYA CO	6870401	Japan
TAKUMA CO	6870768	Japan
TAMRON	6871028	Japan
TATSUTA ELEC WIR	6875804	Japan
TDK CORP	6869302	Japan
TECHNO ASSOCIE C	6899633	Japan
TERUMO CORP	6885074	Japan
TOA CORP	6894508	Japan
TOA CORP	6894434	Japan

Firm Name	SEDOL	Country
TOA OIL	6894542	Japan
TOA ROAD CORP	6894586	Japan
TOAGOSEI CO LTD	6894467	Japan
TOBU RAILWAY CO	6895169	Japan
TOELL	B05MXL2	Japan
TOENEC CORP	6895620	Japan
TOHO CO LTD	6895211	Japan
TOHO GAS CO LTD	6895222	Japan
TOHO HOLDINGS CO	6895556	Japan
TOKAI CARBON CO	6894003	Japan
TOKAI RIKA	6894025	Japan
TOKYO GAS CO LTD	6895448	Japan
TOKYO OHKA KOGYO	6894898	Japan
TOKYU CORP	6896548	Japan
TOLI CORP	6900342	Japan
TOMOEGAWA CO LTD	6896344	Japan
TONAMI HOLDINGS	6896526	Japan
TOPPAN FORMS CO	6105028	Japan
TOPPAN PRINTING	6897024	Japan
TORII PHARMACEUT	6896894	Japan
TOSHIBA PLANT SY	6897295	Japan
TOSOH CORP	6900289	Japan
TOTO LTD	6897466	Japan
TOYO CONSTRUCTIO	6900063	Japan
TOYO DENKI ELEC	6900085	Japan
TOYO INK SC HD	6900104	Japan
TOYO KANETSU	6899804	Japan
TOYO SUISAN KAI	6899967	Japan
TOYO TIRE & RUBB	6900182	Japan
TOYOBO CO LTD	6900502	Japan
TOYODA GOSEI	6900557	Japan
TOYOTA BOSHOKU	6900591	Japan
TOYOTA INDUSTRIE	6900546	Japan
TOYOTA MOTOR	6900643	Japan
TOYOTA TSUSHO	6900580	Japan
TRANSCOSMOS INC	6900955	Japan
TRUSCO NAKAYAMA	6620888	Japan
TS TECH CO LTD	B1P1JR4	Japan

Firm Name	SEDOL	Country
TSUBAKIMOTO CHAI	6906704	Japan
TSUMURA & CO	6906919	Japan
UACJ CORP	B0N9WZ2	Japan
UBE INDUSTRIES	6910705	Japan
UNITED ARROWS	6166597	Japan
USHIO INC	6918981	Japan
VALOR HOLDINGS C	6926553	Japan
WACOAL HOLDINGS	6932204	Japan
WEST JAPAN RAILW	6957995	Japan
YAHAGI CONSTRUCT	6985037	Japan
YAHOO JAPAN CORP	6084848	Japan
YAIZU SUISANKAGA	6985071	Japan
YAKULT HONSHA CO	6985112	Japan
YAMADA DENKI	6985026	Japan
YAMAHA MOTOR CO	6985264	Japan
YAMATO HOLDINGS	6985565	Japan
YAMAZAKI BAKING	6985509	Japan
YAMAZEN CORP	6985587	Japan
YAOKO CO LTD	6985899	Japan
YOKOHAMA RUBBER	6986461	Japan
YUSEN LOGISTICS	6983763	Japan
YUSHIRO CHEM IND	6988757	Japan
YUTAKA GIKEN CO	6079952	Japan
ZEON CORP	6644015	Japan
GRAND KOREA LEIS	B4347P0	Korea South
HANKOOK SHELL	6495417	Korea South
HYUNDAI MOBIS	6449544	Korea South
HYUNDAI MOTOR	6451055	Korea South
ILSUNG PHARMA	6455314	Korea South
KC GREEN HOLDING	B1PS9L9	Korea South
KEPCO ENGINEERIN	B4LW1M1	Korea South
KIA MOTORS CORP	6490928	Korea South
LG HOUSEHOLD & H	6344456	Korea South
SAMSUNG ELECTRON	6771720	Korea South
AXIATA GROUP BER	B2QZGV5	Malaysia
BRIT AMER TOBACC	6752349	Malaysia
DIGI.COM BHD	6086242	Malaysia
DRB-HICOM BHD	6269816	Malaysia

Firm Name	SEDOL	Country
GENTING BHD	B1VXJL8	Malaysia
GENTING MALAYSIA	B1VXKN7	Malaysia
HEINEKEN MALAYSI	6397803	Malaysia
IOI CORP BHD	B1Y3WG1	Malaysia
MAXIS BHD	B5387L5	Malaysia
MEDIA PRIMA BHD	6812555	Malaysia
MISC BHD	6557997	Malaysia
NESTLE (MALAY)	6629335	Malaysia
PETRONAS GAS BHD	6703972	Malaysia
PPB GROUP BERHAD	6681669	Malaysia
SIME DARBY	B29TTR1	Malaysia
TELEKOM MALAYSIA	6868398	Malaysia
TENAGA NASIONAL	6904612	Malaysia
UEM EDGENTA BHD	6310985	Malaysia
YTL CORP BHD	6436126	Malaysia
YTL POWER INTL	B01GQS6	Malaysia
DSM (KONIN)	B0HZL93	Netherlands
HEINEKEN HLDG	B0CCH46	Netherlands
HEINEKEN NV	7792559	Netherlands
KPN (KONIN) NV	5956078	Netherlands
RANDSTAD HOLDING	5228658	Netherlands
VOPAK	5809428	Netherlands
WOLTERS KLUWER	5671519	Netherlands
ORKLA ASA	B1VQF42	Norway
TELENOR ASA	4732495	Norway
TOMRA SYSTEMS AS	4730875	Norway
VEIDEKKE ASA	B1XCHJ7	Norway
YARA INTL ASA	7751259	Norway
BROADCOM LTD	BD9WQP4	Singapore
CAPITALAND LTD	6309303	Singapore
CITY DEVELOPS	6197928	Singapore
COMFORTDELGRO CO	6603737	Singapore
GENTING SINGAPOR	6366795	Singapore
INDOFOOD AGRI RE	B1QNF48	Singapore
SATS LTD	6243586	Singapore
SEMBCORP INDUS	B08X163	Singapore
SINGAP PRESS HLG	B012899	Singapore
SINGAP TECH ENG	6043214	Singapore

Firm Name	SEDOL	Country
SINGAPORE AIRLIN	6811734	Singapore
SINGAPORE EXCH	6303866	Singapore
SINGAPORE TELECO	B02PY22	Singapore
STARHUB LTD	B1CNDB5	Singapore
UOL GROUP LTD	6916844	Singapore
WILMAR INTERNATI	B17KC69	Singapore
3M CO	2595708	U.S.A.
ABBOTT LABS	2002305	U.S.A.
ABERCROMBIE & FI	2004185	U.S.A.
ABM INDUSTRIES	2024901	U.S.A.
ACTUANT CORP-A	2716792	U.S.A.
ACUITY BRANDS	2818461	U.S.A.
ADOBE SYS INC	2008154	U.S.A.
ADVANCE AUTO PAR	2822019	U.S.A.
AETNA INC	2695921	U.S.A.
AGCO CORP	2010278	U.S.A.
AIR PRODS & CHEM	2011602	U.S.A.
AKAMAI TECHNOLOG	2507457	U.S.A.
ALASKA AIR GROUP	2012605	U.S.A.
ALEXION PHARM	2036070	U.S.A.
ALLETE INC	B02R1L6	U.S.A.
ALLIANT ENERGY	2973821	U.S.A.
ALPHABET INC-A	BYVY8G0	U.S.A.
ALTRIA GROUP INC	2692632	U.S.A.
AMDOCS LTD	2256908	U.S.A.
AMEREN CORP	2050832	U.S.A.
AMERICAN ELECTRI	2026242	U.S.A.
AMERICAN WATER W	B2R3PV1	U.S.A.
AMETEK INC	2089212	U.S.A.
AMGEN INC	2023607	U.S.A.
ANALOG DEVICES	2032067	U.S.A.
ANTHEM INC	BSPHGL4	U.S.A.
APPLE INC	2046251	U.S.A.
APPLIED MATERIAL	2046552	U.S.A.
AQUA AMERICA INC	2685234	U.S.A.
ARCHER-DANIELS	2047317	U.S.A.
ARMSTRONG WORLD	B1FT462	U.S.A.
ARTHUR J GALLAGH	2359506	U.S.A.

Firm Name	SEDOL	Country
ASHLAND GLOBAL H	BYND5N1	U.S.A.
AT&T INC	2831811	U.S.A.
ATMOS ENERGY	2315359	U.S.A.
ATWOOD OCEANICS	2062440	U.S.A.
AUTODESK INC	2065159	U.S.A.
AVISTA CORP	2942605	U.S.A.
BAXTER INTL INC	2085102	U.S.A.
BECTON DICKINSON	2087807	U.S.A.
BED BATH &BEYOND	2085878	U.S.A.
BEMIS CO	2090173	U.S.A.
BERKSHIRE HATH-A	2093666	U.S.A.
BIOGEN INC	2455965	U.S.A.
BOEING CO/THE	2108601	U.S.A.
BRISTOL-MYER SQB	2126335	U.S.A.
BROWN-FORMAN -B	2146838	U.S.A.
CA INC	2214832	U.S.A.
CAMPBELL SOUP CO	2162845	U.S.A.
CARDINAL HEALTH	2175672	U.S.A.
CARLISLE COS INC	2176318	U.S.A.
CARNIVAL CORP	2523044	U.S.A.
CARNIVAL PLC	3121522	U.S.A.
CATERPILLAR INC	2180201	U.S.A.
CBRE GROUP INC-A	B6WVMH3	U.S.A.
CELGENE CORP	2182348	U.S.A.
CF INDUSTRIES HO	B0G4K50	U.S.A.
CHURCH & DWIGHT	2195841	U.S.A.
CIGNA CORP	2196479	U.S.A.
CINTAS CORP	2197137	U.S.A.
CISCO SYSTEMS	2198163	U.S.A.
CMS ENERGY CORP	2219224	U.S.A.
COACH INC	2646015	U.S.A.
COCA-COLA BOTTLI	2206721	U.S.A.
COCA-COLA CO/THE	2206657	U.S.A.
COMCAST CORP-A	2044545	U.S.A.
CONAGRA BRANDS I	2215460	U.S.A.
CONCHO RESOURCES	B1YWRK7	U.S.A.
CONS EDISON INC	2216850	U.S.A.
CORNING INC	2224701	U.S.A.

Firm Name	SEDOL	Country
CR BARD INC	2077905	U.S.A.
CSX CORP	2160753	U.S.A.
CUBIC CORP	2239266	U.S.A.
CUMMINS INC	2240202	U.S.A.
CVS HEALTH CORP	2577609	U.S.A.
DARDEN RESTAURAN	2289874	U.S.A.
DAVITA INC	2898087	U.S.A.
DEERE & CO	2261203	U.S.A.
DOMINION RES/VA	2542049	U.S.A.
DONALDSON CO INC	2276467	U.S.A.
DOW CHEMICAL CO	2278719	U.S.A.
DR PEPPER SNAPPL	B2QW0Z8	U.S.A.
DTE ENERGY CO	2280220	U.S.A.
DU PONT (EI)	2018175	U.S.A.
DUKE ENERGY CORP	B7VD3F2	U.S.A.
EAGLE MATERIALS	2191399	U.S.A.
EASTMAN CHEMICAL	2298386	U.S.A.
ECOLAB INC	2304227	U.S.A.
EDISON INTL	2829515	U.S.A.
ELI LILLY & CO	2516152	U.S.A.
EMERSON ELEC CO	2313405	U.S.A.
EQT CORP	2319414	U.S.A.
ESTEE LAUDER	2320524	U.S.A.
EVERSOURCE ENERG	BVVN4Q8	U.S.A.
EXELON CORP	2670519	U.S.A.
EXXON MOBIL CORP	2326618	U.S.A.
FASTENAL CO	2332262	U.S.A.
FEDEX CORP	2142784	U.S.A.
FIRSTENERGY CORP	2100920	U.S.A.
FLEX LTD	2353058	U.S.A.
FLOWERS FOODS	2744243	U.S.A.
FLOWSERVE CORP	2288406	U.S.A.
FLUOR CORP	2696838	U.S.A.
GAP INC/THE	2360326	U.S.A.
GENERAL ELECTRIC	2380498	U.S.A.
GENERAL MILLS IN	2367026	U.S.A.
GENTEX CORP	2366799	U.S.A.
GREAT PLAINS ENE	2483706	U.S.A.

Firm Name	SEDOL	Country
GREIF INC-CL A	2388016	U.S.A.
HANESBRANDS INC	B1BJSL9	U.S.A.
HARLEY-DAVIDSON	2411053	U.S.A.
HARRIS CORP	2412001	U.S.A.
HASBRO INC	2414580	U.S.A.
HELMERICH & PAYN	2420101	U.S.A.
HERSHEY CO/THE	2422806	U.S.A.
HOLLYFRONTIER CO	B5VX1H6	U.S.A.
HOME DEPOT INC	2434209	U.S.A.
HONEYWELL INTL	2020459	U.S.A.
HORMEL FOODS CRP	2437264	U.S.A.
HUBBELL INC	BDFG6S3	U.S.A.
HUMANA INC	2445063	U.S.A.
HUNTSMAN CORP	B0650B9	U.S.A.
HYATT HOTELS-A	B5B82X4	U.S.A.
IBM	2005973	U.S.A.
IDACORP INC	2296937	U.S.A.
ILLINOIS TOOL WO	2457552	U.S.A.
INGERSOLL-RAND	B633030	U.S.A.
INGREDION INC	B7K24P7	U.S.A.
INNOSPEC INC	2245597	U.S.A.
INTEL CORP	2463247	U.S.A.
INTL PAPER CO	2465254	U.S.A.
JETBLUE AIRWAYS	2852760	U.S.A.
JM SMUCKER CO	2951452	U.S.A.
JOHNSON&JOHNSON	2475833	U.S.A.
JONES LANG LASAL	2040640	U.S.A.
KANSAS CITY SOUT	2607647	U.S.A.
KELLOGG CO	2486813	U.S.A.
KIRBY CORP	2493534	U.S.A.
KLA-TENCOR CORP	2480138	U.S.A.
KOHLS CORP	2496113	U.S.A.
KROGER CO	2497406	U.S.A.
LAS VEGAS SANDS	B02T2J7	U.S.A.
LENNOX INTL INC	2442053	U.S.A.
LINDSAY CORP	2516613	U.S.A.
LOWE'S COS INC	2536763	U.S.A.
MACY'S INC	2345022	U.S.A.

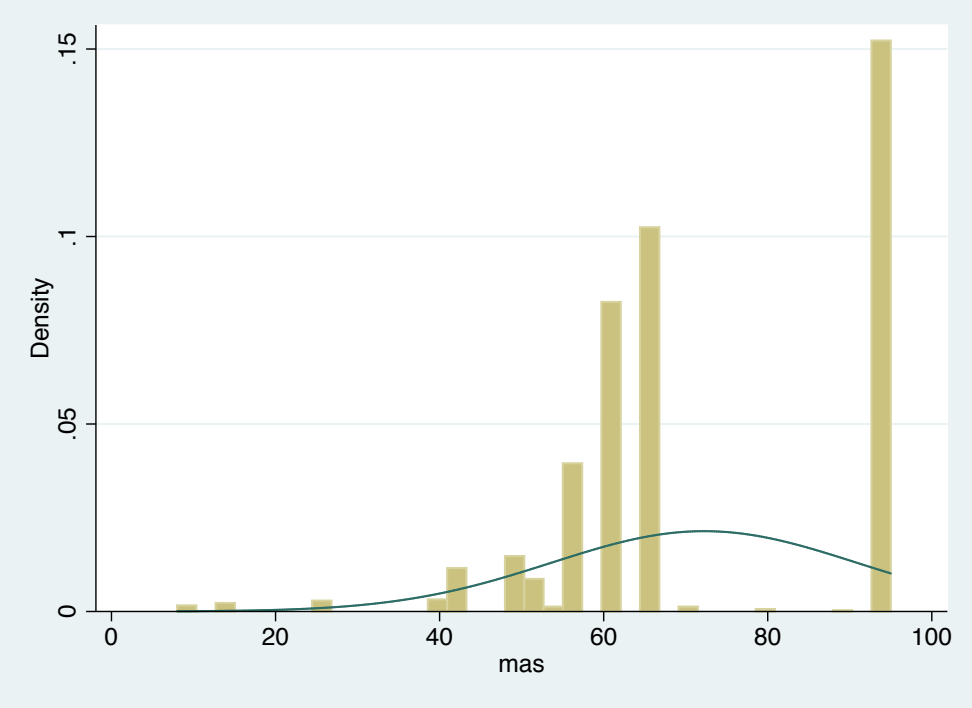
Firm Name	SEDOL	Country
MARSH & MCLENNAN	2567741	U.S.A.
MASTERCARD INC-A	B121557	U.S.A.
MATTEL INC	2572303	U.S.A.
MAXIM INTEGRATED	2573760	U.S.A.
MCCORMICK-N/V	2550161	U.S.A.
MCDONALDS CORP	2550707	U.S.A.
MCKESSON CORP	2378534	U.S.A.
MERCK & CO	2778844	U.S.A.
MEREDITH CORP	2578516	U.S.A.
METTLER-TOLEDO	2126249	U.S.A.
MICROCHIP TECH	2592174	U.S.A.
MICROSOFT CORP	2588173	U.S.A.
MINERALS TECH	2595612	U.S.A.
MOHAWK INDS	2598699	U.S.A.
MOLSON COORS-B	B067BM3	U.S.A.
MONDELEZ INTER-A	B8CKK03	U.S.A.
MONSANTO CO	2654320	U.S.A.
MOSAIC CO/THE	B3NPHP6	U.S.A.
NATL INSTRUMENTS	2645078	U.S.A.
NETAPP INC	2630643	U.S.A.
NETGEAR INC	2688363	U.S.A.
NEW JERSEY RES	2630513	U.S.A.
NEW YORK TIMES-A	2632003	U.S.A.
NEWELL BRANDS IN	2635701	U.S.A.
NEXTERA ENERGY	2328915	U.S.A.
NIKE INC -CL B	2640147	U.S.A.
NISOURCE INC	2645409	U.S.A.
NORFOLK SOUTHERN	2641894	U.S.A.
NORTHROP GRUMMAN	2648806	U.S.A.
NORTHWESTERN COR	B03PGL4	U.S.A.
NUCOR CORP	2651086	U.S.A.
OMNICOM GROUP	2279303	U.S.A.
ONEOK INC	2130109	U.S.A.
ORACLE CORP	2661568	U.S.A.
OSHKOSH CORP	2663520	U.S.A.
PACCAR INC	2665861	U.S.A.
PACKAGING CORP	2504566	U.S.A.

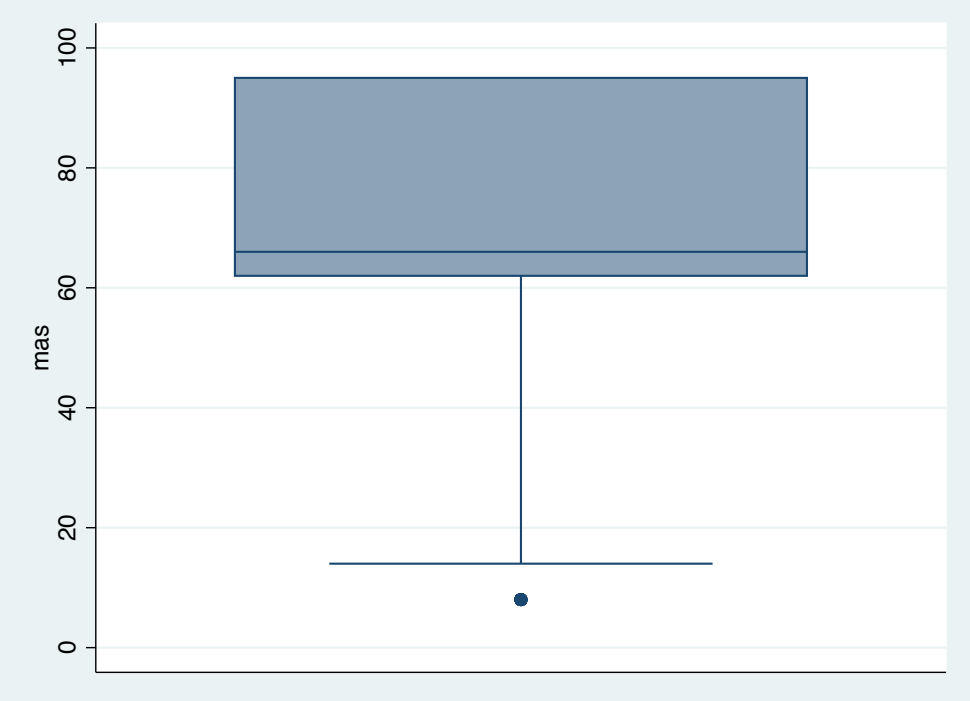
Firm Name	SEDOL	Country
PARKER HANNIFIN	2671501	U.S.A.
PFIZER INC	2684703	U.S.A.
PG&E CORP	2689560	U.S.A.
PINNACLE WEST	2048804	U.S.A.
POLARIS INDS	2692933	U.S.A.
PORTLAND GENERAL	B125XQ6	U.S.A.
PPG INDS INC	2698470	U.S.A.
PPL CORP	2680905	U.S.A.
PROCTER & GAMBLE	2704407	U.S.A.
PUB SERV ENTERP	2707677	U.S.A.
PVH CORP	B3V9F12	U.S.A.
QUALCOMM INC	2714923	U.S.A.
QUANTA SERVICES	2150204	U.S.A.
QUEST DIAGNOSTIC	2702791	U.S.A.
REPUBLIC SVCS	2262530	U.S.A.
RESMED INC	2732903	U.S.A.
REYNOLDS AMERICA	2429090	U.S.A.
ROCKWELL COLLINS	2767228	U.S.A.
ROYAL CARIBBEAN	2754907	U.S.A.
ROYAL GOLD INC	2755706	U.S.A.
RYDER SYSTEM INC	2760669	U.S.A.
SCANA CORP	2545844	U.S.A.
SCHLUMBERGER LTD	2779201	U.S.A.
SEAGATE TECHNOLO	B58JVZ5	U.S.A.
SEMPRA ENERGY	2138158	U.S.A.
SHERWIN-WILLIAMS	2804211	U.S.A.
SHILOH INDS	2804556	U.S.A.
SILICON LABS	2568131	U.S.A.
SKYWORKS SOLUTIO	2961053	U.S.A.
SNAP-ON INC	2818740	U.S.A.
SONOCO PRODUCTS	2821395	U.S.A.
SOUTHERN CO	2829601	U.S.A.
SOUTHWEST AIR	2831543	U.S.A.
SOUTHWEST GAS HO	2831888	U.S.A.
SPIRE INC	BYXJQG9	U.S.A.
STANLEY BLACK &	B3Q2FJ4	U.S.A.
SYSCO CORP	2868165	U.S.A.
TARGET CORP	2259101	U.S.A.

