Socially Responsible Investments

An empirical study on the heterogeneity across developed countries

ABSTRACT – Socially responsible investments (SRI) have experienced a rapid growth, reflecting the integration of environmental, social and governance criteria in investment decisions becomes mainstream. The aim of the current study is to identify the determinants that explain the substantial differences in size of the national SRI market across 15 developed countries between 2005 and 2013. The current study takes a preliminary model – proposed by Scholtens and Sievänen (2013) - as the point of departure. Macro-level factors related to institutions, culture, economic development and finance can be associated with the size of SRI, theoretically. The empirical results of the current study support the model partially, since economic development and masculinity impact the size of the SRI market. Where economic development positively impacts the size of the SRI market, a feminine society exhibits more sustainable investments. Furthermore, Scholtens and Sievänen's (2013) model propose mediation effects of the macro-level factors. Where institutions condition economic development and finance, cultural differences condition institutions, economic development and finance. The current study analysed these mediation effects, using a mediation model. The empirical results, however, do not support the proposed mediation effects.

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1   Introduction

The Wall Street Journal (2016) reported in January that "sustainable investing goes mainstream", reflecting the awareness of corporate social responsibility (CSR) in the investment community is increasing. Socially responsible investments (SRI) are rapidly growing and challenge conventional investment strategies by taking ethical, social and environmental issues into consideration (Eurosif, 2014). Whereas conventional investment strategies focus on financial criteria, SRI look beyond these financial criteria and combine the concerns on environmental, social and governance (ESG) issues. A key motive of socially responsible investors is to exert influence on firms to stimulate them in becoming more sustainable (Cochran, 2007). By making the access of capital (equity and debt) dependent on a firm's socially responsible practices, firms are more encouraged to integrate corporate sustainability into their business. This means that SRI affect a firm's sustainability strategy by facilitating particular types of business (Scholtens, 2006). This encouragement is needed, since executives are in general convinced that becoming more sustainable will only add to costs and not deliver benefits directly (Nidumolu, Prahalad, & Rangaswami, 2009). When executives are convinced that sustainability will only add to costs, they make a trade-off between creating social value and firm value.

Classical economics assume that there is no conflict between optimising firm value and social welfare. When firms maximise their profits the resource allocation is Pareto-optimal meaning that social welfare is maximised (Renneboog, Horst, & Zhang, 2008). Later, neoclassical economics focuses on utility maximisation, meaning that it neglects optimising social welfare. According to Friedman (1970) the only concern of the firm is to act responsible to its shareholders, since shareholders are the "engine" of the firm. In particular, "there is one and only one social responsibility of business to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud" (Friedman, 1970, p. 5). In contrast, the stakeholder theory argues that other parties are involved and the interest of these parties i.e. stakeholders need to be taken into consideration when making decisions (Freeman, 1984). Pigou (1920/2013) recognises the existence of externalities, meaning that in specific circumstances the assumption in classical economics of maximising social welfare does not hold. Due to externalities, firm's activities could cause environmental degradation, which means that there arises a conflict between the maximisation of firm value and social welfare. The upcoming field of behavioural finance challenges dominant neoclassical theories in finance. Whereas neo-classical economics assume rational investors, behavioural finance proposes normal investors as an alternative to rational investors. In contrast to the rational investor who is only concerned maximising utility, normal investors consider utilitarian, expressive and emotional benefits. As a result the investor's

preferences are influenced by the trade-off between risk and return (utility), values, tastes and status (expressions), and feelings (emotions) (Statman, 2014).

The emerging concerns among the public and policy makers demand firms to take their responsibility and take environmental and social issues into consideration (Renneboog, Horst, & Zhang, 2008). The Paris Agreement, for example, is considered as a major step towards sustainable development, as 195 countries agreed for the first time upon a universal legally binding climate deal. The agreement sets a long-term objective to make sure global warming stays below 2°C and further aims to limit the temperature increase to 1.5°C. When political authorities try to meet these criteria and reduce gas emissions, at least two thirds of fossil energy use can be considered as stranded assets (Plantinga & Scholtens, 2016). Since stranded assets have the characteristic of losing its value rapidly, financial criteria will become also a driving force in undertaking SRI. In addition, investments in fossil energy use do not outperform sustainable investments, meaning that investors will be much more stimulated to cut their unsustainable investments. Eventually, investments in fossil energy use can be categorised as sin stocks, which means that "unsustainable" firms need to generate high profits in order to stimulate investors to invest in these firms (Hong & Kacperczyk, 2009).