Firm Name	SEDOL	Country
TENNANT CO	2883641	U.S.A.
TESORO CORP	2884569	U.S.A.
TEXAS INSTRUMENT	2885409	U.S.A.
TEXTRON INC	2885937	U.S.A.
THERMO FISHER	2886907	U.S.A.
TIME WARNER INC	B63QTN2	U.S.A.
TJX COS INC	2989301	U.S.A.
TYSON FOODS-A	2909730	U.S.A.
UNION PAC CORP	2914734	U.S.A.
UNITED PARCEL-B	2517382	U.S.A.
UNITED TECH CORP	2915500	U.S.A.
UNITEDHEALTH GRP	2917766	U.S.A.
US LIME & MINERA	2724115	U.S.A.
VALERO ENERGY	2041364	U.S.A.
VARIAN MEDICAL S	2927516	U.S.A.
VERIZON COMMUNIC	2090571	U.S.A.
VF CORP	2928683	U.S.A.
WAL-MART STORES	2936921	U.S.A.
WALGREENS BOOTS	BTN1Y44	U.S.A.
WALT DISNEY CO	2270726	U.S.A.
WASTE MANAGEMENT	2937667	U.S.A.
WATERS CORP	2937689	U.S.A.
WEC ENERGY GROUP	BYY8XK8	U.S.A.
WEIS MARKETS INC	2946845	U.S.A.
WEST MARINE INC	2957773	U.S.A.
WESTAR ENERGY IN	2484000	U.S.A.
WESTERN DIGITAL	2954699	U.S.A.
WESTERN UNION	B1F76F9	U.S.A.
WEYERHAEUSER CO	2958936	U.S.A.
WGL HLDGS INC	2942100	U.S.A.
WHIRLPOOL CORP	2960384	U.S.A.
WHOLE FOODS MKT	2963899	U.S.A.
WW GRAINGER INC	2380863	U.S.A.
WYNDHAM WORLDWID	B198391	U.S.A.
XCEL ENERGY INC	2614807	U.S.A.
YUM! BRANDS INC	2098876	U.S.A.