SRI started with a small group of retail investors that undertook socially responsible investments, which changed into an investment philosophy that is implemented by institutional investors (Sparkes & Cowton, 2004). Assets in investment markets held by professional asset managers can be classified as retail or institutional assets. Retail assets refer to an investor's personal investments in professionally managed funds, which are often purchased by banks or investment platforms. Institutional assets are defined as investments held by large professional investors, such as pension funds and insurers (GSIA, 2015). Currently, the overall split between retail and institutional investors in the European SRI market is 96.6% in 2013 (Eurosif, 2014), which shows that most SRI are undertaken by institutional investors and only a small portion by retail investors. Pension funds i.e. fiduciary institutions are often characterised as universal owners. A characteristic of universal owners is that the assets they hold represent the entire market, meaning that it has both positive and negative externalities (Hawley & Williams, 2007). Consequently, universal owners have a natural interest in sustainable development, since they benefit from positive externalities of firms they hold in their portfolio and negative externalities reduces benefits (Hawley & Williams, 2002). Additionally, there appeared to exist differences across developed countries. Where Norway and the Netherlands are one of the leading countries, Austria and Japan have only a small SRI market (Eurosif, 2014; GSIA, 2015).

This current study aims to identify the determinants that explain the substantial differences in size of SRI market across 15 developed countries between 2005 and 2013. Literature on the determinants of

SRI is limited and data is scarce. Scholtens and Sievänen (2013) attempt to explain differences in size and composition of the SRI market and argue that institutional, cultural, economic and financial indicators are driving factors. These factors are determined using a limited dataset of four Nordic countries: Norway, Denmark, Finland and Sweden, and constructed a preliminary model. The current study takes this preliminary model as the point of departure in order to identify the relevant factors for the size of the SRI markets. The current study contributes to the academic literature, because it examines the relevant factors for 15 developed countries theoretically and empirically. This study differs from Scholtens and Sievänen (2013), since it introduces a new variable for institutions. It also expands the data set to 15 countries. To study the determinants of the size of SRI markets is relevant, because regulation on global, continental and national level can take these factors into consideration. When cultural differences play a dominant role, a one-size-fits-all regulation to achieve sustainable development is perhaps not applicable. A cultural clash view on the EU crisis shows that it is impossible to agree on efficient policies, since political leaders are affected by deeply rooted norms. The cultural differences and how these affect their behaviour can result in a political clash (Guiso, Herrera, & Morelli, 2013). When policies rely on not-binding transparency rules to track progress - as it is the case in the Paris Agreement - these regulation scan be suboptimal, since political leaders behave different in adhering these rules.

2   Socially Responsible Investments

Socially responsible (SR) investors incorporate environmental, social and governance criteria in their investment decision making process in various ways, such as shareholder activism, screening and impact investing (Eurosif, 2014). The history of SRI dates back to the 1960s and 1970s, when investors were convinced that action by unison can influence the practices and policies of a firm through the market mechanism. By not purchasing or selling shares of firms on a large scale, investors can make a difference (Cochran, 2007). The emerging interest in SRI has created sustainable indices, such as the Dow Jones Sustainability Index, Ethibel, FTSE4, Humanix, Jantzi and the Domini Social Index. These indices list firms that outperform in a specific sector regarding sustainability issues, using both negative and positive screening. Negative screening excludes firms that operate in unethical sectors or produce unethical products or services such as tobacco, weapons and gambling, whereas positive screening concentrates on firms or industries that incorporate social, environmental and governance into their business (Renneboog, Horst, & Zhang, 2008). By using one or both types of screening, SR investors take corporate social responsibility (CSR) of firm's practices into account when making investment decisions. Scholtens and Sievänen (2013) argue that SRI and CSR are gradually linked, since "SRI enable investors to invest responsible by integrating social and governance criteria and CSR provides a framework to analyse how the investment targets act in the ESG-areas" (Scholtens & Sievänen, 2013, p. 608). SRI have experienced a rapid growth. The Global Sustainable Investment Association (2015) reports that the global SRI market grew by 61% from $13.3 trillion in 2012 to $21.4 trillion in 2014 (Table 1). The fastest growing region in this two-year period has been the United States, followed by Canada and Europe. Additionally, most of the SRI assets are in Europe (63.7%), followed by the United States (30.8%) and Canada (4.4%), demonstrating that these three regions account for 99% of the global SRI assets in 2014.