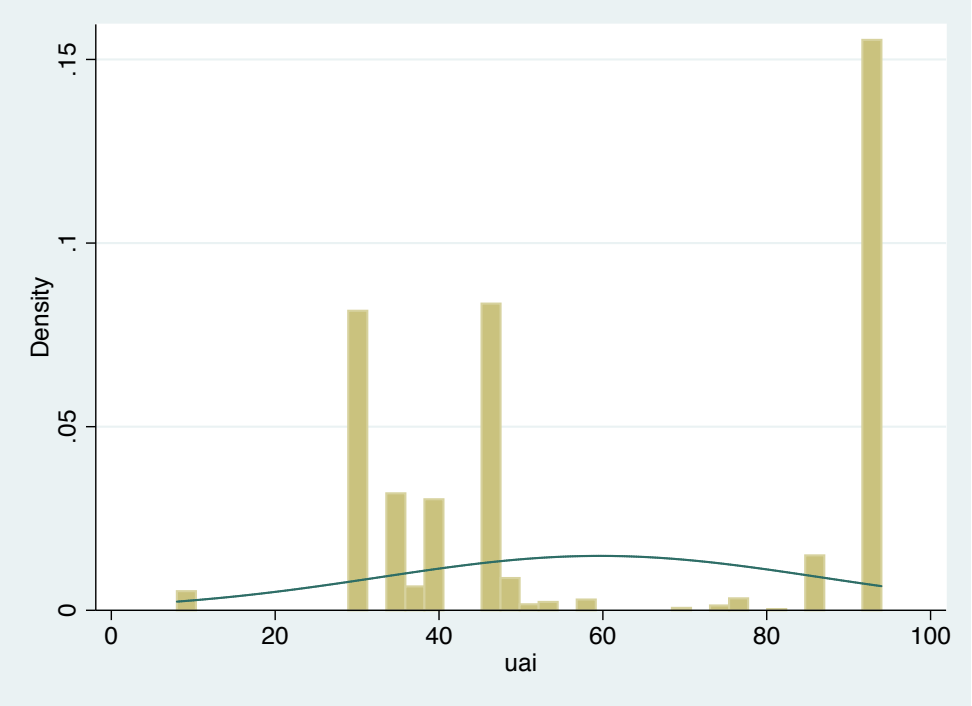
Appendix B: Descriptives

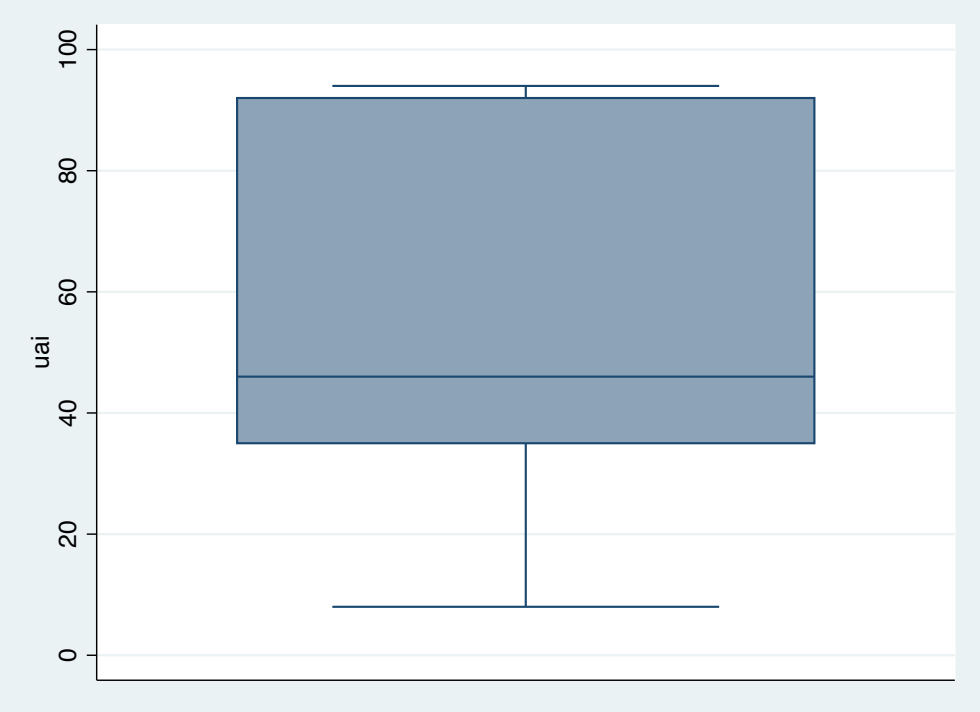
B.1 Masculinity



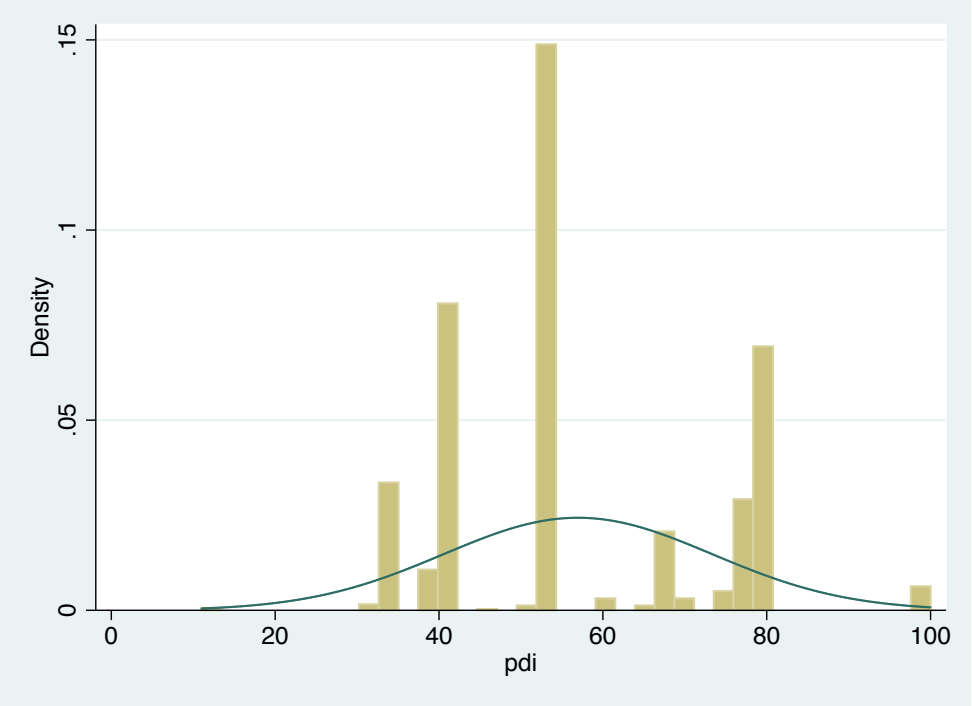


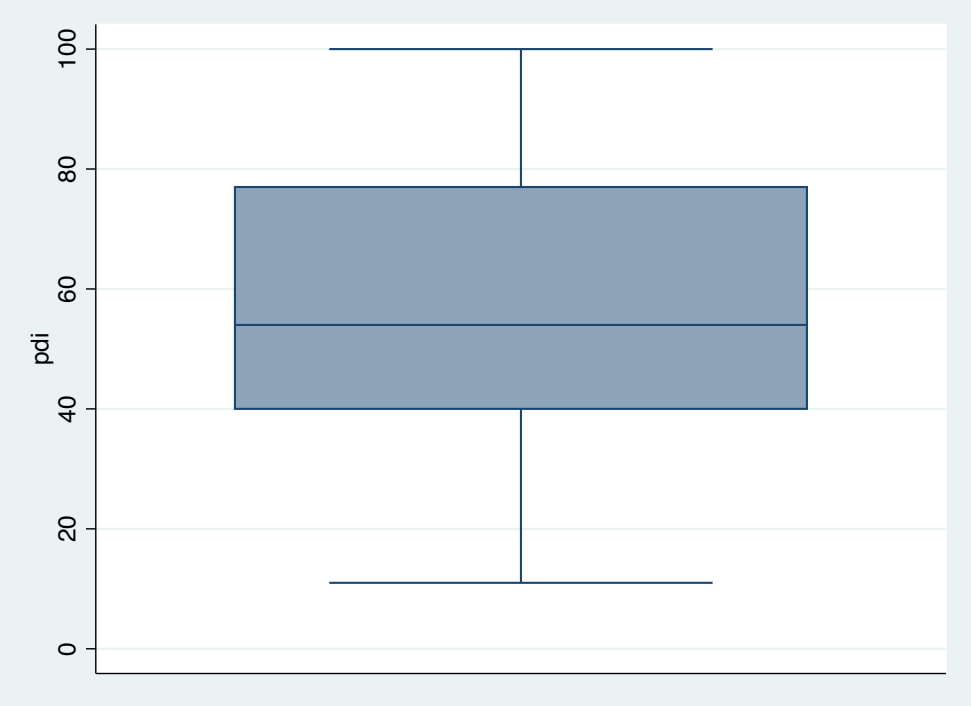
B.2 Uncertainty Avoidance



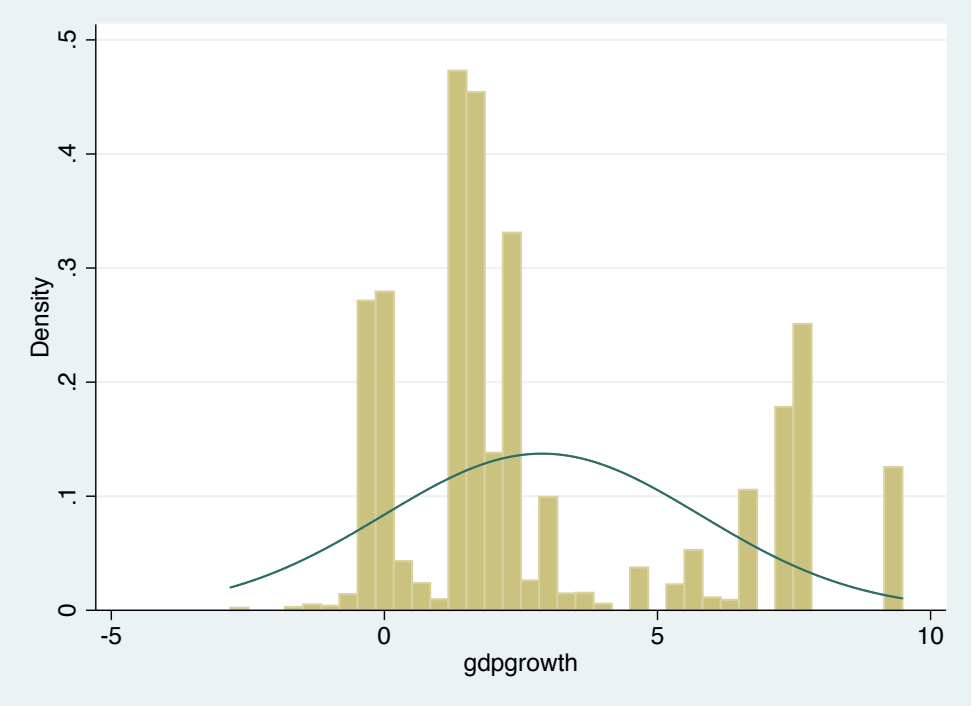


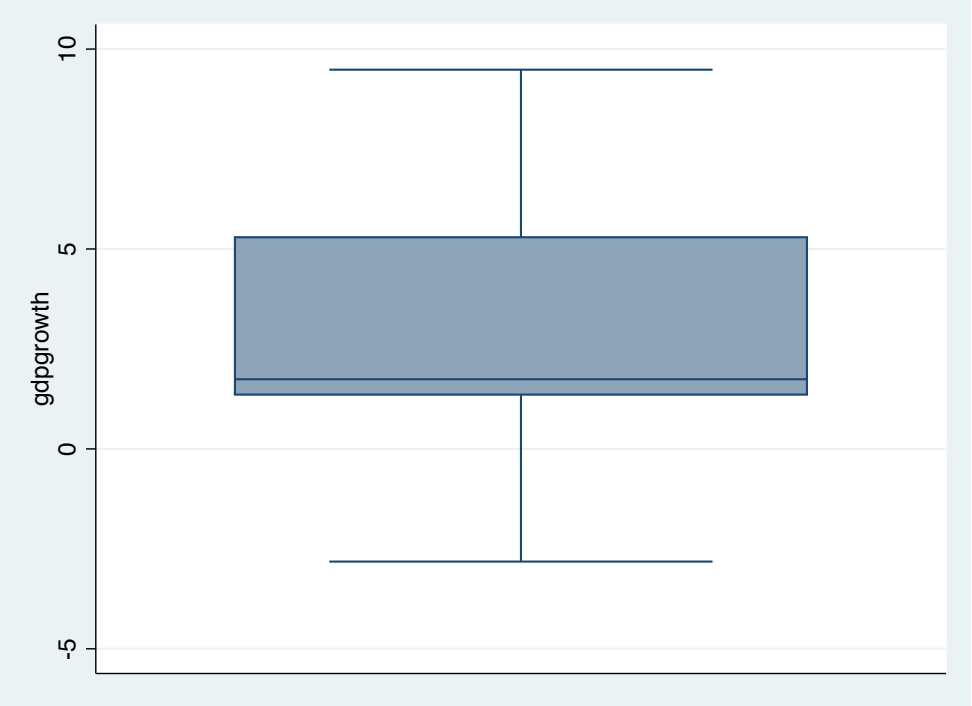
B.3 Power Distance



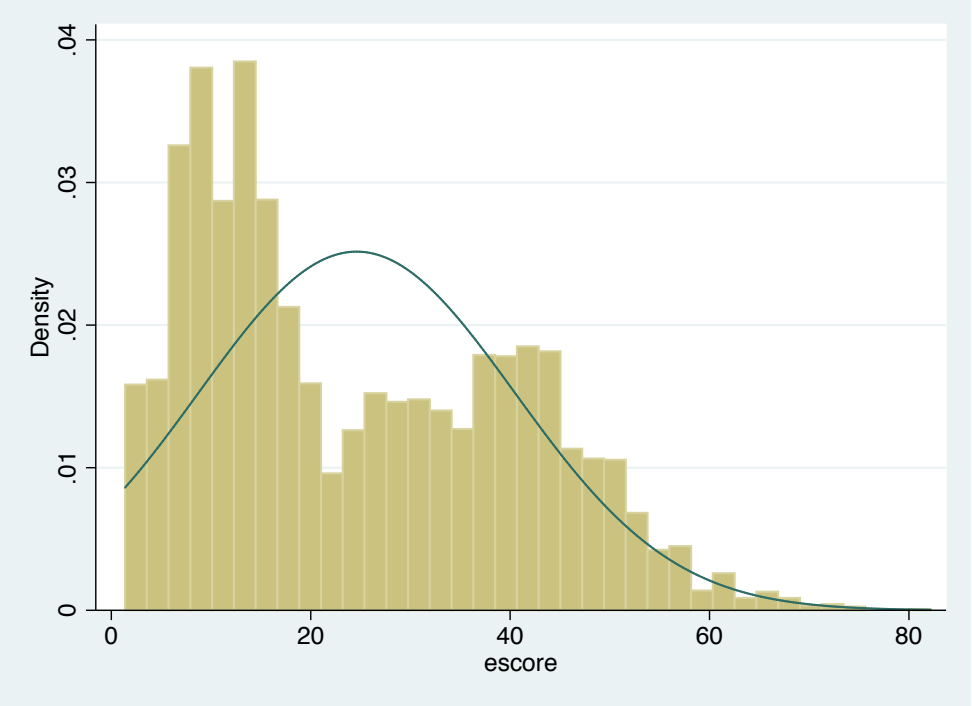


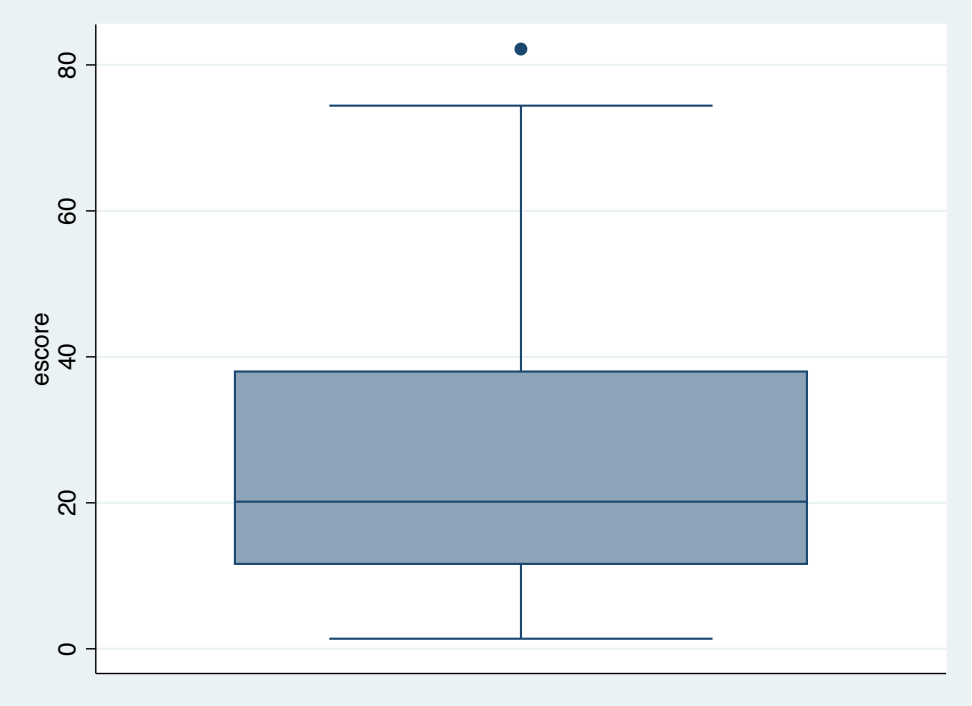
B. 4 GDP Growth



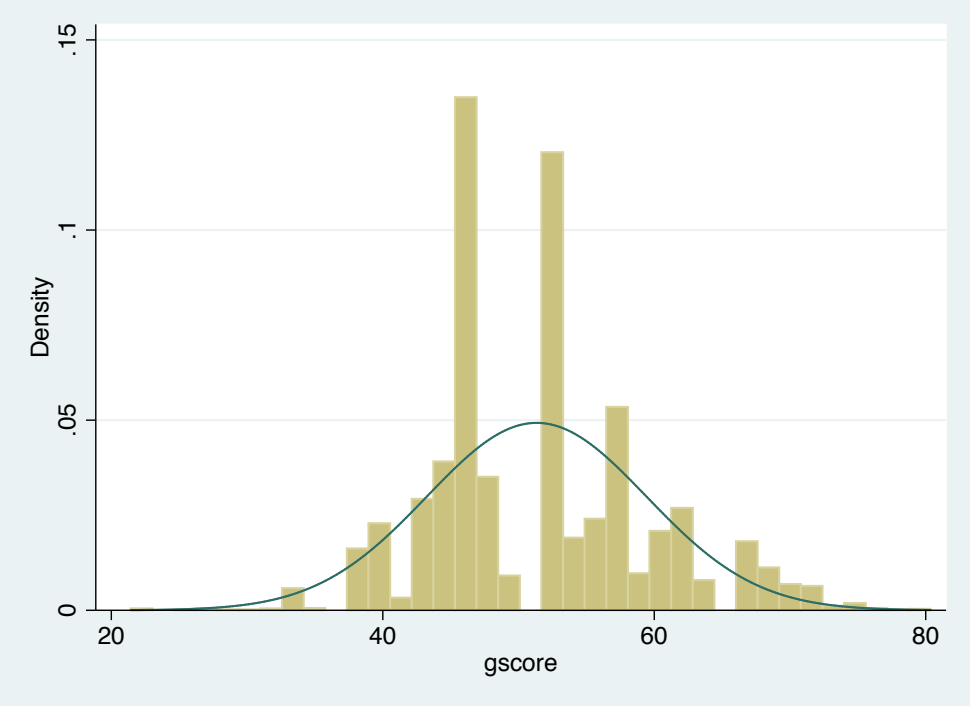


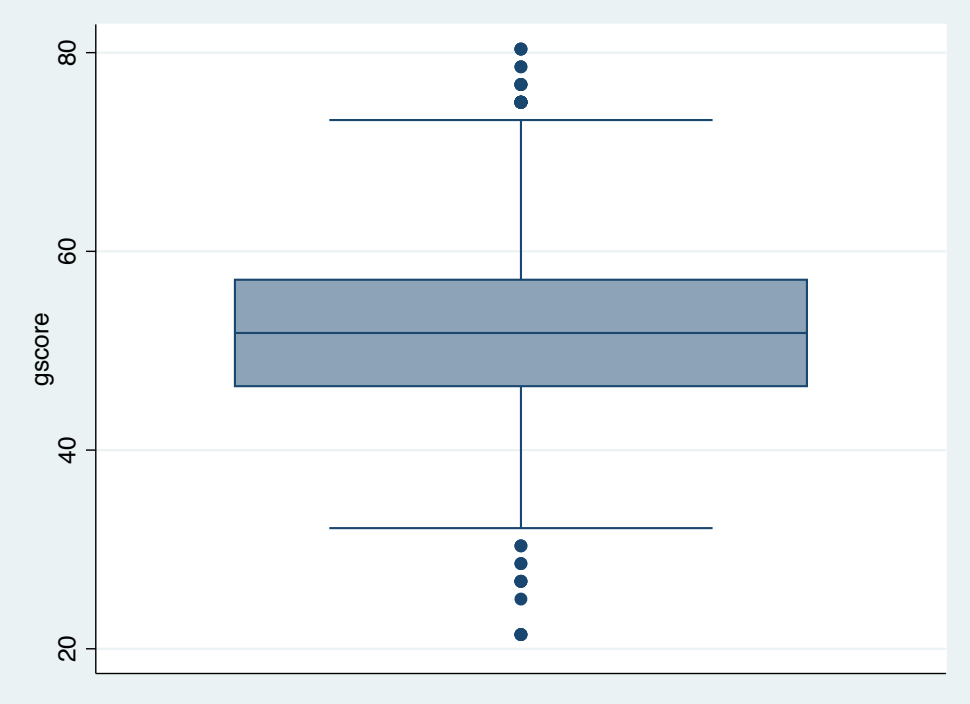
B.5 Environmental Score



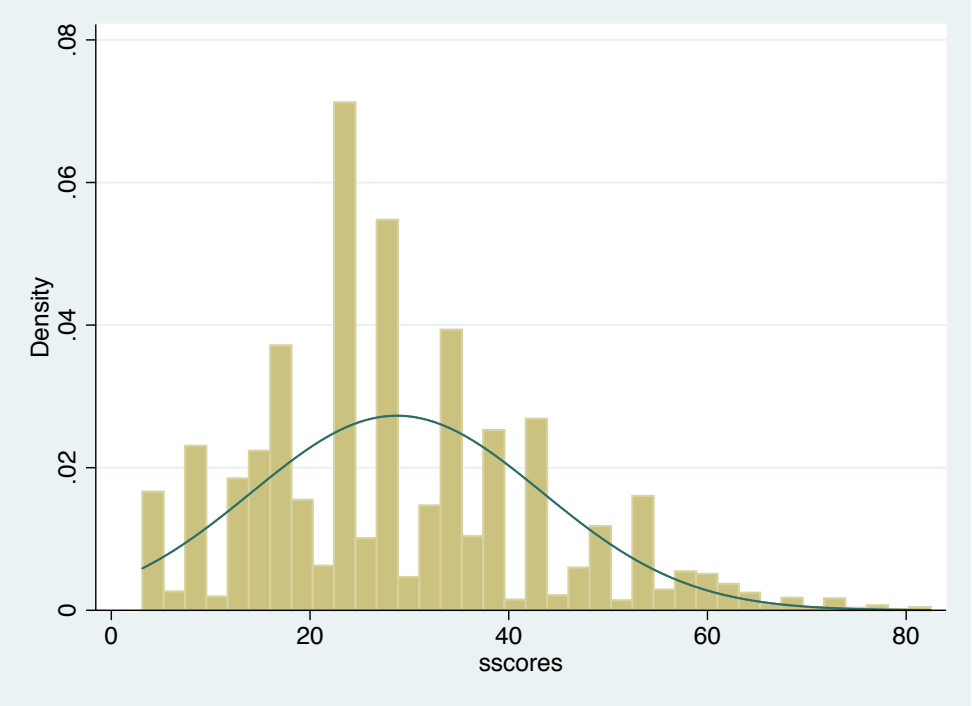


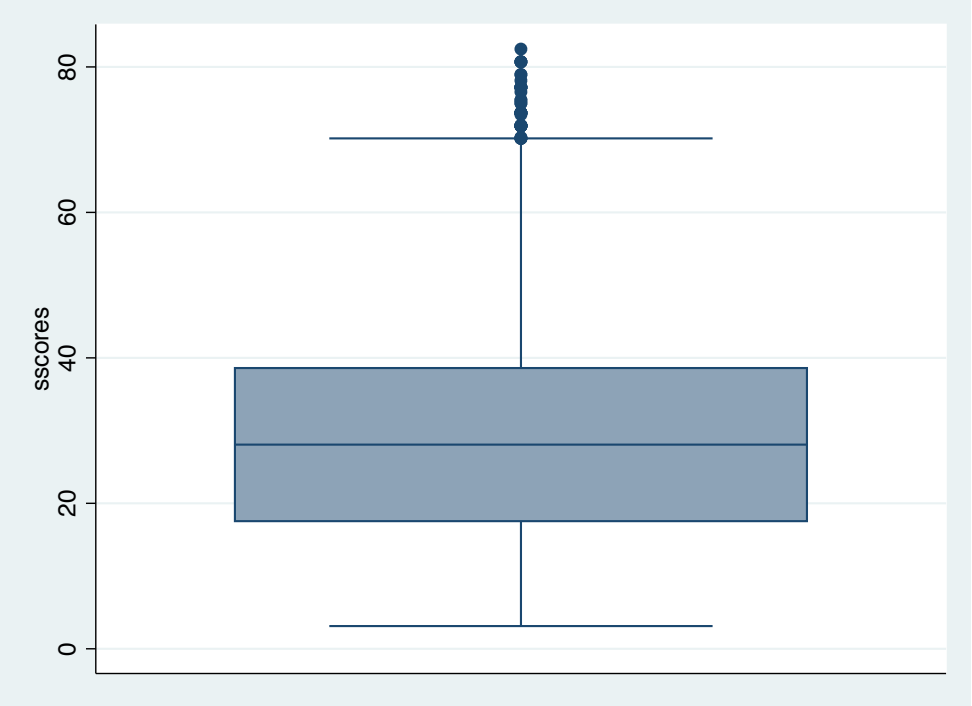
B.6 Governance Score



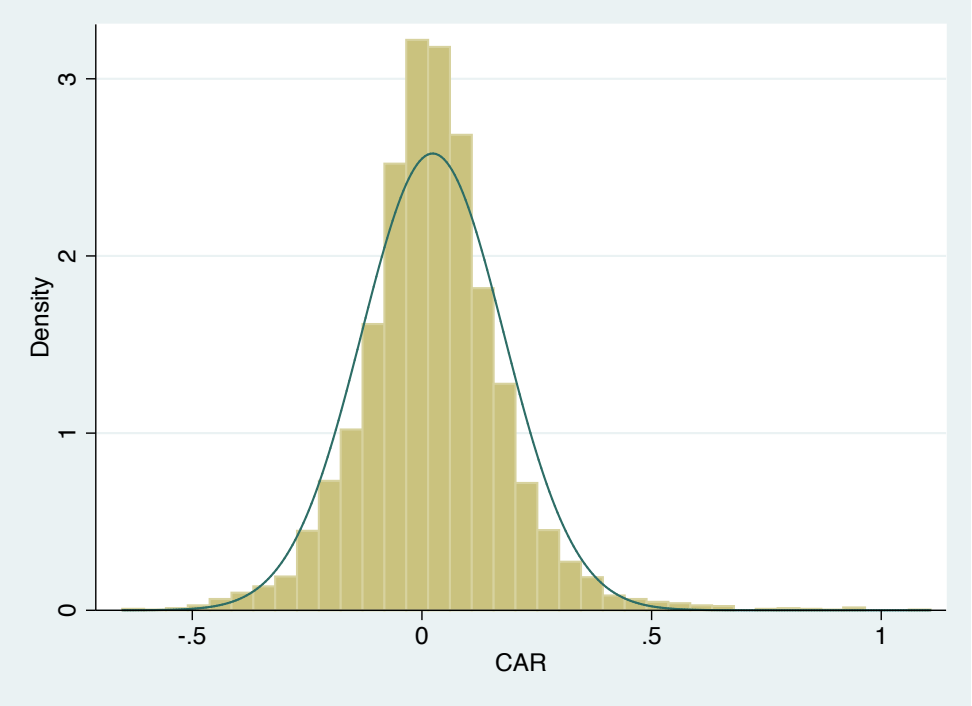


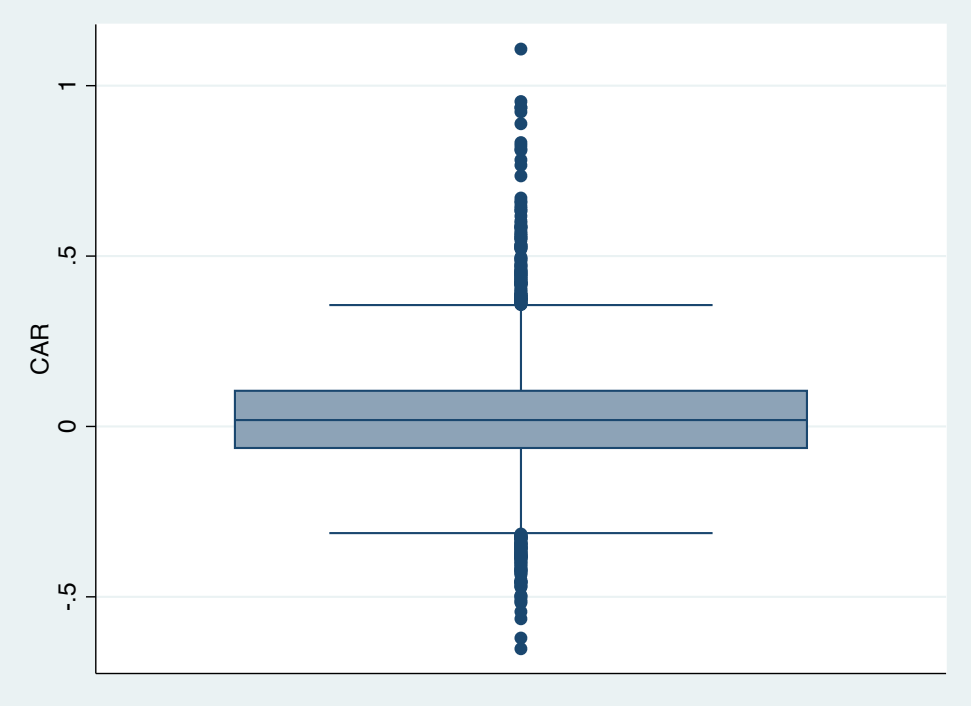
B.7 Social Score



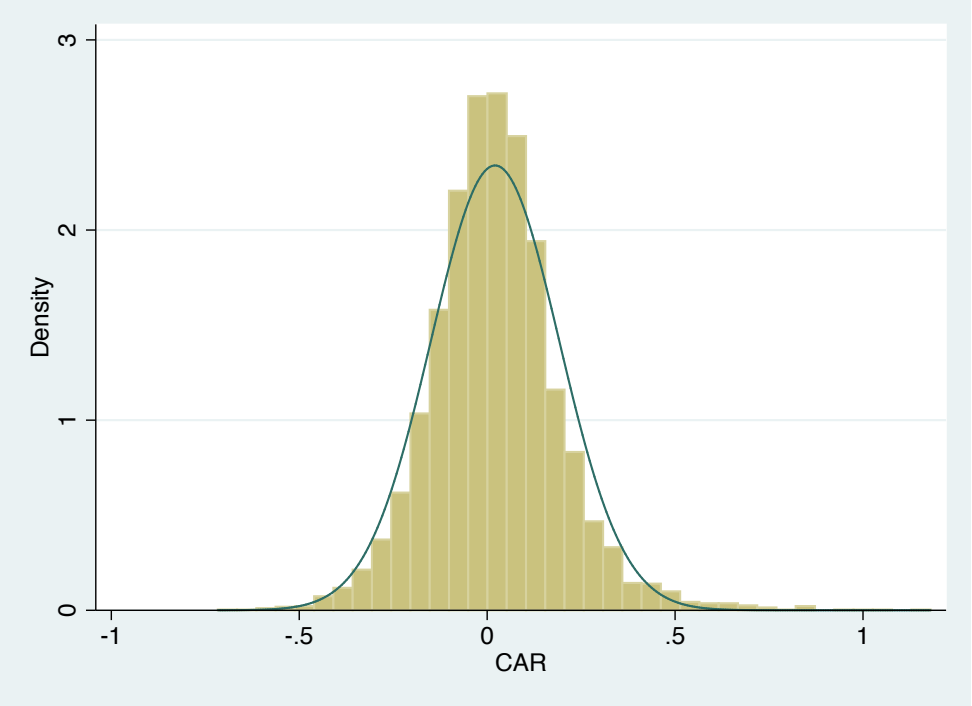


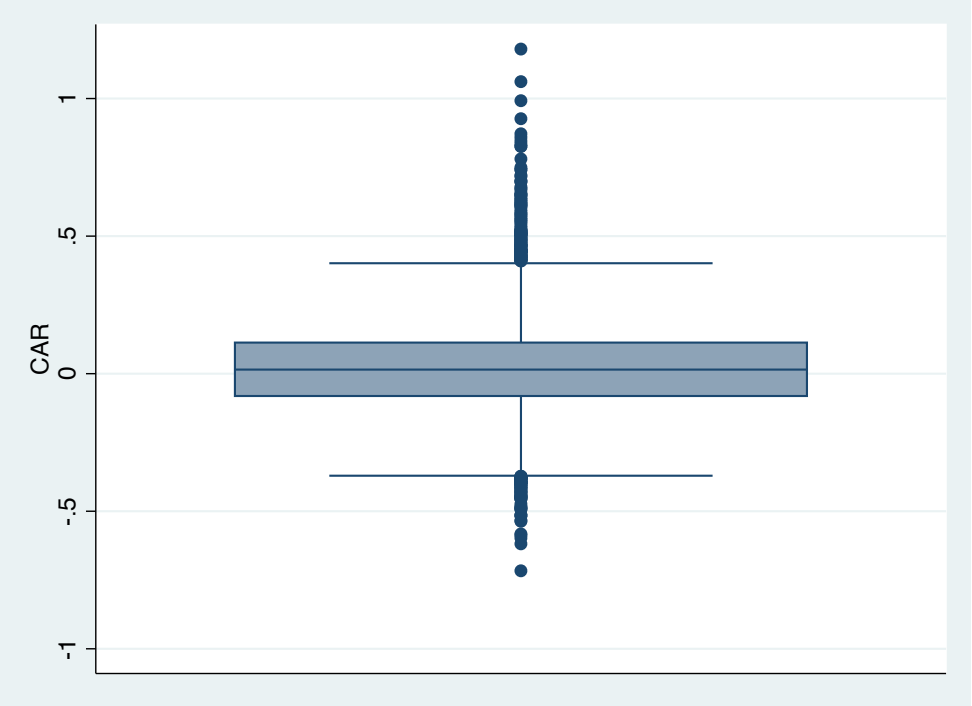
B.8 Market model CAR



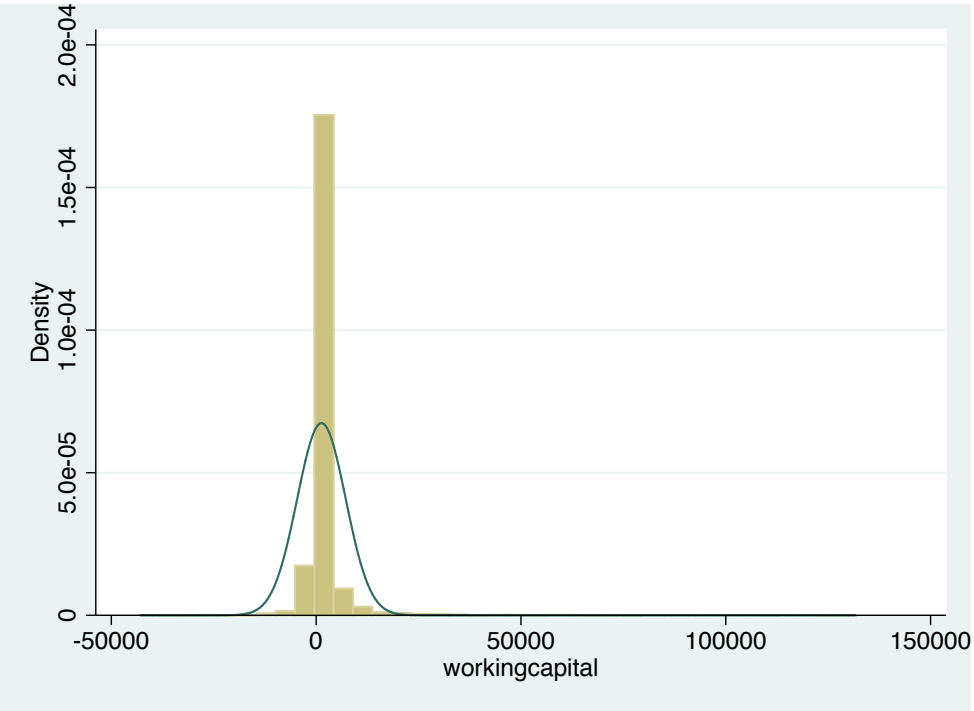


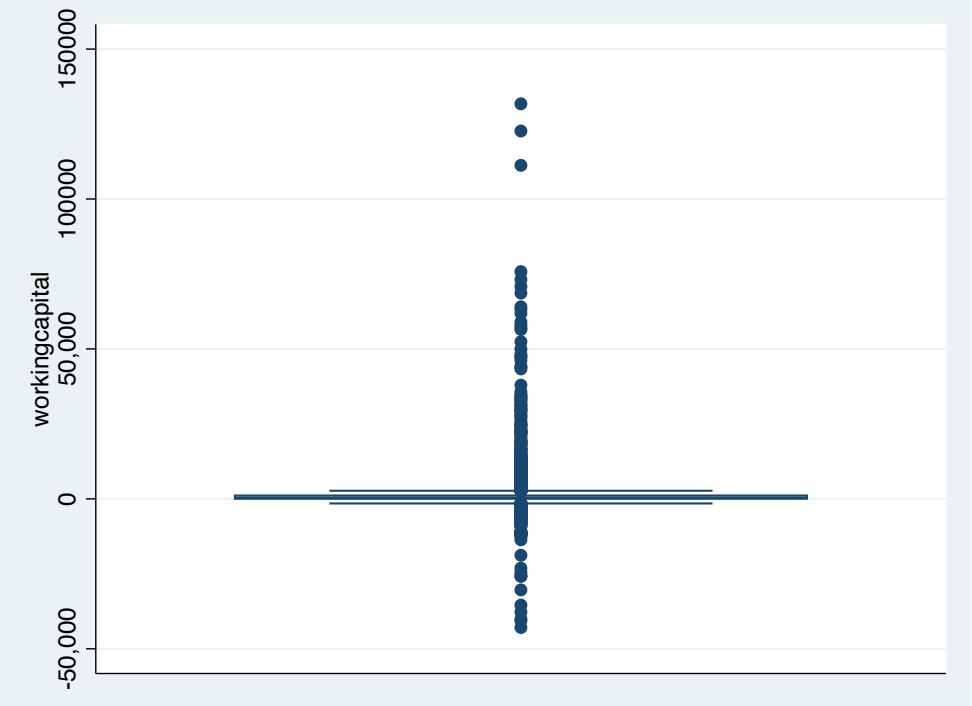
B.9 Mean Model CAR



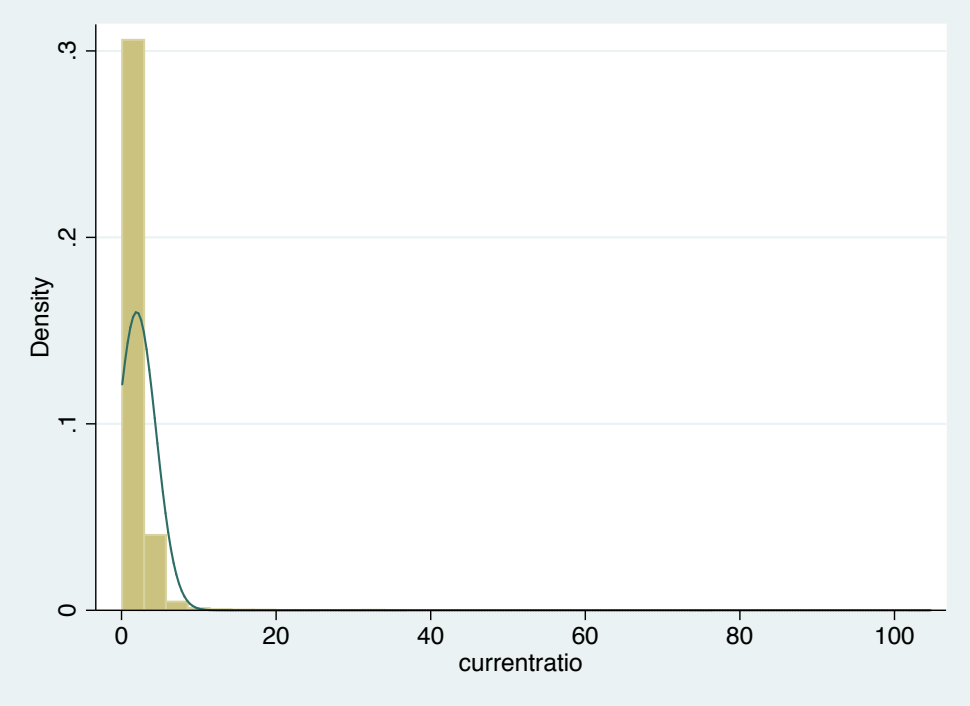


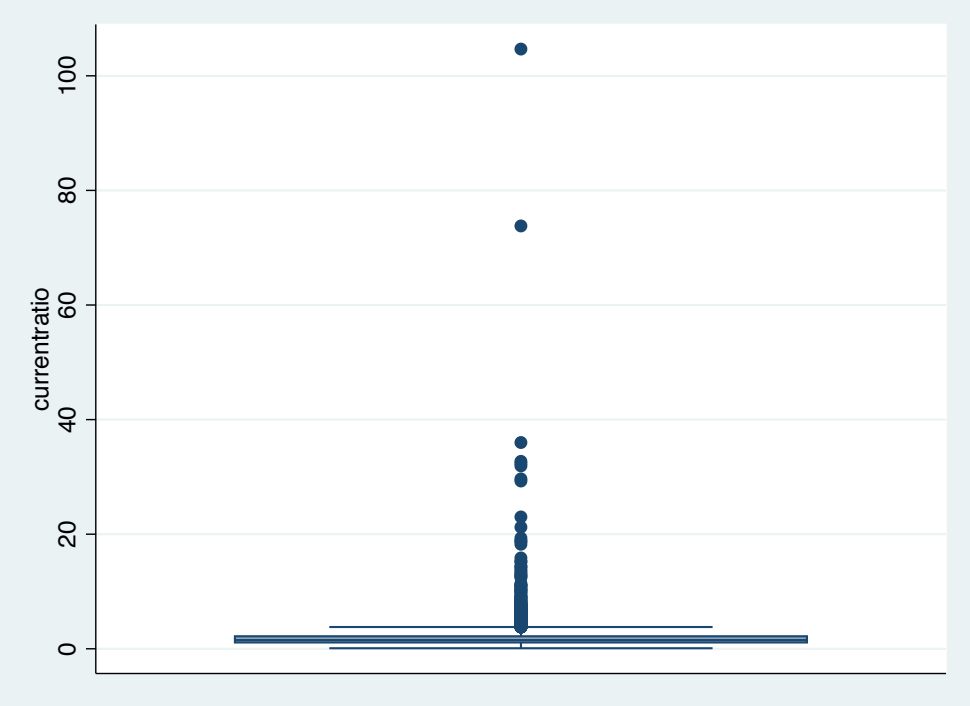
B.10 Working Capital



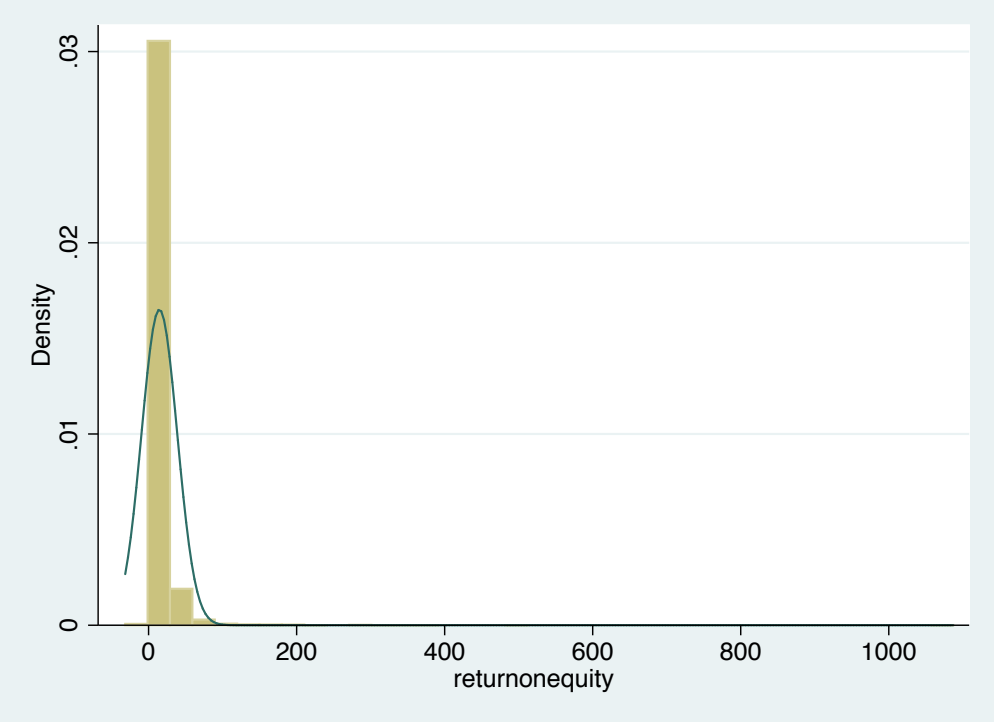


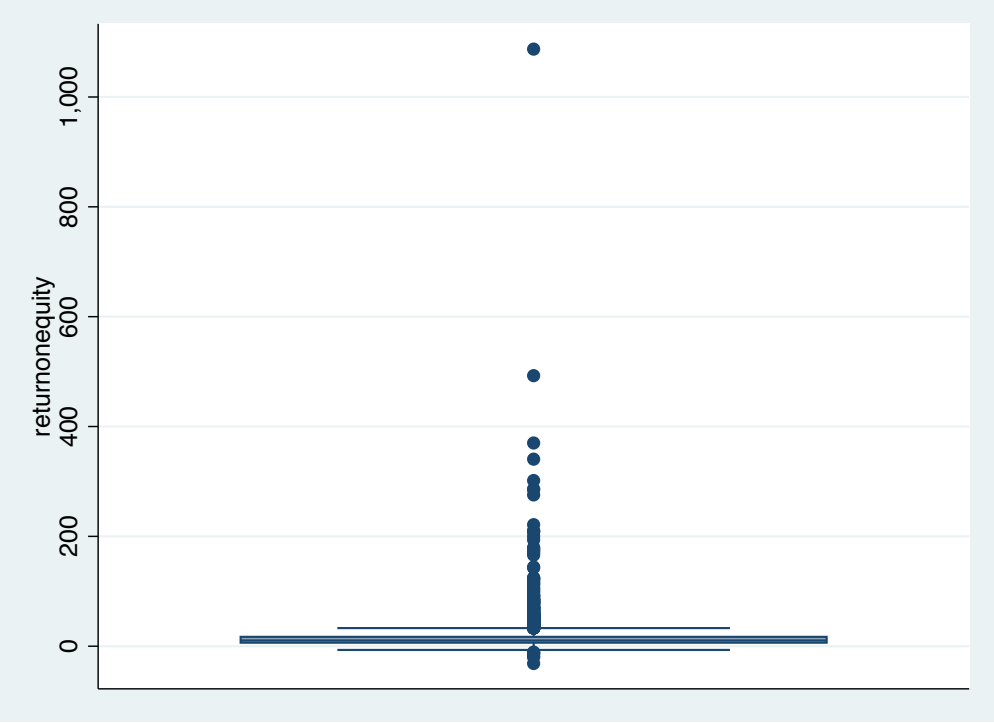
B.11 Current Ratio



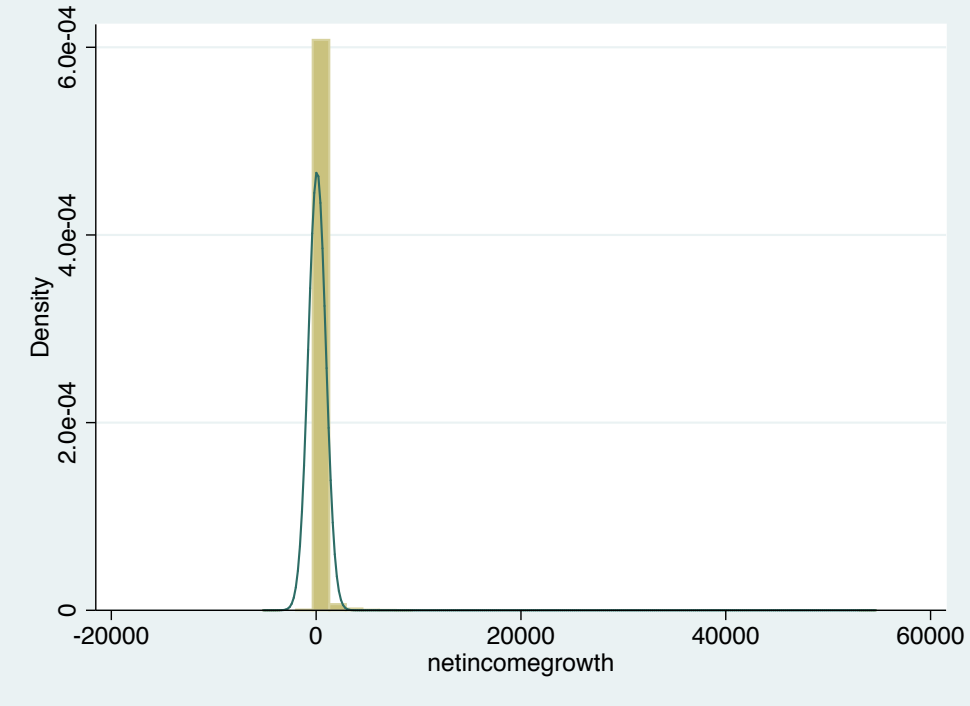


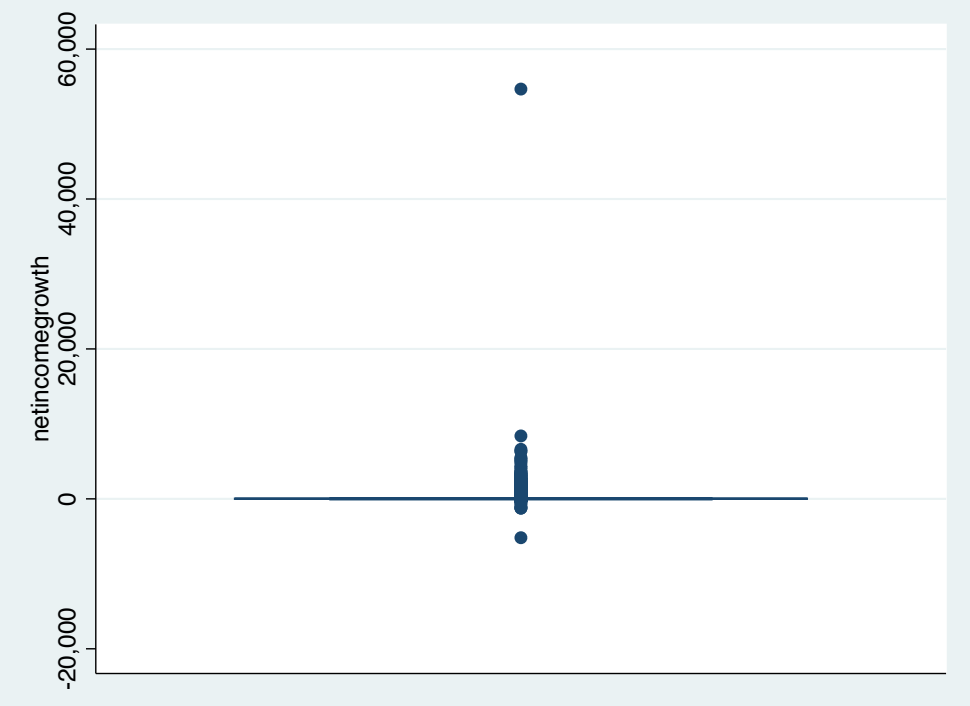
B.12 Return on Equity



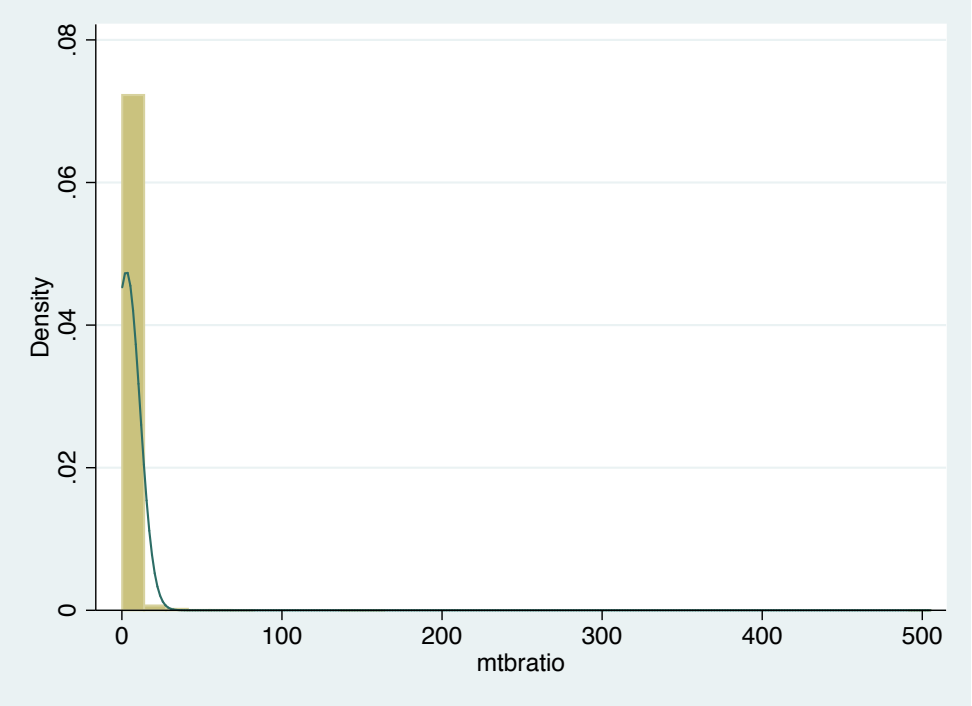


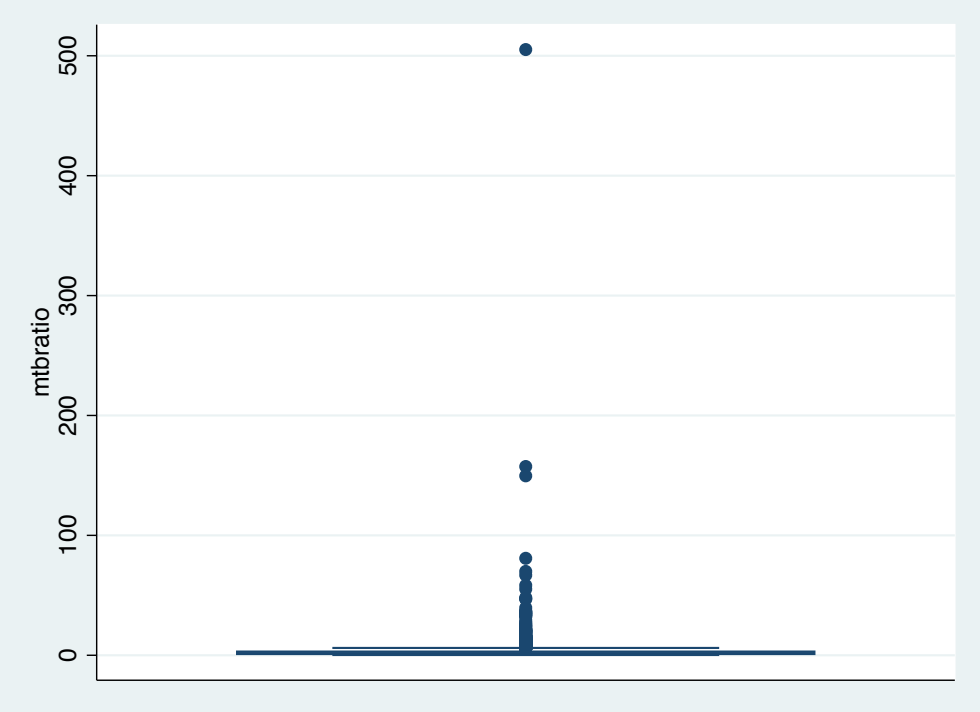
B.13 Net Income Growth



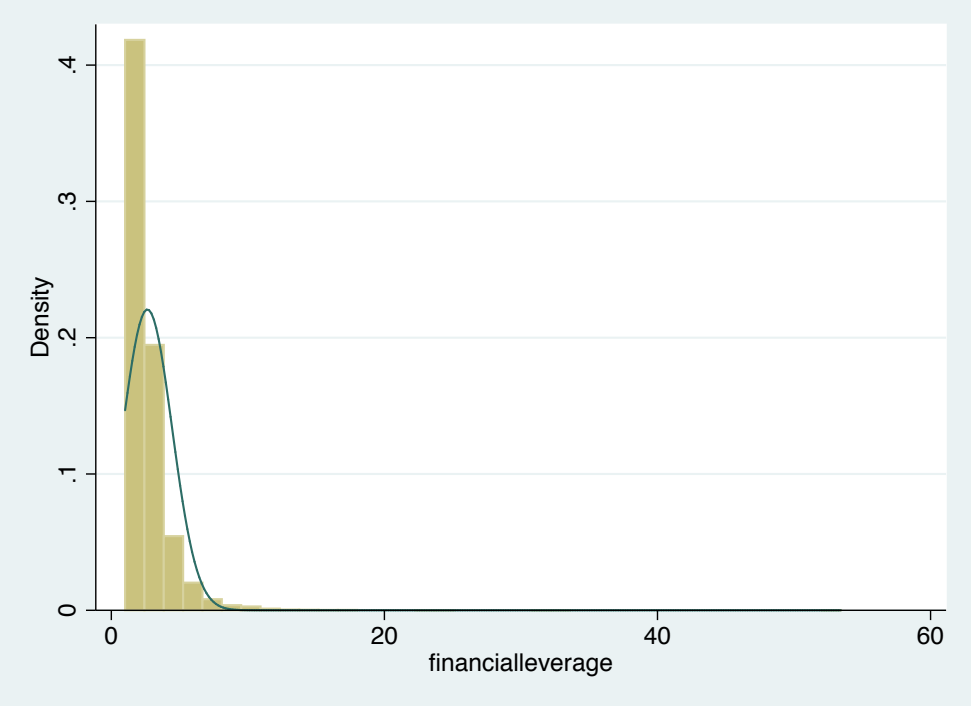


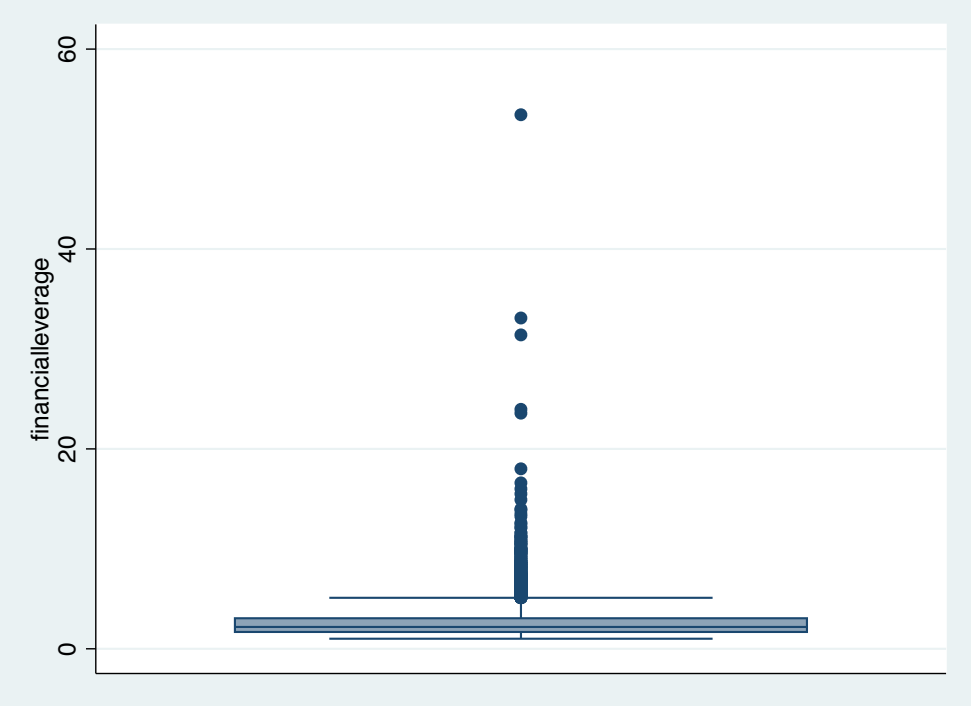
B.14 Market-to-book ratio



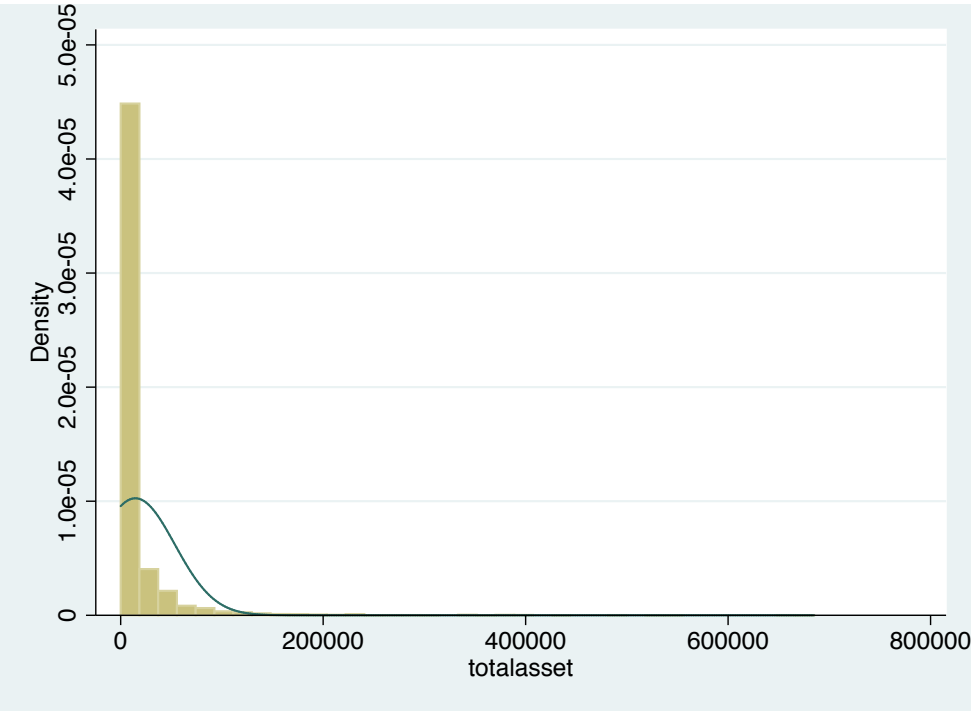


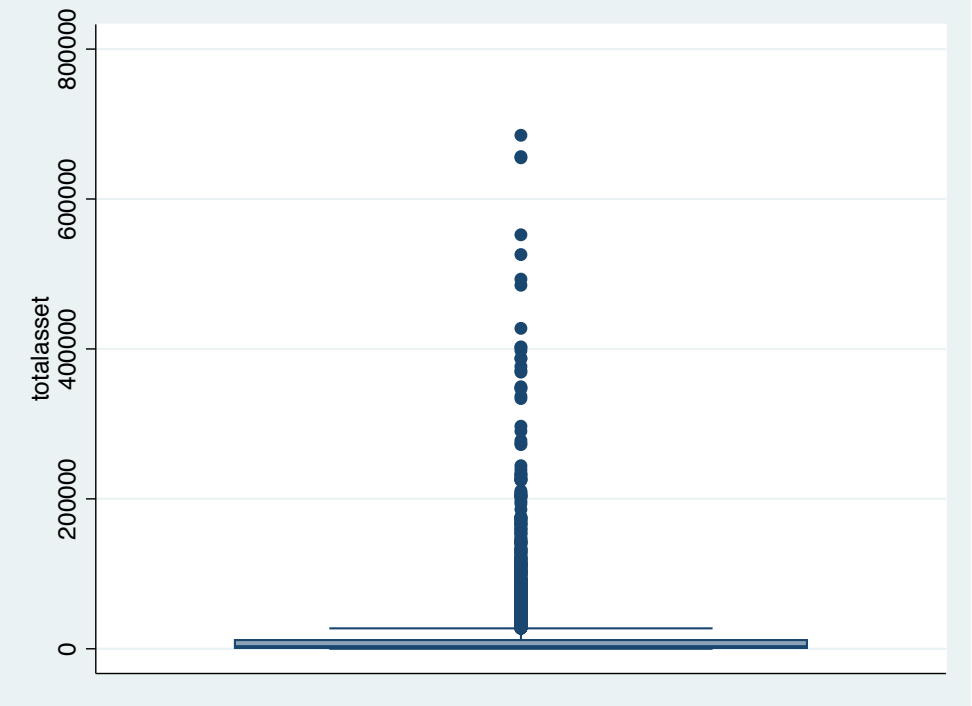
B.15 Financial Leverage



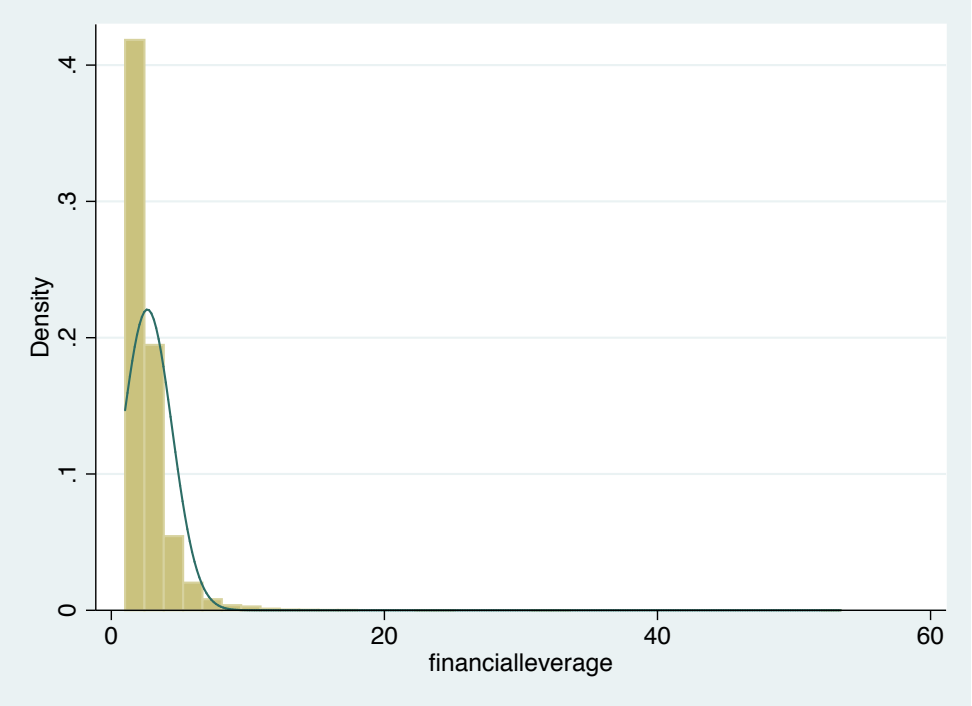


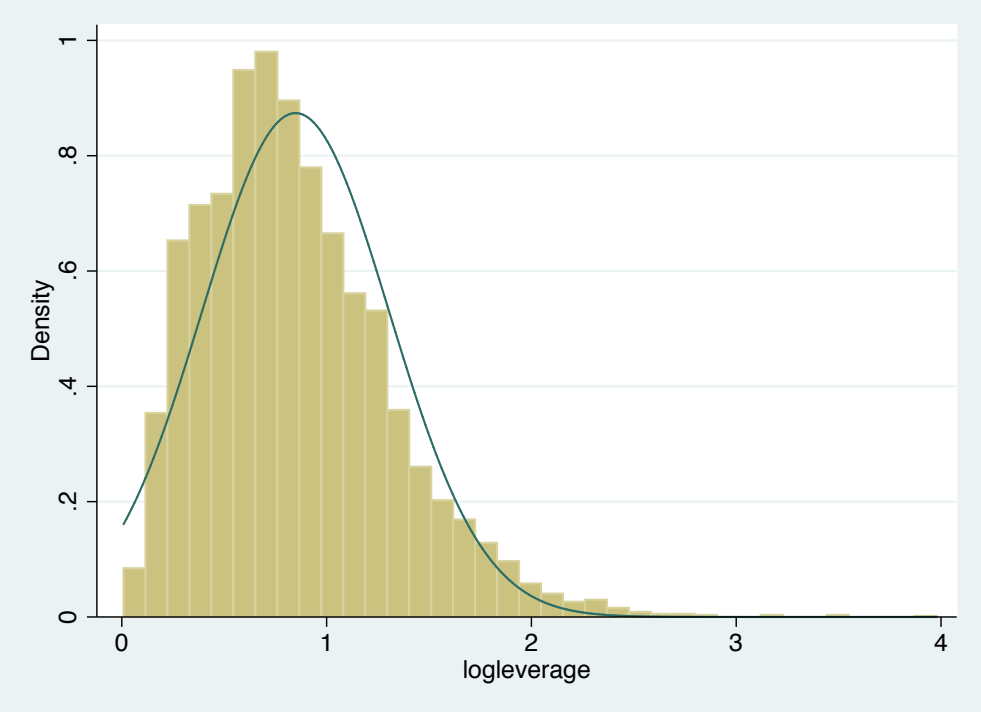
B.16 Total Asset





B.17 Log transformation of financial leverage





B.18 Correlation table

	GDP Growth	Working Capital	Sales Growth	Return on Asset
GDP growth	1.0000			
Working Capital	-0.0562	1.0000		
	0.0000			
Sales Growth	0.1841	0.0100	1.0000	
	0.0000	0.4671		
Return on Asset	0.1418	0.0679	0.1072	1.0000
	0.0000	0.0000	0.0000	
Return on Equity	0.0690	0.0106	0.0341	0.5306
	0.0000	0.4385	0.0131	0.0000
Total Assets	-0.0588	0.4762	-0.0477	-0.0382
	0.0000	0.0000	0.0005	0.0055
Social Scores	-0.0866	0.0464	-0.0642	0.0680
	0.0000	0.0007	0.0000	0.0000
Quick ratio	-0.0077	0.0735	-0.0327	0.1187
	0.5764	0.0000	0.0172	0.0000
Operating income growth	0.0325	-0.0044	0.2265	-0.0003
	0.0179	0.7479	0.0000	0.9800
Net Income Growth	-0.0433	-0.0312	0.0064	0.0027
	0.0016	0.0234	0.6413	0.8465
Market to book ratio	0.0609	-0.0080	0.0120	0.2950
	0.0000	0.5619	0.3833	0.0000
Governance score	-0.2832	0.1211	-0.1004	0.1266
	0.0000	0.0000	0.0000	0.0000
Free cash flow	-0.0924	0.4651	-0.0339	0.1527
	0.0000	0.0000	0.0136	0.0000

	GDP Growth	Working Capital	Sales Growth	Return on Asset
Financial Leverage	0.0438	-0.0382	0.0107	-0.1306
	0.0014	0.0054	0.4343	0.0000
Environmental score	-0.4220	0.1254	-0.1020	-0.0519
	0.0000	0.0000	0.0000	0.0002
Current ratio	0.0241	0.0749	-0.0126	0.1332