Table 1: Global SRI market in 2012 and 2014 in $Bn

Year	2012	2014	Growth	Proportion (2014)
Europe	$8,758	$13,608	55%	63.7%
United States	$3,740	$6,572	76%	30.8%
Canada	$589	$945	60%	4.4%
Australia/NZ	$134	$180	34%	0.8%
Asia	$40	$53	32%	0.2%
Global	**$13,261**	**$21,358**	**61%**	**100.0%**

Source: Global Sustainable Investment Association (2015, p. 7-8)

2.1   Normal vs. rational investors

The movement of a growing SRI market contradicts the dominant neoclassical investment theorem: mean-variance portfolio theory. This theorem aims to construct an efficient frontier in order to compose the optimal allocation of *all* available assets. Depending on the investor's risk-attitude,

investors make rational investment decisions between risk and return by adding risk-free assets to their optimal risky portfolio (Markowitz, 1952). Following the optimal portfolio theory, sustainable investment strategies are not consistent with rational decisions that incorporates *all* possible investment possibilities, since SR investors exclude assets (negative screening) or select only sustainable assets (positive screening). These strategies constrain the process of composing the optimal allocation of *all* available assets, suggesting that risk-adjusted returns of socially responsible portfolios are inferior of conventional portfolios. The assumption in the mean-variance theorem is proposed as a barrier - mostly for private investors - to incorporate ESG-criteria in investments (Paetzold & Busch, 2014). Empirical studies, however, could not provide consistent evidence that conventional strategies are superior to sustainable investment strategies. Moreover, SRI could outperform conventional portfolios, since CSR serves as a filter as it reflects management quality. An empirical study shows that environmental friendly portfolios outperform less "eco-efficient" portfolios (Derwall, Guenster, Bauer, & Koedijk, 2005), demonstrating that integrating sustainability constraints in the mean-variance theorem do not affect returns. The debate on whether sustainable portfolios outperform conventional portfolios has led to an extensive number of studies. An analysis of 2,200 empirical studies illustrates that roughly 90% of the performed studies found a non-negative relationship between the incorporation of ESG-criteria and corporate financial performance (CFP). The positive results are found across various approaches, regions and asset classes. The studies (10%) that found a negative relationship were portfolio-related studies, which are based on a misperception of the ESG-CFP relationship. This misperception comes from the neoclassical understanding of capital markets described above, which argues that the ESG-CFP relation is at best neutral (Friede, Busch, & Bassen, 2015).

In addition to the outperformance of sustainable investment strategies, it is argued that investors derive non-financial utility from incorporating ESG-criteria, meaning that investors also consider other needs that add to financial considerations. As a result, investors have a multi-attribute utility function, since utility is not only based on a risk and return trade-off (Bollen, 2007). This contradicts the optimal portfolio theory, because investors are not fully rational, meaning that the investor's preference for particular stocks is influenced by the investor's wants, cognitive errors and emotions. Behavioural finance proposes normal investors as an alternative to rational investors. Whereas rational investors only consider utility (risk and return) in making investment decisions, normal investors consider utilitarian, expressive and emotional benefits. As a result, the normal investor does not distinguish its role of investor from the role of consumer. This means that the investor's preference is influenced by the trade-off between risk and return (utility), values, tastes, status (expressions), and feelings (emotions) (Statman, 2014). Normal investors are willing to increase expressive and emotional benefits at the expense of utility (Derwall, Koedijk, & Ter Horst, 2011). This trade-off depends on the

strength of the values - underlining that investors - those who are more influenced by CSR are willing to give up more financial benefits (Bauer & Smeets, 2010; Jansson, Sandberg, Biel, & Gärling, 2014).

2.2 Institutional investors

Most SRI are held by institutional investors. The role of pension funds within institutional investors increased the last decades. Vitols (2011) argues that in Europe the contribution of pension funds in the development of SRI is threefold. First, the sheer size of pension funds draws more attention to the behaviour of them. The size of pension funds has grown massively in importance, since world's total assets under management from pension funds accounts for $21 trillion in 2005 to $35 trillion in 2015 (Towers Watson, 2016). Second, the higher concentration of assets across different pension funds helps to implement ESG-criteria. Since most costs are fixed, larger pension funds are better able to finance SRI policies, because they encounter a smaller portion of administrative costs. Third, labour partnerships have resulted in a strong role of labour trustees in pension funds, which became world leaders among sustainable pension funds (Vitols, 2011). The importance of pension funds requires a deeper understanding of how sustainable investment policies of pension funds are determined.

2.2.1 *Fiduciary duty*

Pension funds act solely on the interest of pension beneficiaries, rather than serving their own interest. The fiduciary duty is a legal duty that obliges pension funds to act loyal to its beneficiaries. The fiduciary duty has different definitions and interpretations across various countries, since legal systems of the countries are different (Freshfields Bruckhaus Deringer, 2005). In most jurisdictions, the implication of fiduciary duty is considered as the obligation to maximise returns. The nature of this narrow implication was the concern that fiduciaries put their own values before the obligations of the beneficiaries. However, this means that pension funds only consider financial indicators and neglect environmental, social and governance risks. As a result, pension funds aim to realise high short-term returns, rather than seeking an appropriate balance between long-term and short-term returns (UNPRI, 2016). The narrow interpretation, which is based on neoclassical optimal portfolio theory changes to a broader interpretation.

A broader interpretation of fiduciary duty

UNPRI (2016) proposes three motives for the change to a broader interpretation of the fiduciary duty. First, when the materiality of integrating of ESG-criteria has clear meaning, it is to be expected that investors take ESG-criteria into consideration. Second, the expectations of investors are changing, which is driven by the increase of integrating ESG-criteria by investment organisations. Third, the assumptions of dominant finance theories have been questioned over the past decades. As a result of the financial crisis, investors aim to reduce risks and take increasingly systemic risks and events that

have a low probability in consideration. In order to do so, investors take insights of the upcoming behavioural theories into their investment decisions (UNPRI, 2016). Empirical studies in the Netherlands confirm the movement towards a broader interpretation of the fiduciary duty and shows that the awareness of incorporating ESG-criteria among pension beneficiaries is increasing. At least 70% of the pension beneficiaries wants pension funds to consider moral issues (Erbé, 2008) or to integrate ESG-criteria by making investments (Motivaction, 2012; I&O Research, 2015; Delsen & Lehr, 2015). This shows that pension beneficiaries have a multi-attribute utility function. As a result, pension beneficiaries can be considered as consumers and investors, meaning that there is a link between investor and consumer behaviour and a link between consumers and investor behaviour (Statman, 2014).

ESG-integration

The fiduciary duty shows that pension funds operate within a legal framework to maximise the benefits of fiduciaries. The broader interpretation of the fiduciary duty aims to stimulate pension funds to not only maximise utility, but also to maximise expressive and emotional benefits. Vitols (2011) argues in addition that pension funds need to increase social and economic welfare, by using their influence over firms. The Freshfield report (2005) reviewed the integration of environmental, social and governance issues into investment policies and describes three circumstances in which the law permits or obliges pension funds to incorporate sustainability issues. First, pension funds are able to implement ESG-criteria when they consider two investments that have equal financial characteristics, aiming to protect beneficiaries. This is identical to the first motive for the change to a broader interpretation of the fiduciary duty discussed by UNPRI (2016). Second, pension funds have to take the interest of other market participants into consideration and have to ensure that they do not encounter social costs as a result of the pension fund's investments. Third, pension funds need to integrate ESG-criteria when there is public support for more sustainable investments. It is argued that it is hard to accomplish collective preferences, since preferences are inherently subjective, meaning that there is no consistent public support for sustainable investments (Sandberg, 2013). As a result, the beneficiaries' preferences for sustainable investments will not be properly integrated. Solutions such as engagement by the beneficiaries are proposed by the Freshfield report (2005) in order to integrate pension beneficiaries' preferences. In the Netherlands, more than a half of the pension beneficiaries want to have a say in investment policy of its pension funds (I&O Research, 2015).