	0.0793	0.0000	0.3583	0.0000
Cash and cash equivalent	-0.0346	0.6514	-0.0208	-0.0031
	0.0119	0.0000	0.1293	0.8239
Power Distance	0.7212	-0.0743	0.1488	-0.0004
	0.0000	0.0000	0.0000	0.9756
Masculinity	-0.4200	-0.0332	-0.0432	-0.2921
	0.0000	0.0158	0.0017	0.0000
Uncertainty Avoidance	-0.7169	0.0034	-0.0991	-0.2852
	0.0000	0.8066	0.0000	0.0000
Market model CAR	0.0021	-0.0204	-0.0346	-0.0609
	0.8771	0.1381	0.0117	0
Mean model CAR	0.1111	-0.0236	-0.0329	-0.0244
	0	0.0862	0.0166	0.0756

	Return on equity	Total assets	Social score	Quick ratio
Return on equity	1.0000			
Total Assets	0.0190	1.0000		
	0.1673			
Social Scores	0.1087	0.2119	1.0000	
	0.0000	0.0000		
Quick ratio	-0.0409	-0.0578	-0.0614	1.0000
	0.0029	0.0000	0.0000	
Operating income growth	-0.0006	-0.0060	-0.0023	-0.0051
	0.9639	0.6615	0.8691	0.7093
Net Income Growth	0.0157	0.0439	0.1099	-0.0262
	0.2530	0.0014	0.0000	0.0562
Market to book ratio	0.4915	-0.0102	0.0689	-0.0134
	0.0000	0.4596	0.0000	0.3302
Governance score	0.1638	0.3067	0.5556	-0.0994
	0.0000	0.0000	0.0000	0.0000
Free cash flow	0.0987	0.6341	0.1242	0.0035
	0.0000	0.0000	0.0000	0.7994
Financial Leverage	0.5486	0.1464	0.1329	-0.2132
	0.0000	0.0000	0.0000	0.0000
Environmental score	0.0307	0.2204	0.5698	-0.0588
	0.0255	0.0000	0.0000	0.0000
Current ratio	-0.0396	-0.0719	-0.0673	0.9638
	0.0040	0.0000	0.0000	0.0000

	Return on equity	Total assets	Social score	Quick ratio
Cash and cash equivalent	0.0264	0.8283	0.1414	0.0064
	0.0550	0.0000	0.0000	0.6402
Power Distance	-0.0293	-0.1118	-0.1245	0.0238
	0.0328	0.0000	0.0000	0.0827
Masculinity	-0.2024	-0.1126	-0.3045	0.0576
	0.0000	0.0000	0.0000	0.0000
Uncertainty Avoidance	-0.2067	-0.0455	-0.0658	0.0376
	0.0000	0.0009	0.0000	0.0062
Market model CAR	-0.0257	-0.0149	-0.0008	-0.0093
	0.0611	0.2791	0.9518	0.4966
Mean model CAR	-0.0049	0.0035	0.0561	-0.0116
	0.7192	0.8017	0	0.3975

	Operating income growth	Net income growth	Market to book ratio	Governance score
Operating income growth	1.0000			
Net Income Growth	0.0293	1.0000		
	0.0331			
Market to book ratio	-0.0011	0.0064	1.0000	
	0.9342	0.6401		
Governance score	-0.0310	0.0827	0.0902	1.0000
	0.0239	0.0000	0.0000	
Free cash flow	-0.0027	0.0524	0.0394	0.2440
	0.8456	0.0001	0.0041	0.0000
Financial Leverage	-0.0024	0.0456	0.2560	0.1582
	0.8628	0.0009	0.0000	0.0000
Environmental score	-0.0130	0.0854	0.0192	0.4870
	0.3443	0.0000	0.1620	0.0000
Current ratio	-0.0051	-0.0286	-0.0131	-0.1004
	0.7121	0.0375	0.3422	0.0000
Cash and cash equivalent	-0.0034	0.0312	-0.0039	0.2105
	0.8046	0.0231	0.7774	0.0000
Power Distance	0.0197	-0.0230	0.0014	-0.4069
	0.1515	0.0949	0.9170	0.0000
Masculinity	-0.0032	-0.0703	-0.1333	-0.3529
	0.8182	0.0000	0.0000	0.0000

	Operating income growth	Net income growth	Market to book ratio	Governance score
Uncertainty Avoidance	-0.0137	0.0289	-0.1395	-0.1103
	0.3195	0.0357	0.0000	0.0000
Market model CAR	0.0042	-0.0005	-0.0291	-0.0399
	0.7618	0.9689	0.0343	0.0037
Mean model CAR	0	0.0068	-0.0078	-0.0193
	0.9996	0.6191	0.5716	0.16