Policies on ESG-integration

The legislation on these three circumstances - in which the law permits or obliges pension funds to incorporate sustainability issues - differs across countries, meaning that each country implements legislation according its own interpretation of sustainability and institutional setting. European

legislation on investments in controversial weapons increased in the European Union and other countries. Belgium was the first country in the European Union that banned investments in cluster munitions. Other countries such as France, Ireland, Italy and Luxembourg passed legislation between 2008 and 2011 that prohibited investments in controversial weapons. In 2013 the Market Abuse Decree entered into force in the Netherlands, which aims to prohibit Dutch institutional investors to invest in producers of cluster munitions. This law is limited, since it is still allowed to invest in these sectors via third party funds (Eurosif, 2014). In addition to legislative initiatives that banned investments, legislation that forced pension funds to disclose SRI information entered into force. Moreover, tax facilities, such as The Green Savings & Investment Plan and the Renewable Energy Act in respectively the Netherlands and Germany were initiated in order to promote green investments. In Canada, recent developments in Ontario require pension funds to disclose ESG information under its jurisdictions. In addition, the federal authority is reviewing the basic legislation in order to implement ESG principles. As a result, in 2014 the Responsible Investment Association made recommendations that requires transparency on ESG-criteria. A recent development in Japan is the recognition of the "Principles for Responsible Institutional Investors" by 160 institutions, including the Government Pension Fund and the Pension Fund Association for Local Government Officials (GSIA, 2015). The Responsible Investment Association Australasia (2015) proposed in 2015 nine initiatives in order to enable a long-term vision of investors and to drive a more responsible and sustainable financial markets.

3 Determinants of SRI

The current study aims to identify the determinants of the SRI market. Studies on the determinants of SRI is, however, limited. Scholtens and Sievänen (2013) propose a preliminary model of SRI determinants based on an analysis of four Nordic countries: Denmark, Finland, Norway and Sweden. The study focussed on the composition and size of the SRI market. It distinguishes broad and core investment strategies. Generally speaking, core investment strategies focus more on advanced exclusion of unsustainable firms or sectors, whereas broad investment strategies are more done via simple exclusion or engagement (Eurosif, 2008). The model consists of four determinants: institutions, culture, economic development and financial development (Figure 1). Economic development and financial development have a direct impact on SRI (Relationship 1 and 2). Economic development is measured by economic openness, savings, wealth and economic structure. Economic openness does not impact the size of SRI, but impacts the composition of SRI, since it supports broad investments. Wealth and savings rates could not be related to SRI, since these measures are rather similar for the countries. Financial development is measured by indicators of the banking, institutional investors and financial markets. The presence of a large banking sector or financial market are associated with the composition of SRI. Large pension fund assets seem to exhibit more core investments and SRI in general. Institutions are measured by indicators of legal institutions, labour market institutions and political institutions. Scholtens and Sievänen (2013) could not detect any relationship between institutions and SRI, but postulate that the effect of institutions *may* condition economic and financial development (Relationship 3 and 4). Scholtens and Sievänen (2013) used Hofstede's cultural dimensions in order to test the direct effect of culture (Relationship 5). Where uncertainty avoidance is related to core responsible investments, feminine societies exhibit more SRI in total. The other two dimensions: uncertainty avoidance and power distance could not be related to SRI. Scholtens and Sievänen (2013) argue that culture *may* condition institutions, economic development and financial development (Relationship 6, 7 and 8). Furthermore, as the model suggests, economic development and financial development are correlated (Relationship 9 and 10). Scholtens and Sievänen (2013) acknowledge that more research is needed to identify the drivers of SRI in order to generalise these findings and argue that several alternative measures can be used for their domains.
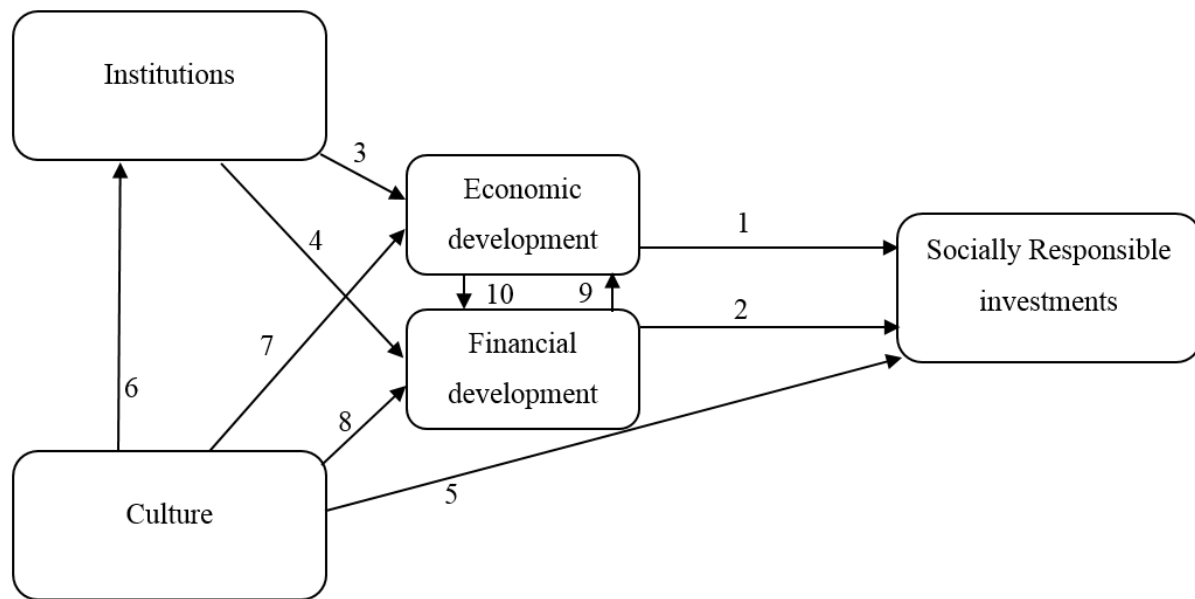
Adapted from Scholtens & Sievänen (2013, p.616)

The current study takes the preliminary model of Scholtens and Sievänen (2013) as point of departure in order to identify the determinants that explain the size of the SRI markets in developed countries, meaning that all domains are taken into consideration. As the current study is interested in the *size* of SRI markets, it analyses first which variables impact the size of the SRI market. Appendix A provides an overview of the variables that are used by Scholtens and Sievänen (2013) and which of them impact the composition or size. Whereas an "X" indicates the variable impacts the size or composition, an "-" means that there is no relationship. As table 12 (Appendix A) indicates, masculinity and pension fund assets impact the size of the SRI market. Therefore, the cultural dimensions of Hofstede and the pension fund assets will be taken into consideration. The variables for institutions and economic development could not be related to the size or composition of SRI. Scholtens and Sievänen (2013) argue that several alternative measures can be used for the institutional domain. Since the current study follows Scholtens and Sievänen's (2013) model, all four domains will be taken into consideration to determine the impact on SRI. The current study aims to identify other variables for institutions and finds theoretical arguments to include economic development. The remainder of this section discusses how institutional, cultural, economic and financial indicators impact the size of the SRI market. Since research on SRI is limited, the current study relies on literature of CSR. Hereby, it follows Scholtens and Sievänen (2013) who argue that CSR and SRI are gradually linked, since SR investors account for the CSR practices of firms by integrating ESG-criteria into their investment strategies (Scholtens & Sievänen, 2013). Moreover, as discussed earlier, the strength of the values that determines the motive to increase other benefits than financial depends on the influence of CSR (Bauer & Smeets, 2010).

3.1 Institutions

Existing literature emphasises the importance of national institutional characteristics to the heterogeneity of SRI (Bengtsson, 2008a; Bengtsson, 2008b; Scholtens & Sievänen, 2013). Bengtsson (2008b) argues that institutional factors can explain the homogeneity among the Scandinavian SR-investors, since institutional factors impact the behaviour and choices of actors. Scholtens and Sievänen (2012) investigate the role of European pension funds in the emerging SRI market and found that the national context shows how SRI and its closely linked affiliate, CSR take place. CSR practices of firms are influenced by the institutional setting (Gjølberg, 2009a; Gjølberg, 2009b). Moreover, "firms operate in different business environments and face challenges in strategically locating themselves and adapting to the diversity of institutions across countries and regions" (Jackson & Deeg, 2008, p. 540). This stresses the importance of the influential part of institutions on firm's behaviour and hence firm's behaviour regarding CSR.