	Free cash flow	Financial Leverage	Environmental Score	Current ratio
Governance score	1.0000			
Free cash flow	0.2440	1.0000		
	0.0000			
Financial Leverage	0.1582	0.0247	1.0000	
	0.0000	0.0722		
Environmental score	0.4870	0.2022	0.0408	1.0000
	0.0000	0.0000	0.0030	
Current ratio	-0.1004	-0.0179	-0.2163	-0.0725
	0.0000	0.1930	0.0000	0.0000
Cash and cash equivalent	0.2105	0.5237	0.1189	0.1532
	0.0000	0.0000	0.0000	0.0000
Power Distance	-0.4069	-0.1806	-0.0344	-0.2697
	0.0000	0.0000	0.0123	0.0000
Masculinity	-0.3529	-0.0938	-0.1291	0.0962
	0.0000	0.0000	0.0000	0.0000
Uncertainty Avoidance	-0.1103	-0.0410	-0.1259	0.3569
	0.0000	0.0029	0.0000	0.0000
Market model CAR	-0.0261	0.0118	0.0088	-0.0044
	0.0578	0.3922	0.5213	0.7489
Mean model CAR	-0.018	0.0288	-0.0394	-0.0021
	0.1906	0.0361	0.0042	0.8801

	Cash and cash equivalent	Power distance	Masculinity	Uncertainty Avoidance
Cash and cash equivalent	1.0000			
Power Distance	-0.0549	1.0000		
	0.0001			
Masculinity	-0.0770	-0.1178	1.0000	
	0.0000	0.0000		
Uncertainty Avoidance	-0.0316	-0.2470	0.7308	1.0000
	0.0217	0.0000	0.0000	
Market model CAR	-0.02	0.0162	0.0447	0.0259
	0.1449	0.2383	0.0011	0.0598
Mean model CAR	-0.0013	0.0751	-0.0966	-0.1212
	0.9228	0.0000	0.0000	0.0000

	Market model CAR	Mean Model CAR
Market model CAR	1	
Mean model CAR	0.8535	1
	0.0000	

Appendix C: Results

C.1 Pre-regression data and model testing

C.1.1 Hypothesis 1: VIF, Hausman test, Autocorrelation and Heteroskedasticity

C.1.1.1 Small firms

Hausman Test Fixed versus Random effects

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed effect	Random effect	Difference	S.E.
Log leverage	0.0643122	0.0029055	0.0614067	0.1535005
Log leverage*uai	0.000941	-0.0000654	0.0010064	0.0027991
Net income growth	-0.0000925	-0.0000574	-0.000035	0.0000568
Net income growth * mas	9.88E-07	6.12E-07	3.76E-07	5.99E-07
Environmental score	-0.0036199	-0.0001527	-0.0034673	0.0062434
Environmental score* mas	0.0000395	-4.37E-07	0.00004	0.0000858
Social scores	0.0134309	0.0062739	0.007157	0.006142
Social scores * mas	-0.0001309	-0.0000619	-0.0000689	0.0000854
Governance score	0.017654	-0.0012793	0.0189332	0.0094714
Governance score * pdi	-0.0002798	0.0000116	-0.0002914	0.0001446
GDP growth	0.0087214	0.0095171	-0.0007957	0.0039673
Log market to book ratio	-0.1823025	-0.0439156	-0.1383869	0.0206021
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(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)				
51.93				
Prob>chi2 = 0.0000				

VIF test for multicollinearity

Variable	VIF	1/VIF
log leverage	6.07	0.164689

uai	12.61	0.079278
log leverage * uai	8.92	0.11209
net income growth	703.86	0.001421
mas	9.28	0.107743
net income growth * mas	704.12	0.00142
environmental score	41.34	0.024187
environmental score * mas	50.73	0.019712
social score	26.63	0.037556
social score * mas	24.17	0.041371
pdi	65.31	0.015311
governance score	12.21	0.081924
governance score* mas	48.45	0.020642
gdp growth	11.31	0.088453
log of market to book ratio	2.06	0.486507
Mean VIF	115.14	