Institutions can be defined as "rules of the game" (North, 1990), that are embedded in society. Williamson's (2000) four levels of analysis show that institutions are embedded in the society's norms, mores and traditions. The norms, mores and traditions (level 1) influence formal institutions, such as constitutions and laws (level 2). These formal institutions establish consequently the rules of the game (level 3) under which the society functions that eventually influences economic outcomes (level 4). These four levels of analysis show that the society and especially firms are inherently influenced by the institutional environment. In order to emphasise the influence of institutions on a firm's decision making, institutions can be seen as costs, resources or in terms of distance by multinational corporations (Jackson & Deeg, 2008). Institutions are approached as costs, when institutions such as legal restrictions are of importance. When entering a new market, multinational corporations will make decisions based upon costs and choose which decision leads to the lowest costs. In contrasts to seeing institutions as costs, institutions are regarded as resources when institutions are seen as complementary to their home country, which creates opportunities. Institutions are regarded in terms of distance when multinational corporations compare their home country to their host country. The closer the institutions are, the more attractive it is for the firm to enter the market in the host country (Jackson & Deeg, 2008). Scholtens and Sievänen (2013) link institutions to SRI and disentangle the "variable" into different factors: legal institutions, labour market institutions and political institutions (Appendix A). These variables, however, could not be related to the size or composition of SRI and argue that several alternative measures can be used for their domains. Institutions in the economy, however, cannot be measured in isolation, since different institutions are said to be complementary. It is said to be complementary "if the presence (or efficiency) of one increases the returns from (or efficiency of) the other" (Hall and Soskice 2001: 17). Matten and Moon (2008) also analysed institutions as an entire set and found that firms choose different forms (explicit versus implicit) of CSR, which depends on the institutional framework. The current study takes the

different sectors of institutions as an entire set and relates it to the size of the SRI market, using the Varieties of Capitalism (VoC) approach.

3.1.1   *Varieties of Capitalism*

The Varieties of Capitalism (VoC) approach comes from institutional theory and argues that the institutional structure affects firms' behaviour. Within capitalism, there is a distinction between two political economies: Liberal Market Economies (LME) and Coordinated Market Economy (CME). Where institutional theories approach institutions as "socialising agencies", or as a "matrix of sanctions and incentives", others argue that the effects of the institution follows "from its power" (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001, p. 5). These approaches, however, do not seem to stress the complete strategic interactions, which is central in the firm's behaviour. In order to capture the strategic interactions, firms are located at the centre, i.e. firms are seen as relational actors. This means that the success of a firm depends on the quality of the relationships that it has with other actors, both internally, with its employees as well as externally, with its suppliers, clients, trade union, et cetera. Firms encounter, however, difficulties when it comes to developing and exploiting its "core competencies" or "dynamic capabilities" (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001, p. 6). Well researched problems such as the principle agent theory, moral hazard and adverse selection confirms these coordination problems and emphasise the importance of the ability to coordinate efficiently with other actors.

The VoC approach argues that firms need to establish five spheres of industrial relations in order to overcome these problems, namely 1) industrial coordination, 2) vocational education and training, 3) corporate governance, 4) inter-firm relations, and 5) the relation with its own employees. First, firms have to coordinate with their workers and trade unions about wages and productivity. Firms in CMEs depend more on negotiations between trade unions and employer associations, whereas firms in LMEs negotiate less and countries rely more on macro-economic policy and market competition. Second, the vocational education and training deals with the approach to employment strategies. Firms in CMEs are more long term oriented, invest in high-skilled labour force and aim to bind employees to the firm, whereas LMEs focus more on basic skills. This means that the labour market is highly liquid, employees are more interchangeable and job security is less. Third, firms in CMEs rely more on patient capital, meaning that these firms are less focused on short-term return on investments (corporate governance). Firms in LMEs on the other hand are short term focused, meaning that they rely more on stock markets. Fourth, the inter-firm relations in CMEs are more collaborative in comparison to the inter-firm relations in LMEs, which are more based on arm's length transactions. Fifth, the relation with its own employees are different, since firms in CMEs cooperate more heavily with their employees when taking major decisions in contrast to firms in LMEs. This means that firms

in CMEs align managers' and employees' incentives. Firms in LMEs are characterised by the unilateral control (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001).