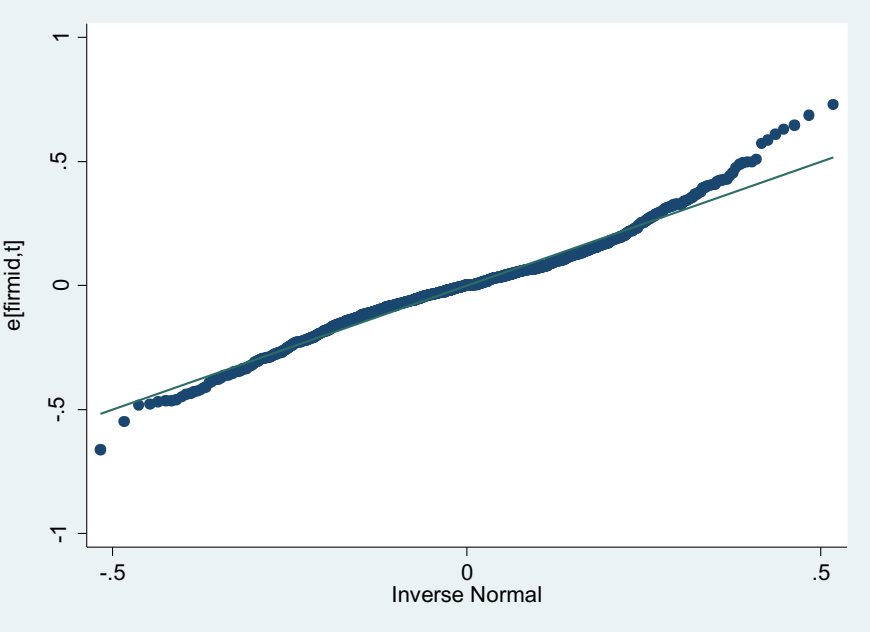
Wald Test for Heteroskedasticity

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (366) = 8.5e+32
Prob>chi2 = 0.0000

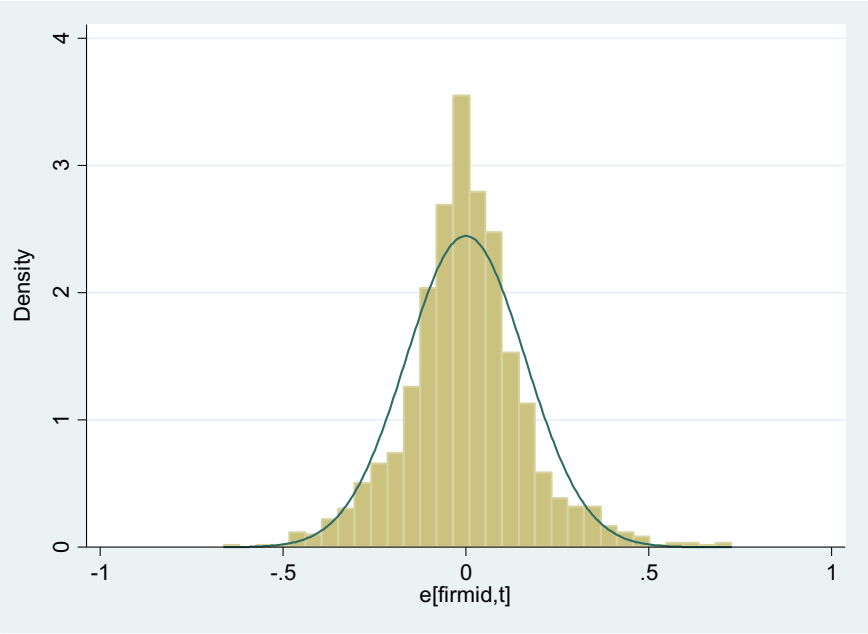
Wooldridge Test for Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 324) = 6.214
Prob > F = 0.0132

Q-Q plot of residuals



Histogram of residuals



C.1.1.2 Medium firms

Hausman Test Fixed versus Random effects

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed effect	Random effect	Difference	S.E.
Log leverage	0.1051962	0.0183961	0.0868001	0.0656156
Log leverage*uai	-0.0002571	-0.0000596	-0.0001975	0.00127
Net income growth	0.0002794	0.0000816	0.0001978	0.0001041
Net income growth * mas	-4.66E-06	-1.77E-06	-2.88E-06	1.36E-06
Environmental score	-0.0009803	-0.0019685	0.0009882	0.002943
Environmental score* mas	3.02E-06	0.0000274	-0.0000244	0.0000423
Social scores	0.0076654	0.0018315	0.0058339	0.0025726
Social scores * mas	-0.000088	-0.0000201	-0.0000679	0.0000372
Governance score	-0.0035806	0.0003493	-0.0039299	0.0040387
Governance score * pdi	0.0000399	-0.0000248	0.0000647	0.0000679
GDP growth	-0.0010132	-0.0030784	0.0020651	0.0023439
Log market to book ratio	-0.1502757	-0.0212914	-0.1289843	0.011765
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(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)				
143.04				
Prob>chi2 = 0.0000				

VIF test for multicollinearity

Variable	VIF	1/VIF
log leverage	5.21	0.191948
uai	11.94	0.083751
log leverage * uai	7.36	0.135885
net income growth	8.42	0.1188
mas	14.93	0.066998
net income growth * mas	7.32	0.136532
environmental score	36.86	0.027132
environmental score * mas	45.15	0.022147

social score	29.41	0.034008
social score * mas	27.35	0.03656
pdi	67.65	0.014782
governance score	17.94	0.055734
governance score* mas	51.73	0.01933
gdp growth	6.87	0.145652
log of market to book ratio	1.51	0.662933
Mean VIF	22.64	

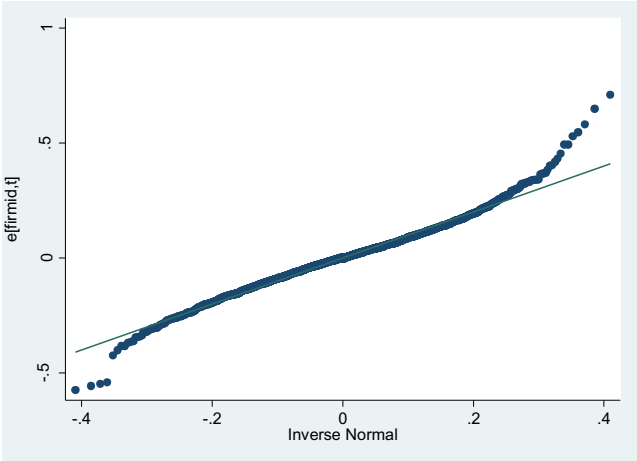
Wald Test for Heteroskedasticity

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (721) = 3.0e+35
Prob>chi2 = 0.0000

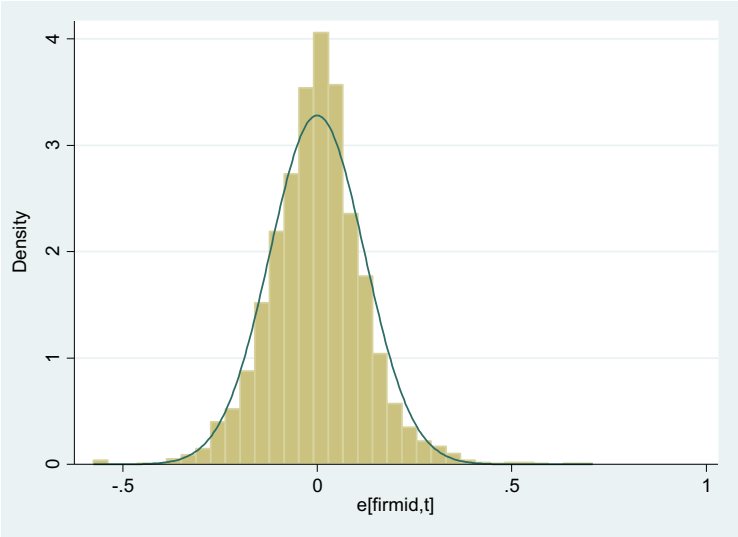
Wooldridge Test for Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 663) = 0.677
Prob > F = 0.4110

Q-Q plot of residuals



Histogram of residuals



C.1.1.3Large firms

Hausman Test Fixed versus Random effects

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed effect	Random effect	Difference	S.E.
Log leverage	0.3447377	0.040911	0.303827	0.107179
Log leverage*uai	-0.0040186	-0.00036	-0.00366	0.00192
Net income growth	-0.0000618	1.93E-06	-6.4E-05	3.21E-05
Net income growth * mas	1.10E-06	3.99E-08	1.06E-06	6.10E-07
Environmental score	-0.0052021	0.000307	-0.00551	0.003331
Environmental score* mas	0.0000988	-2.91E-06	0.000102	5.21E-05
Social scores	-0.000865	0.000937	-0.0018	0.003102
Social scores * mas	4.18E-06	-1.7E-05	2.14E-05	4.91E-05
Governance score	0.0081475	0.001575	0.006573	0.003047
Governance score * pdi	-0.0001722	-0.00002	-0.00015	5.87E-05
GDP growth	0.0022998	-0.00314	0.005443	0.003035
Log market to book ratio	-0.1345821	-0.03587	-0.09872	0.014166
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(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)				
68.23				

Prob>chi2 = 0.0000

VIF test for multicollinearity

Variable	VIF	1/VIF
log leverage	7.56	0.132274
uai	9.11	0.109749
log leverage * uai	13.13	0.076162
net income growth	18.29	0.054677
mas	21.57	0.04636
net income growth * mas	16.5	0.060599
environmental score	29.75	0.033619
environmental score * mas	37.9	0.026388
social score	39.05	0.025611
social score * mas	39.54	0.025292
pdi	76.5	0.013072
governance score	17.3	0.057817
governance score* mas	60.58	0.016506
gdp growth	4.76	0.210068
log of market to book ratio	1.6	0.625043
Mean VIF	26.21	

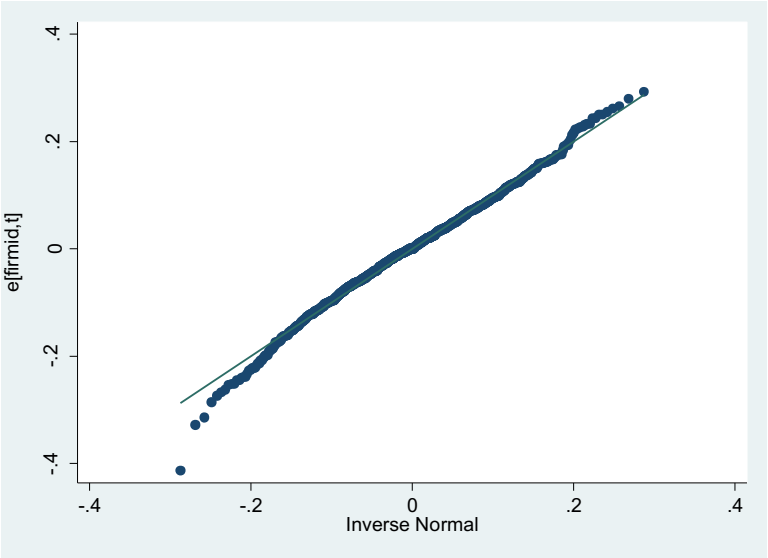
Wald Test for Heteroskedasticity

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (359) = 1.7e+34
Prob>chi2 = 0.0000

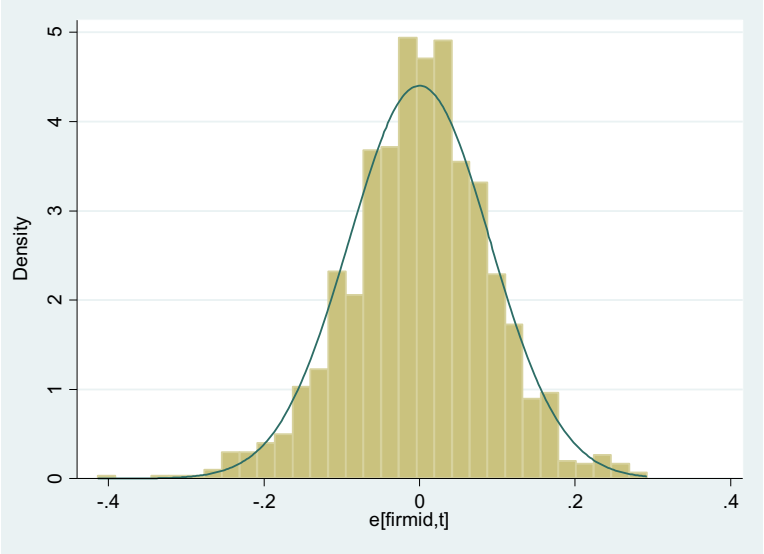
Wooldridge Test for Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 333) = 0.044
Prob > F = 0.8339

Q-Q plot of residuals



Histogram of residuals



C.1.2 Hypothesis 2: VIF, Hausman test, Autocorrelation and Heteroskedasticity

C.1.2.1 Small firms

Hausman Test Fixed versus Random effects

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed effect	Random effect	Difference	S.E.

gdp growth	0.0093791	0.00648	0.0029	0.006075
log of market to book ratio	-0.1752474	-0.03737	-0.13788	0.020749
lof of leverage	0.012418	-0.06415	0.076567	0.16271
log of leverage*uai	0.0010594	0.000959	0.000101	0.002889
working capital	0.0000135	-0.00019	0.000203	0.000363
working capital * uai	-3.23E-06	3.85E-06	-7.08E-06	6.51E-06
net income growth	-0.0001081	-5E-05	-5.8E-05	0.000058
net income growth * mas	1.15E-06	5.27E-07	6.27E-07	6.13E-07
return on equity	0.0017244	-0.0002	0.001928	0.005688
return on equity*mas	-0.0000128	1.26E-05	-2.5E-05	8.57E-05
current ratio	-0.0062848	-0.00112	-0.00517	0.007548
current ratio * uai	0.0000694	3.15E-05	0.000038	0.000231
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(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)				
51.58				
Prob>chi2 = 0.0000				

VIF test for multicollinearity

Variable	VIF	1/VIF
gdp growth	3.44	0.290368
log of market to book ratio	2.75	0.364125
log of leverage	8.49	0.117755
uai	20.55	0.048657
log of leverage * uai	13.38	0.074731
working capital	6.72	0.148913
working capital * uai	9.41	0.106326
masculinity	6.01	0.166269
net income growth	706.34	0.001416
net income growth*mas	706.51	0.001415
return on equity	33.88	0.029515
return on equity*mas	32.24	0.031017
current ratio	9.15	0.109271
current ratio * uai	12.1	0.082623

Mean VIF	112.21	

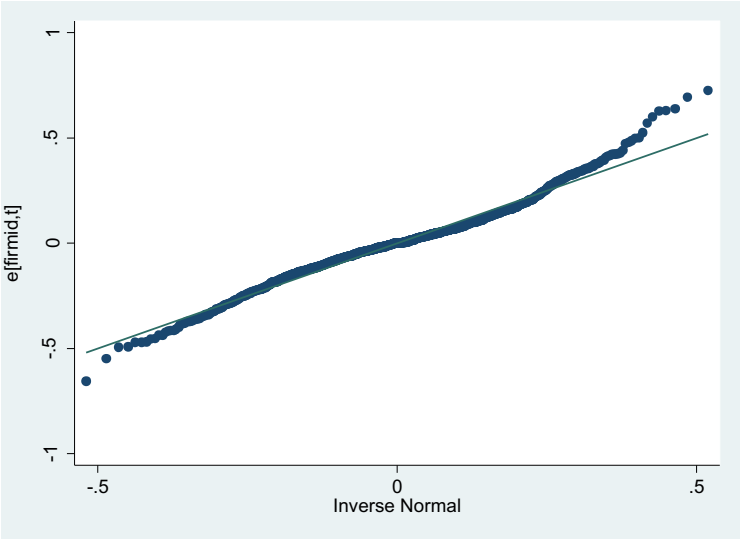
Wald Test for Heteroskedasticity

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (366) = 4.4e+36
Prob>chi2 = 0.0000

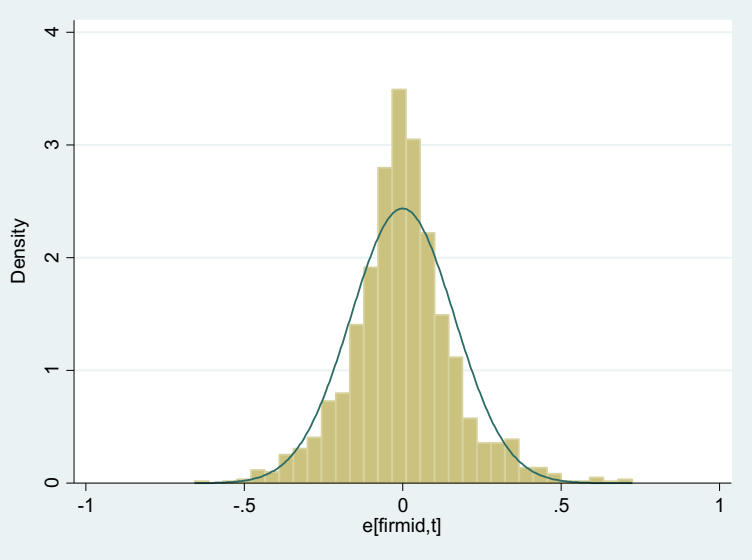
Wooldridge Test for Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 324) = 2059.126
Prob > F = 0.0000

Q-Q plot for normality of residuals



Histogram for residuals



C.1.2.2 Medium firms

Hausman Test Fixed versus Random effects

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed effect	Random effect	Difference	S.E.
gdp growth	-0.0020476	-0.00091	-0.00113	0.003138
log of market to book ratio	-0.1507901	-0.03186	-0.11893	0.011647
lof of leverage	0.0500192	0.012315	0.037705	0.077552
log of leverage*uai	0.0004958	-3.8E-05	0.000534	0.001403
working capital	-0.0000408	-1.3E-05	-2.8E-05	2.76E-05
working capital * uai	3.24E-07	2.04E-07	1.20E-07	5.35E-07
net income growth	0.000296	0.000122	0.000174	0.000105
net income growth * mas	-4.88E-06	-2.40E-06	-2.48E-06	1.38E-06
return on equity	0.0002522	-0.00166	0.001916	0.00105
return on equity*mas	-1.81E-06	3.65E-05	-3.8E-05	2.01E-05
current ratio	-0.02004	0.003766	-0.02381	0.016132
current ratio * uai	0.0002432	-6.8E-05	0.000311	0.000322
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(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)				

126.91
Prob>chi2 = 0.0000

VIF test for multicollinearity

Variable	VIF	1/VIF
gdp growth	2.39	0.419057
log of market to book ratio	2.08	0.481832
log of leverage	7.96	0.125554
uai	22.24	0.044956
log of leverage * uai	13.1	0.076335
working capital	7.63	0.131134
working capital * uai	9.55	0.104697
masculinity	4.89	0.204398
net income growth	8.29	0.120631
net income growth*mas	7.26	0.137705
return on equity	48.57	0.020587
return on equity*mas	50.16	0.019937
current ratio	14.25	0.070192
current ratio * uai	22.22	0.045
Mean VIF	15.76	

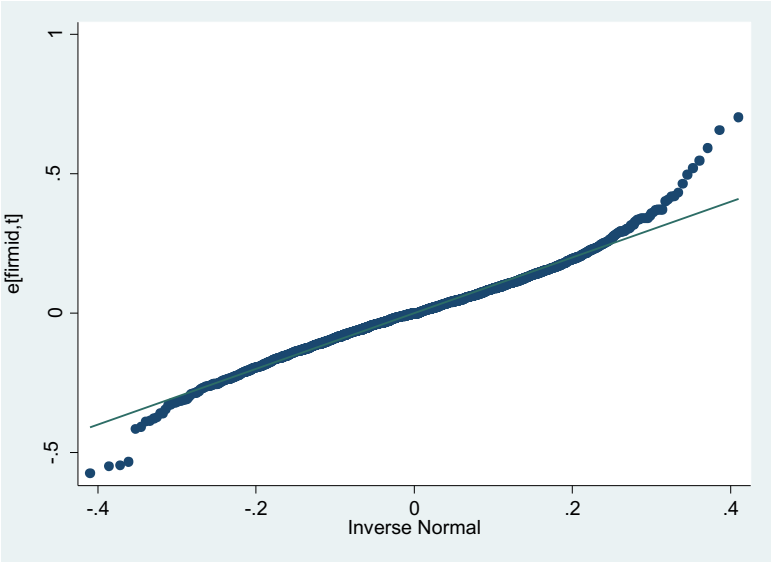
Wald Test for Heteroskedasticity

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (721) = 5.6e+33
Prob>chi2 = 0.0000

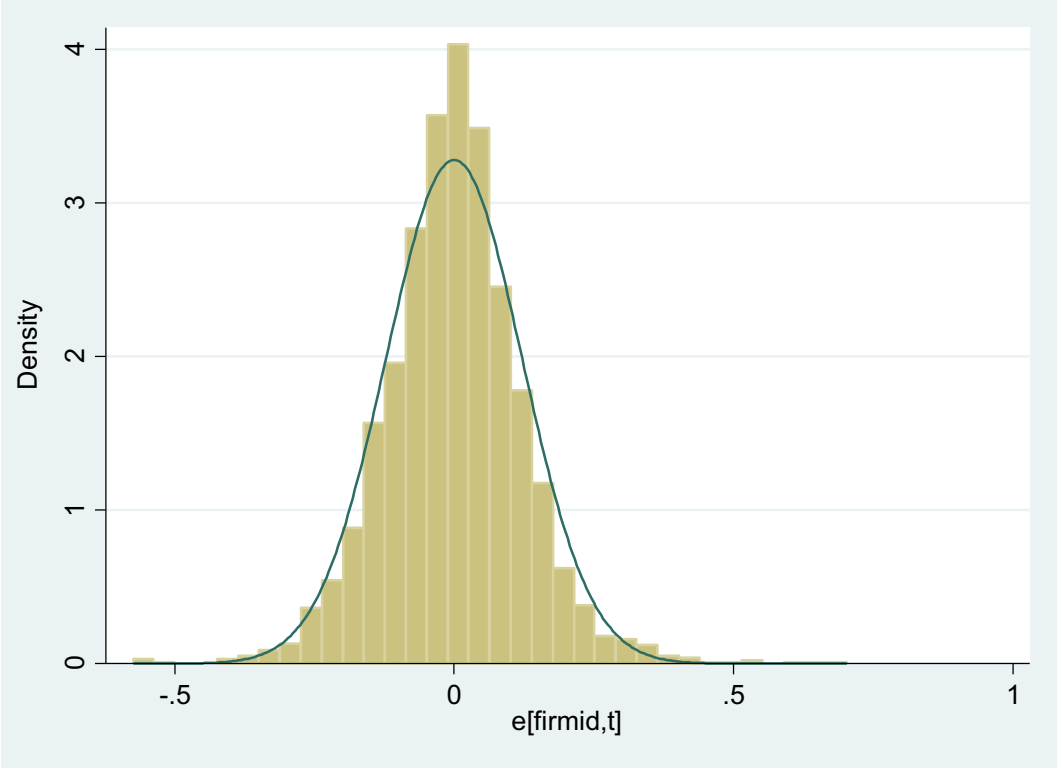
Wooldridge Test for Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 663) = 981.149
Prob > F = 0.0000

Q-Q plot for normality of residuals



Histogram for residuals



C.1.2.3Large firms

Hausman Test Fixed versus Random effects

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	Fixed effect	Random effect	Difference	S.E.
gdp growth	0.003152	-0.0060188	0.0091708	0.0038018
log of market to book ratio	-0.1305132	-0.0390954	-0.0914177	0.0140618
lof of leverage	0.264321	0.0266583	0.2376627	0.1128277
log of leverage*uai	-0.0028747	-0.0001562	-0.0027185	0.0019658
working capital	-2.31E-06	-1.25E-08	-2.30E-06	4.24E-06
working capital * uai	2.71E-08	-8.63E-09	3.57E-08	8.72E-08
net income growth	-0.0000508	8.67E-06	-0.0000595	0.0000331
net income growth * mas	9.22E-07	-8.79E-08	1.01E-06	6.27E-07
return on equity	-0.0016032	-0.001277	-0.0003261	0.0018572
return on equity*mas	0.0000264	0.0000284	-1.97E-06	0.0000297
current ratio	-0.0083903	-0.0109802	0.0025899	0.017512
current ratio * uai	0.0000142	0.000235	-0.0002208	0.0005811
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(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)				
53.82				
Prob>chi2 = 0.0000				

VIF test for multicollinearity

Variable	VIF	1/VIF
gdp growth	1.99	0.502469
log of market to book ratio	2.08	0.481409
log of leverage	8.35	0.119763
uai	18.12	0.055188
log of leverage * uai	15.95	0.062695
working capital	11.12	0.089923
working capital * uai	12.13	0.082454

masculinity	4.76	0.209974
net income growth	16.42	0.060887
net income growth*mas	14.84	0.0674
return on equity	75.32	0.013277
return on equity*mas	75.12	0.013311
current ratio	8.23	0.121465
current ratio * uai	13.36	0.074842
Mean VIF	19.84	

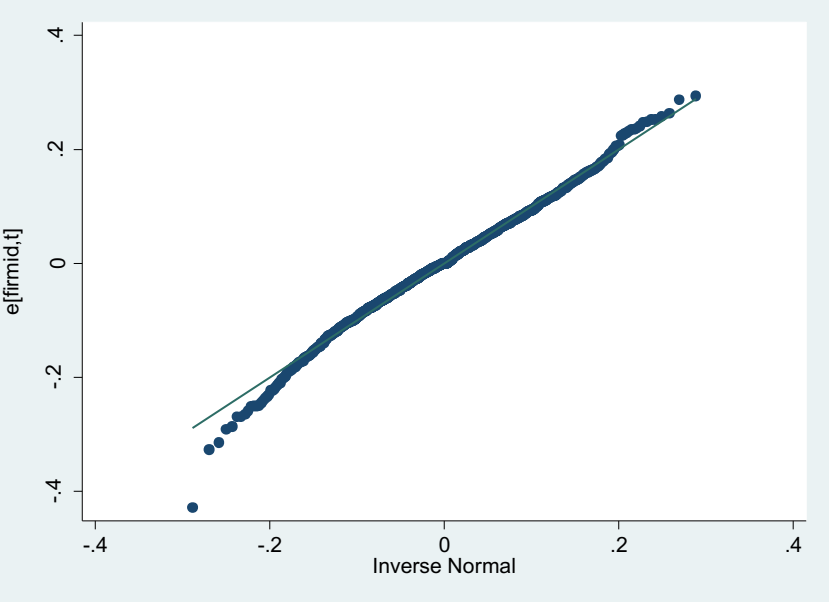
Wald Test for Heteroskedasticity

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (359) = 1.6e+35
Prob>chi2 = 0.0000

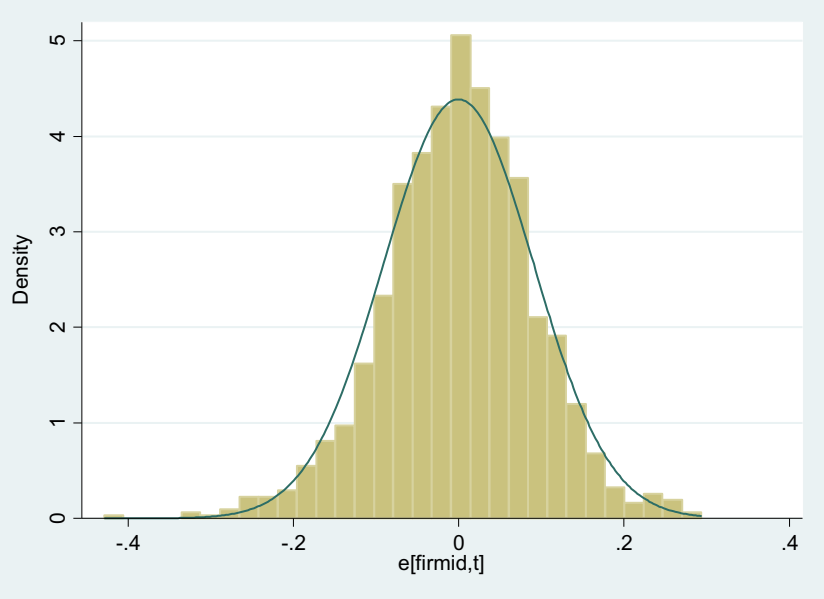
Wooldridge Test for Autocorrelation

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1, 333) = 85.177
Prob > F = 0.0000

Q-Q plot for normality of residuals



Histogram of residuals



C.2 Regression results

C.2.1 Hypothesis 1: Results

C.2.1.1 Small firms

```
Fixed-effects (within) regression               Number of obs      =       1,324
Group variable: firmid                          Number of groups   =         366

R-sq:                                           Obs per group:
     within  = 0.0779                                         min =           1
     between = 0.0009                                         avg =         3.6
     overall = 0.0002                                         max =           4

                                                F(12,365)          =       10.14
corr(u_i, Xb)  = -0.9290                        Prob > F           =      0.0000

                                 (Std. Err. adjusted for 366 clusters in firmid)
```

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
logleverage	.0643122	.1507181	0.43	0.670	-.2320726	.3606969
uai	0	(omitted)				
c.logleverage# c.uai	.000941	.0027085	0.35	0.728	-.0043853	.0062672
netincomegro~h	-.0000925	.000074	-1.25	0.212	-.000238	.000053
mas	0	(omitted)				
c. netincomegro~h# c.mas	9.88e-07	7.79e-07	1.27	0.206	-5.45e-07	2.52e-06
escore	-.0036199	.0053366	-0.68	0.498	-.0141143	.0068744
mas	0	(omitted)				
c.escore#c.mas	.0000395	.0000625	0.63	0.527	-.0000833	.0001624
sscores	.0134309	.0049914	2.69	0.007	.0036154	.0232463
mas	0	(omitted)				
c.sscores# c.mas	-.0001309	.000063	-2.08	0.038	-.0002547	-7.06e-06
gscore	.017654	.0100766	1.75	0.081	-.0021614	.0374694
pdi	0	(omitted)				
c.gscore#c.pdi	-.0002798	.0001569	-1.78	0.075	-.0005883	.0000286
gdpgrowth	.0087214	.0057766	1.51	0.132	-.0026382	.020081
logmtb	-.1823025	.0261513	-6.97	0.000	-.2337286	-.1308764
_cons	-.0953343	.1375395	-0.69	0.489	-.3658035	.1751349
sigma_u	.28824674					
sigma_e	.19278121					
rho	.69094092	(fraction of variance due to u_i)				

C.2.1.2 Medium firms

```
Fixed-effects (within) regression               Number of obs     =      2,648
Group variable: firmid                          Number of groups  =        721

R-sq:                                           Obs per group:
     within  = 0.0832                                         min =          1
     between = 0.0003                                         avg =        3.7
     overall = 0.0065                                         max =          4

                                                F(12,720)         =       8.65
corr(u_i, Xb)  = -0.7806                        Prob > F          =     0.0000

                                 (Std. Err. adjusted for 721 clusters in firmid)
```

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
logleverage	.1051962	.0696124	1.51	0.131	-.0314713	.2418637
uai	0	(omitted)				
c.logleverage# c.uai	-.0002571	.0012271	-0.21	0.834	-.0026663	.0021521
netincomegro~h	.0002794	.0001086	2.57	0.010	.0000662	.0004926
mas	0	(omitted)				
c. netincomegro~h# c.mas	-4.66e-06	1.66e-06	-2.81	0.005	-7.91e-06	-1.40e-06
escore	-.0009803	.0026245	-0.37	0.709	-.0061329	.0041724
mas	0	(omitted)				
c.escore#c.mas	3.02e-06	.0000363	0.08	0.934	-.0000683	.0000743
sscores	.0076654	.0024234	3.16	0.002	.0029077	.0124231
mas	0	(omitted)				
c.sscores# c.mas	-.000088	.000034	-2.59	0.010	-.0001548	-.0000212
gscore	-.0035806	.0042456	-0.84	0.399	-.0119158	.0047545
pdi	0	(omitted)				
c.gscore#c.pdi	.0000399	.000081	0.49	0.622	-.0001191	.0001989
gdpgrowth	-.0010132	.0033488	-0.30	0.762	-.0075877	.0055613
logmtb	-.1502757	.0199506	-7.53	0.000	-.189444	-.1111074
_cons	.0983653	.0744389	1.32	0.187	-.0477779	.2445086
sigma_u	.14174224					
sigma_e	.14293172					
rho	.49582167	(fraction of variance due to u_i)				

C.2.1.3Large firms

```
Fixed-effects (within) regression               Number of obs     =      1,324
Group variable: firmid                          Number of groups  =        359

R-sq:                                           Obs per group:
     within  = 0.0865                                         min =          1
     between = 0.0038                                         avg =        3.7
     overall = 0.0056                                         max =          4

                                                F(12,358)         =       7.67
corr(u_i, Xb)  = -0.9315                        Prob > F          =     0.0000

                                 (Std. Err. adjusted for 359 clusters in firmid)
```

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
logleverage	.3447377	.1248544	2.76	0.006	.0991975	.5902779
uai	0	(omitted)				
c.logleverage# c.uai	-.0040186	.0022789	-1.76	0.079	-.0085002	.0004631
netincomegro~h	-.0000618	.0000279	-2.22	0.027	-.0001165	-6.99e-06
mas	0	(omitted)				
c. netincomegro~h# c.mas	1.10e-06	5.10e-07	2.15	0.032	9.48e-08	2.10e-06
escore	-.0052021	.0033129	-1.57	0.117	-.0117174	.0013132
mas	0	(omitted)				
c.escore#c.mas	.0000988	.0000515	1.92	0.056	-2.55e-06	.0002001
sscores	-.000865	.0041617	-0.21	0.835	-.0090494	.0073195
mas	0	(omitted)				
c.sscores# c.mas	4.18e-06	.0000659	0.06	0.949	-.0001254	.0001338
gscore	.0081475	.003524	2.31	0.021	.0012171	.0150778
pdi	0	(omitted)				
c.gscore#c.pdi	-.0001722	.0000703	-2.45	0.015	-.0003105	-.000034
gdpgrowth	.0022998	.0045351	0.51	0.612	-.0066189	.0112186
logmtb	-.1345821	.0165303	-8.14	0.000	-.1670908	-.1020735
_cons	-.0003387	.0776982	-0.00	0.997	-.153141	.1524636
sigma_u	.19077816					
sigma_e	.10678455					
rho	.76144101	(fraction of variance due to u_i)				

C.2.2 Hypothesis 2: Results

C.2.2.1 Small firms

Fixed-effects (within) regression — Number of obs = **1,324**
Group variable: **firmid** — Number of groups = **366**

R-sq:
within = **0.0708**
between = **0.0002**
overall = **0.0047**

Obs per group:
min = **1**
avg = **3.6**
max = **4**

F(**12,365**) = **9.06**
corr(u_i, Xb) = **-0.8008** — Prob > F = **0.0000**

(Std. Err. adjusted for **366** clusters in firmid)

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	**.0093791**	**.0060493**	**1.55**	**0.122**	**-.0025169**	**.021275**
logmtb	**-.1752474**	**.0261708**	**-6.70**	**0.000**	**-.2267119**	**-.123783**
uai	**0**	(omitted)				
logleverage	**.012418**	**.1564785**	**0.08**	**0.937**	**-.2952946**	**.3201306**
c.uai#c.logleverage	**.0010594**	**.0027585**	**0.38**	**0.701**	**-.0043651**	**.0064838**
netincomegrowth	**-.0001081**	**.0000715**	**-1.51**	**0.132**	**-.0002488**	**.0000326**
mas	**0**	(omitted)				
c.netincomegrowth#c.mas	**1.15e-06**	**7.53e-07**	**1.53**	**0.127**	**-3.28e-07**	**2.64e-06**
workingcapital	**.0000135**	**.0003523**	**0.04**	**0.970**	**-.0006794**	**.0007063**
uai	**0**	(omitted)				
c.workingcapital#c.uai	**-3.23e-06**	**5.93e-06**	**-0.55**	**0.586**	**-.0000149**	**8.42e-06**
returnonequity	**.0017244**	**.0060539**	**0.28**	**0.776**	**-.0101805**	**.0136293**
mas	**0**	(omitted)				
c.returnonequity#c.mas	**-.0000128**	**.0000871**	**-0.15**	**0.883**	**-.000184**	**.0001585**
currentratio	**-.0062848**	**.0055143**	**-1.14**	**0.255**	**-.0171285**	**.0045589**
uai	**0**	(omitted)				
c.currentratio#c.uai	**.0000694**	**.0001581**	**0.44**	**0.661**	**-.0002414**	**.0003803**
_cons	**.0441818**	**.0631649**	**0.70**	**0.485**	**-.0800309**	**.1683945**
sigma_u	**.1778528**					
sigma_e	**.19351919**					
rho	**.45788976**	(fraction of variance due to u_i)				

C.2.2.2 Medium firms

```
Fixed-effects (within) regression               Number of obs     =      2,648
Group variable: firmid                          Number of groups  =        721

R-sq:                                           Obs per group:
     within  = 0.0821                                         min =          1
     between = 0.0121                                         avg =        3.7
     overall = 0.0151                                         max =          4

                                                F(12,720)         =       8.17
corr(u_i, Xb)  = -0.8146                        Prob > F          =     0.0000

                                 (Std. Err. adjusted for 721 clusters in firmid)
```

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	-.0020476	.0033396	-0.61	0.540	-.0086041	.0045089
logmtb	-.1507901	.0204652	-7.37	0.000	-.1909687	-.1106114
logleverage	.0500192	.0979185	0.51	0.610	-.1422208	.2422592
uai	0	(omitted)				
c.logleverage# c.uai	.0004958	.0015756	0.31	0.753	-.0025974	.0035891
workingcapital	-.0000408	.0000319	-1.28	0.202	-.0001035	.0000219
uai	0	(omitted)				
c. workingcapital# c.uai	3.24e-07	5.57e-07	0.58	0.561	-7.70e-07	1.42e-06
netincomegro~h	.000296	.0001095	2.70	0.007	.000081	.0005109
mas	0	(omitted)				
c. netincomegro~h# c.mas	-4.88e-06	1.66e-06	-2.94	0.003	-8.13e-06	-1.62e-06
returnonequity	.0002522	.0010666	0.24	0.813	-.0018419	.0023463
mas	0	(omitted)				
c. returnonequity# c.mas	-1.81e-06	.0000213	-0.09	0.932	-.0000435	.0000399
currentratio	-.02004	.0225437	-0.89	0.374	-.0642991	.0242192
uai	0	(omitted)				
c. currentratio# c.uai	.0002432	.0003128	0.78	0.437	-.0003709	.0008572
_cons	.0830617	.0515648	1.61	0.108	-.0181736	.184297
sigma_u	.15066085					
sigma_e	.14301929					
rho	.5260024	(fraction of variance due to u_i)				

C.2.2.3 Large firms

Fixed-effects (within) regression — Number of obs = **1,324**
Group variable: **firmid** — Number of groups = **359**

R-sq:
within = **0.0800**
between = **0.0005**
overall = **0.0084**

Obs per group:
min = **1**
avg = **3.7**
max = **4**

F(**12,358**) = **15.82**
corr(u_i, Xb) = **-0.8363** — Prob > F = **0.0000**

(Std. Err. adjusted for **359** clusters in firmid)

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	.003152	.0045331	0.70	0.487	-.0057629	.0120668
logmtb	-.1305132	.0170283	-7.66	0.000	-.1640013	-.097025
uai	0	(omitted)				
logleverage	.264321	.1365162	1.94	0.054	-.0041535	.5327956
c.uai#c.logleverage	-.0028747	.0023932	-1.20	0.230	-.0075813	.0018319
netincomegrowth	-.0000508	.0000295	-1.72	0.086	-.0001089	7.26e-06
mas	0	(omitted)				
c.netincomegrowth#c.mas	9.22e-07	5.37e-07	1.72	0.087	-1.33e-07	1.98e-06
workingcapital	-2.31e-06	3.69e-06	-0.63	0.532	-9.56e-06	4.94e-06
uai	0	(omitted)				
c.workingcapital#c.uai	2.71e-08	7.29e-08	0.37	0.711	-1.16e-07	1.70e-07
returnonequity	-.0016032	.0029626	-0.54	0.589	-.0074295	.0042231
mas	0	(omitted)				
c.returnonequity#c.mas	.0000264	.0000473	0.56	0.577	-.0000667	.0001195
currentratio	-.0083903	.0163072	-0.51	0.607	-.0404602	.0236795
uai	0	(omitted)				
c.currentratio#c.uai	.0000142	.00055	0.03	0.979	-.0010674	.0010959
_cons	-.0003277	.0518907	-0.01	0.995	-.1023765	.1017211
sigma_u	.13118164					
sigma_e	.1071625					
rho	.5997619	(fraction of variance due to u_i)				

C.2.3 Sensitivity analysis Hypothesis 1:

C.2.3.1 Small firms

```
Fixed-effects (within) regression               Number of obs     =      1,324
Group variable: firmid                          Number of groups  =        366

R-sq:                                           Obs per group:
     within  = 0.0470                                         min =          1
     between = 0.0155                                         avg =        3.6
     overall = 0.0048                                         max =          4

                                                F(12,365)         =       6.86
corr(u_i, Xb)  = -0.9600                        Prob > F          =     0.0000

                                    (Std. Err. adjusted for 366 clusters in firmid)
```

meanmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	-.0010998	.0058238	-0.19	0.850	-.0125522	.0103526
logmtb	-.137435	.0276275	-4.97	0.000	-.1917641	-.0831059
logleverage	.0264221	.1748585	0.15	0.880	-.3174344	.3702787
uai	0	(omitted)				
c.logleverage#c.uai	-.0006816	.0029408	-0.23	0.817	-.0064645	.0051013
escore	.0073139	.0054977	1.33	0.184	-.0034972	.018125
mas	0	(omitted)				
c.escore#c.mas	-.0000718	.0000688	-1.04	0.297	-.0002071	.0000635
gscore	.0249699	.0107677	2.32	0.021	.0037953	.0461445
pdi	0	(omitted)				
c.gscore#c.pdi	-.0004005	.0001709	-2.34	0.020	-.0007365	-.0000645
sscores	.0014955	.0048259	0.31	0.757	-.0079944	.0109855
mas	0	(omitted)				
c.sscores#c.mas	.0000284	.0000614	0.46	0.644	-.0000924	.0001493
netincomegrowth	-.0001451	.0000541	-2.68	0.008	-.0002515	-.0000386
mas	0	(omitted)				
c.netincomegrowth#c.mas	1.54e-06	5.70e-07	2.70	0.007	4.21e-07	2.66e-06
_cons	-.0289637	.1491883	-0.19	0.846	-.3223402	.2644128
sigma_u	.38621573					
sigma_e	.2047993					
rho	.78052548	(fraction of variance due to u_i)				

```
Fixed-effects (within) regression               Number of obs      =       529
Group variable: firmid                          Number of groups   =       154

R-sq:                                           Obs per group:
     within  = 0.1008                                         min =         1
     between = 0.0004                                         avg =       3.4
     overall = 0.0030                                         max =         4

                                                F(12,153)          =      4.21
corr(u_i, Xb)  = -0.8926                        Prob > F           =    0.0000

                                    (Std. Err. adjusted for 154 clusters in firmid)
```

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	.0362626	.0096106	3.77	0.000	.017276	.0552493
logmtb	-.1520328	.0334408	-4.55	0.000	-.2180981	-.0859674
logleverage	-.1816623	.3170147	-0.57	0.567	-.8079536	.4446289
uai	0	(omitted)				
c.logleverage#c.uai	.005955	.0061118	0.97	0.331	-.0061194	.0180294
escore	-.0067914	.0068908	-0.99	0.326	-.0204047	.006822
mas	0	(omitted)				
c.escore#c.mas	.0000708	.0000949	0.75	0.456	-.0001166	.0002583
gscore	.0196115	.0177355	1.11	0.271	-.0154265	.0546495
pdi	0	(omitted)				
c.gscore#c.pdi	-.0002805	.0002557	-1.10	0.274	-.0007856	.0002245
sscores	.0164396	.0081691	2.01	0.046	.0003007	.0325785
mas	0	(omitted)				
c.sscores#c.mas	-.0001555	.0001234	-1.26	0.210	-.0003992	.0000882
netincomegrowth	.0003377	.0003071	1.10	0.273	-.000269	.0009445
mas	0	(omitted)				
c.netincomegrowth#c.mas	-6.21e-06	4.87e-06	-1.28	0.204	-.0000158	3.40e-06
_cons	-.2812576	.2370889	-1.19	0.237	-.7496481	.1871328
sigma_u	.26696071					
sigma_e	.20817701					
rho	.62185415	(fraction of variance due to u_i)				

.

C.2.3.2 Medium firms

```
Fixed-effects (within) regression               Number of obs     =      2,648
Group variable: firmid                          Number of groups  =        721

R-sq:                                           Obs per group:
     within  = 0.0540                                         min =          1
     between = 0.0021                                         avg =        3.7
     overall = 0.0045                                         max =          4

                                                F(12,720)         =       6.54
corr(u_i, Xb)  = -0.8203                        Prob > F          =     0.0000

                                    (Std. Err. adjusted for 721 clusters in firmid)
```

meanmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	-.0070663	.0040018	-1.77	0.078	-.014923	.0007903
logmtb	-.1288542	.0200746	-6.42	0.000	-.1682658	-.0894425
logleverage	.2306956	.0781183	2.95	0.003	.0773286	.3840625
uai	0	(omitted)				
c.logleverage#c.uai	-.0043113	.0014378	-3.00	0.003	-.0071341	-.0014885
escore	.0027924	.0037974	0.74	0.462	-.0046629	.0102477
mas	0	(omitted)				
c.escore#c.mas	-.0000369	.0000531	-0.69	0.488	-.000141	.0000673
gscore	.0037755	.0049171	0.77	0.443	-.0058781	.0134291
pdi	0	(omitted)				
c.gscore#c.pdi	-.0001111	.0000918	-1.21	0.226	-.0002914	.0000691
sscores	.0062567	.0031522	1.98	0.048	.0000682	.0124453
mas	0	(omitted)				
c.sscores#c.mas	-.0000429	.0000445	-0.96	0.336	-.0001303	.0000446
netincomegrowth	.0001128	.0001262	0.89	0.372	-.0001351	.0003606
mas	0	(omitted)				
c.netincomegrowth#c.mas	-1.22e-06	1.75e-06	-0.70	0.486	-4.65e-06	2.21e-06
_cons	.1745899	.0946452	1.84	0.065	-.0112236	.3604034
sigma_u	.16355449					
sigma_e	.16308195					
rho	.50144668	(fraction of variance due to u_i)				

.

Fixed-effects (within) regression — Number of obs = **4,238**
Group variable: **firmid** — Number of groups = **1,089**

R-sq:
within = **0.0732**
between = **0.0025**
overall = **0.0079**

Obs per group:
min = **1**
avg = **3.9**
max = **4**

F(**12,1088**) = **12.91**
corr(u_i, Xb) = **-0.7542** — Prob > F = **0.0000**

(Std. Err. adjusted for **1,089** clusters in firmid)

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	**-.0016858**	**.0026919**	**-0.63**	**0.531**	**-.0069678**	**.0035961**
logmtb	**-.1565894**	**.0148452**	**-10.55**	**0.000**	**-.1857178**	**-.127461**
uai	**0**	(omitted)				
logleverage	**.168798**	**.0604208**	**2.79**	**0.005**	**.0502435**	**.2873524**
c.uai#c.logleverage	**-.0011695**	**.0010772**	**-1.09**	**0.278**	**-.0032831**	**.000944**
netincomegrowth	**-9.44e-06**	**.0000392**	**-0.24**	**0.810**	**-.0000864**	**.0000675**
mas	**0**	(omitted)				
c.netincomegrowth#c.mas	**1.15e-07**	**4.12e-07**	**0.28**	**0.780**	**-6.94e-07**	**9.24e-07**
escore	**.0011246**	**.0020598**	**0.55**	**0.585**	**-.0029171**	**.0051663**
mas	**0**	(omitted)				
c.escore#c.mas	**-.000019**	**.0000285**	**-0.66**	**0.506**	**-.0000749**	**.000037**
sscores	**.0050011**	**.0018867**	**2.65**	**0.008**	**.0012991**	**.008703**
mas	**0**	(omitted)				
c.sscores#c.mas	**-.0000568**	**.0000269**	**-2.11**	**0.035**	**-.0001097**	**-3.95e-06**
gscore	**-.0001361**	**.0029389**	**-0.05**	**0.963**	**-.0059026**	**.0056304**
pdi	**0**	(omitted)				
c.gscore#c.pdi	**-.0000156**	**.0000554**	**-0.28**	**0.779**	**-.0001243**	**.0000931**
_cons	**.0695976**	**.0564785**	**1.23**	**0.218**	**-.0412215**	**.1804168**
sigma_u	**.1320464**					
sigma_e	**.14586326**					
rho	**.45040551**	(fraction of variance due to u_i)				

C.2.3.3Large firms

```
Fixed-effects (within) regression               Number of obs     =      1,324
Group variable: firmid                          Number of groups  =        359

R-sq:                                           Obs per group:
     within  = 0.0785                                         min =          1
     between = 0.0006                                         avg =        3.7
     overall = 0.0013                                         max =          4

                                                F(12,358)         =       6.36
corr(u_i, Xb)  = -0.9580                        Prob > F          =     0.0000

                                    (Std. Err. adjusted for 359 clusters in firmid)
```

meanmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	-.0101879	.0057953	-1.76	0.080	-.021585	.0012092
logmtb	-.1358081	.021658	-6.27	0.000	-.1784009	-.0932153
logleverage	.5536958	.1806562	3.06	0.002	.1984151	.9089765
uai	0	(omitted)				
c.logleverage#c.uai	-.0082696	.0032813	-2.52	0.012	-.0147227	-.0018165
escore	-.0070408	.0039494	-1.78	0.075	-.0148077	.0007262
mas	0	(omitted)				
c.escore#c.mas	.0001198	.0000618	1.94	0.053	-1.64e-06	.0002413
gscore	.0076483	.0049117	1.56	0.120	-.002011	.0173077
pdi	0	(omitted)				
c.gscore#c.pdi	-.0001674	.0001012	-1.65	0.099	-.0003664	.0000316
sscores	-.0070604	.0051294	-1.38	0.170	-.0171479	.0030272
mas	0	(omitted)				
c.sscores#c.mas	.0001222	.0000803	1.52	0.129	-.0000358	.0002802
netincomegrowth	-.0001004	.0000393	-2.55	0.011	-.0001776	-.0000231
mas	0	(omitted)				
c.netincomegrowth#c.mas	1.77e-06	7.72e-07	2.30	0.022	2.57e-07	3.29e-06
_cons	.044919	.1078781	0.42	0.677	-.1672354	.2570733
sigma_u	.2835462					
sigma_e	.13022474					
rho	.82581123	(fraction of variance due to u_i)				

.

Fixed-effects (within) regression Number of obs = **529**
Group variable: **firmid** Number of groups = **145**

R-sq: Obs per group:
within = **0.0930** min = **1**
between = **0.0095** avg = **3.6**
overall = **0.0037** max = **4**

F(**12,144**) = **3.68**
corr(u_i, Xb) = **-0.9840** Prob > F = **0.0001**

(Std. Err. adjusted for **145** clusters in firmid)

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	**.0020627**	**.0070143**	**0.29**	**0.769**	**-.0118017**	**.015927**
logmtb	**-.1108851**	**.0252355**	**-4.39**	**0.000**	**-.160765**	**-.0610052**
uai	**0**	(omitted)				
logleverage	**.0106501**	**.1320272**	**0.08**	**0.936**	**-.2503116**	**.2716117**
c.uai#c.logleverage	**.0015085**	**.0024644**	**0.61**	**0.541**	**-.0033626**	**.0063795**
netincomegrowth	**-.000072**	**.0000338**	**-2.13**	**0.035**	**-.0001387**	**-5.29e-06**
mas	**0**	(omitted)				
c.netincomegrowth#c.mas	**1.23e-06**	**5.93e-07**	**2.07**	**0.040**	**5.79e-08**	**2.40e-06**
escore	**-.0150498**	**.004978**	**-3.02**	**0.003**	**-.0248891**	**-.0052104**
mas	**0**	(omitted)				
c.escore#c.mas	**.0002498**	**.0000831**	**3.01**	**0.003**	**.0000855**	**.0004141**
sscores	**-.0030907**	**.0046465**	**-0.67**	**0.507**	**-.0122749**	**.0060935**
mas	**0**	(omitted)				
c.sscores#c.mas	**.0000568**	**.0000738**	**0.77**	**0.443**	**-.0000891**	**.0002027**
gscore	**.0137233**	**.006175**	**2.22**	**0.028**	**.001518**	**.0259286**
pdi	**0**	(omitted)				
c.gscore#c.pdi	**-.0003014**	**.0001287**	**-2.34**	**0.021**	**-.0005557**	**-.000047**
_cons	**.0281942**	**.1080146**	**0.26**	**0.794**	**-.1853048**	**.2416932**
sigma_u	**.34295205**					
sigma_e	**.10158542**					
rho	**.91933763**	(fraction of variance due to u_i)				

.

C.2.4 Sensitivity analysis Hypothesis 2 : Results

C.2.4.1 Small firms

```
Fixed-effects (within) regression               Number of obs     =      1,324
Group variable: firmid                          Number of groups  =        366

R-sq:                                           Obs per group:
     within  = 0.0429                                         min =          1
     between = 0.0000                                         avg =        3.6
     overall = 0.0045                                         max =          4

                                                F(12,365)         =       5.24
corr(u_i, Xb)  = -0.6818                        Prob > F          =     0.0000

                                              (Std. Err. adjusted for 366 clusters in firmid)
```

meanmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	.0005135	.0060437	0.08	0.932	-.0113713	.0123983
logmtb	-.138536	.0276197	-5.02	0.000	-.1928497	-.0842222
logleverage	.1327474	.1687755	0.79	0.432	-.1991469	.4646418
uai	0	(omitted)				
c.logleverage#c.uai	-.0028351	.0028661	-0.99	0.323	-.0084713	.0028011
workingcapital	.0008921	.0004198	2.13	0.034	.0000666	.0017176
uai	0	(omitted)				
c.workingcapital#c.uai	-.0000155	6.46e-06	-2.40	0.017	-.0000282	-2.79e-06
netincomegrowth	-.0001464	.0000517	-2.83	0.005	-.0002481	-.0000447
mas	0	(omitted)				
c.netincomegrowth#c.mas	1.56e-06	5.45e-07	2.86	0.004	4.87e-07	2.63e-06
returnonequity	-.0073292	.006924	-1.06	0.291	-.0209451	.0062867
mas	0	(omitted)				
c.returnonequity#c.mas	.0001186	.0000985	1.20	0.229	-.000075	.0003123
currentratio	-.0079237	.007653	-1.04	0.301	-.0229732	.0071259
uai	0	(omitted)				
c.currentratio#c.uai	.0001271	.000227	0.56	0.576	-.0003193	.0005735
_cons	.1147445	.0665971	1.72	0.086	-.0162176	.2457067
sigma_u	.15564252					
sigma_e	.20523732					
rho	.36511991	(fraction of variance due to u_i)				

Fixed-effects (within) regression Number of obs = 529
Group variable: firmid Number of groups = 154

R-sq: Obs per group:
within = 0.0966 min = 1
between = 0.0074 avg = 3.4
overall = 0.0164 max = 4

F(12,153) = 4.19
corr(u_i, Xb) = -0.7145 Prob > F = 0.0000

(Std. Err. adjusted for 154 clusters in firmid)

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	.0394897	.0100171	3.94	0.000	.0197001	.0592793
logmtb	-.1424177	.0317709	-4.48	0.000	-.205184	-.0796514
logleverage	-.1725593	.3123727	-0.55	0.581	-.7896799	.4445613
uai	0	(omitted)				
c.logleverage#c.uai	.0046691	.0053573	0.87	0.385	-.0059147	.015253
workingcapital	.0001324	.0009713	0.14	0.892	-.0017865	.0020513
uai	0	(omitted)				
c.workingcapital#c.uai	1.01e-06	.0000177	0.06	0.954	-.0000339	.0000359
netincomegrowth	.0004058	.0003431	1.18	0.239	-.000272	.0010837
mas	0	(omitted)				
c.netincomegrowth#c.mas	-7.29e-06	5.49e-06	-1.33	0.186	-.0000181	3.56e-06
returnonequity	.0029478	.0098973	0.30	0.766	-.0166052	.0225008
mas	0	(omitted)				
c.returnonequity#c.mas	-.0000411	.0001589	-0.26	0.796	-.0003551	.0002729
currentratio	-.002075	.0071505	-0.29	0.772	-.0162014	.0120514
uai	0	(omitted)				
c.currentratio#c.uai	-.0001188	.0001915	-0.62	0.536	-.0004972	.0002596
_cons	-.1051202	.105507	-1.00	0.321	-.3135589	.1033185
sigma_u	.16668962					
sigma_e	.20867081					
rho	.38953936	(fraction of variance due to u_i)				

C.2.4.2 Medium firms

```
Fixed-effects (within) regression               Number of obs      =       2,648
Group variable: firmid                          Number of groups   =         721

R-sq:                                           Obs per group:
     within  = 0.0430                                         min =           1
     between = 0.0000                                         avg =         3.7
     overall = 0.0040                                         max =           4

                                                F(12,720)          =        4.75
corr(u_i, Xb)  = -0.6903                        Prob > F           =      0.0000

                                         (Std. Err. adjusted for 721 clusters in firmid)
```

meanmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	-.0082889	.0039694	-2.09	0.037	-.0160818	-.000496
logmtb	-.1261816	.0202784	-6.22	0.000	-.1659934	-.0863697
logleverage	.1812845	.111638	1.62	0.105	-.0378904	.4004594
uai	0	(omitted)				
c.logleverage#c.uai	-.0037865	.0017797	-2.13	0.034	-.0072805	-.0002925
workingcapital	.0000414	.000037	1.12	0.263	-.0000312	.0001139
uai	0	(omitted)				
c.workingcapital#c.uai	-7.03e-07	6.99e-07	-1.01	0.315	-2.08e-06	6.70e-07
netincomegrowth	.0001175	.0001353	0.87	0.385	-.0001481	.0003831
mas	0	(omitted)				
c.netincomegrowth#c.mas	-1.37e-06	1.85e-06	-0.74	0.458	-5.00e-06	2.26e-06
returnonequity	-.000371	.0011395	-0.33	0.745	-.0026081	.0018661
mas	0	(omitted)				
c.returnonequity#c.mas	7.27e-06	.0000229	0.32	0.751	-.0000377	.0000523
currentratio	-.0345148	.0277042	-1.25	0.213	-.0889054	.0198758
uai	0	(omitted)				
c.currentratio#c.uai	.0004601	.0004469	1.03	0.304	-.0004174	.0013375
_cons	.1708523	.0578805	2.95	0.003	.0572176	.2844869
sigma_u	.13206623					
sigma_e	.16402903					
rho	.39329571	(fraction of variance due to u_i)				

Fixed-effects (within) regression Number of obs = 4,238
Group variable: firmid Number of groups = 1,089

R-sq: Obs per group:
within = 0.0719 min = 1
between = 0.0089 avg = 3.9
overall = 0.0123 max = 4

F(12,1088) = 12.44
corr(u_i, Xb) = -0.7704 Prob > F = 0.0000

(Std. Err. adjusted for 1,089 clusters in firmid)

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	-.0024369	.0026629	-0.92	0.360	-.007662	.0027881
logmtb	-.1563285	.0152709	-10.24	0.000	-.1862923	-.1263647
logleverage	.1604558	.0720481	2.23	0.026	.0190869	.3018248
uai	0	(omitted)				
c.logleverage#c.uai	-.0010549	.0012247	-0.86	0.389	-.003458	.0013482
workingcapital	-.0000264	.0000148	-1.78	0.075	-.0000554	2.70e-06
uai	0	(omitted)				
c.workingcapital#c.uai	3.23e-07	2.51e-07	1.29	0.197	-1.68e-07	8.15e-07
netincomegrowth	-.0000136	.0000399	-0.34	0.733	-.0000919	.0000646
mas	0	(omitted)				
c.netincomegrowth#c.mas	1.60e-07	4.19e-07	0.38	0.704	-6.63e-07	9.82e-07
returnonequity	-.000069	.0009576	-0.07	0.943	-.001948	.0018101
mas	0	(omitted)				
c.returnonequity#c.mas	1.59e-06	.000019	0.08	0.933	-.0000356	.0000388
currentratio	.0025018	.0102223	0.24	0.807	-.0175557	.0225594
uai	0	(omitted)				
c.currentratio#c.uai	-.0000556	.0002447	-0.23	0.820	-.0005357	.0004245
_cons	.0490629	.0364471	1.35	0.179	-.0224516	.1205774
sigma_u	.1354799					
sigma_e	.14596518					
rho	.46279647	(fraction of variance due to u_i)				

C.2.4.3Large firms

```
Fixed-effects (within) regression               Number of obs      =       1,324
Group variable: firmid                          Number of groups   =         359

R-sq:                                           Obs per group:
     within  = 0.0660                                         min =           1
     between = 0.0520                                         avg =         3.7
     overall = 0.0234                                         max =           4

                                                F(12,358)          =        5.32
corr(u_i, Xb)  = -0.9228                        Prob > F           =      0.0000

                                              (Std. Err. adjusted for 359 clusters in firmid)
```

meanmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	-.0084827	.0058647	-1.45	0.149	-.0200164	.003051
logmtb	-.1260531	.0221271	-5.70	0.000	-.1695684	-.0825377
logleverage	.5320053	.2070685	2.57	0.011	.1247818	.9392289
uai	0	(omitted)				
c.logleverage#c.uai	-.0080406	.0036345	-2.21	0.028	-.0151882	-.0008929
workingcapital	-2.85e-06	4.52e-06	-0.63	0.528	-.0000117	6.03e-06
uai	0	(omitted)				
c.workingcapital#c.uai	2.95e-08	9.27e-08	0.32	0.751	-1.53e-07	2.12e-07
netincomegrowth	-.000077	.0000368	-2.09	0.037	-.0001494	-4.56e-06
mas	0	(omitted)				
c.netincomegrowth#c.mas	1.38e-06	7.36e-07	1.88	0.061	-6.48e-08	2.83e-06
returnonequity	-.0044984	.0041662	-1.08	0.281	-.0126917	.0036949
mas	0	(omitted)				
c.returnonequity#c.mas	.0000688	.0000655	1.05	0.294	-.0000601	.0001976
currentratio	.0022832	.0219177	0.10	0.917	-.0408204	.0453868
uai	0	(omitted)				
c.currentratio#c.uai	-.0001543	.0007388	-0.21	0.835	-.0016072	.0012986
_cons	.0502217	.0760522	0.66	0.509	-.0993436	.1997869
sigma_u	.2064979					
sigma_e	.13110764					
rho	.71270195	(fraction of variance due to u_i)				

Fixed-effects (within) regression Number of obs = 529
Group variable: firmid Number of groups = 145

R-sq: Obs per group:
within = 0.0634 min = 1
between = 0.0448 avg = 3.6
overall = 0.0285 max = 4

F(12,144) = 2.42
corr(u_i, Xb) = -0.8531 Prob > F = 0.0069

(Std. Err. adjusted for 145 clusters in firmid)

marketmodelCAR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
gdpgrowth	.0071983	.0074766	0.96	0.337	-.0075798	.021976
logmtb	-.1047331	.0246585	-4.25	0.000	-.1534724	-.055993
logleverage	-.0132557	.1850906	-0.07	0.943	-.3791011	.352589
uai	0	(omitted)				
c.logleverage#c.uai	.001547	.0032207	0.48	0.632	-.0048191	.00791
workingcapital	-2.91e-06	4.34e-06	-0.67	0.504	-.0000115	5.67e-0
uai	0	(omitted)				
c.workingcapital#c.uai	3.89e-08	8.40e-08	0.46	0.644	-1.27e-07	2.05e-0
netincomegrowth	-.000073	.0000342	-2.14	0.034	-.0001405	-5.43e-0
mas	0	(omitted)				
c.netincomegrowth#c.mas	1.23e-06	6.11e-07	2.01	0.046	2.30e-08	2.44e-0
returnonequity	-.0022623	.0048072	-0.47	0.639	-.0117641	.007239
mas	0	(omitted)				
c.returnonequity#c.mas	.0000339	.0000785	0.43	0.666	-.0001213	.000189
currentratio	-.0280041	.0764368	-0.37	0.715	-.1790871	.12307
uai	0	(omitted)				
c.currentratio#c.uai	.0001447	.0014412	0.10	0.920	-.002704	.002993
_cons	.0283606	.070622	0.40	0.689	-.1112291	.167950
sigma_u	.11190824					
sigma_e	.10323158					
rho	.5402648	(fraction of variance due to u_i)				