As a result, firms in LMEs coordinate via hierarchies and competitive markets. Common in market relationships are the arm's length transactions of goods and services, meaning that buyers and sellers have no relationship. The relationship between parties in an arm's length relationship is weak, which means the market is an important medium to set the terms of transactions. A prerequisite of a well-functioning LME is strong laws that ensure formal contracting. Furthermore, firms are obliged to disclose information so that actors can respond to price signals in the market and assess individually their willingness to supply and demand goods and services. As a result, there is a high degree of competition. In contrast, the relationships in CMEs are more long term oriented and rely less on market relationships in order to coordinate the firm's activities. These long-term relationships enable information to remain private and requires less formal contracting. This means that the network monitoring is more based upon the exchange of private information inside the firm's network (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001). As noticed, the legal origin is relevant, since strong laws ensure formal contracting in LMEs whereas institutions arise in CMEs, as there is less formal contracting. This means that common law systems can roughly be related to CMEs, whereas LMEs have civil law traditions (Pistor, 2005).

Impact on SRI

The impact on SRI will be analysed, using two distinct perspectives how firms can look at CSR: the shareholder and stakeholder approach. The shareholder approach - originally proposed by Friedman (1970) – states that firms solely aim to increase profits in order to create economic value for its owners. The owners of the firm are seen as the engine of the firm and should therefore be rewarded for taking risk and investing in the firm. In contrast, the stakeholder approach states that the firm owes its responsibility to a wider group of stakeholders, instead of solely to the shareholder. Stakeholders in this respect include employees, government, customers, suppliers, trade unions, creditors, et cetera (Freeman, 1984). Sustainable development is concerned with the "needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland, 1987, p. 41). Moreover, SR investors incorporate environmental, social and governance criteria in their investment decision making process in various ways, such as shareholder activism, screening and impact investing (Eurosif, 2014). This means that sustainability and SRI involve a long-term focus, which takes issues of other stakeholders into consideration. This is reflected in the stakeholder approach, since these firms take stakeholder interests into account. Moreover, it is argued that this approach recognises important elements of corporate sustainability. Therefore this stakeholder approach and sustainability are considered as an integrated way, since stakeholder management has been seen as a

way in which firms are confronted with economic, social and environmental stakeholder claims (Steurer, Langer, Konrad, & Martinuzzi, 2005; Schlange, 2006).

When one would relate these different approaches to the VoC, one can conclude that firms with stakeholder approach dominate in CMEs. This link is supported by the five spheres of industrial relations. Firms in CMEs are characterised by the engagement of trade unions, employer associations and employees. Moreover, they are more long term oriented and rely less on short-term market returns. Furthermore, they try to bind employees to the firm and promote the engagement of employees in making major decisions (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001). This is in line with the stakeholder approach, where the engagement of all stakeholders are of importance and therefore are long term oriented. Firms in LME are on the other hand characterised by reliance on macro-economic policy and market competitions. Moreover, they do not bind employees to the firm, since employees are not engaged in major decisions (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001). This is in line with the shareholder approach, since this approach is focused on the interests of the shareholder: increase profits. This means that firms are short term oriented and take issues of other stakeholders, such as employees and employees associations less into consideration. With SRI, investors account for environmental, social and governance criteria in their investment decisions. As a result, SRI encompasses different stakeholder's interests, which ranges from economic, organisational and societal interests (Scholtens & Sievänen, 2013). As these organisational and societal interest are usually long-term issues, CMEs are expected to be more engaged in SRI. This expectation will be further discussed using a game theory approach.

Game theory approach

In order to elaborate more on the strategic relationship between the different institutional settings on SRI, this study derived the strategic role of the government from game theory. Zhu and Li (2013) propose a game theory model that analyses the strategic responses of the firm in response to the strategy of the government (Appendix B). Hall and Soskice's (2001) model argues that the institutional structure affects firms' behaviour. It aims to model the strategic interactions central to the behaviour of economic actors, by locating firm at the centre. Their research concludes that firms in LMEs coordinate via hierarchies and competitive markets, government supervision is less, whereas firms in CMEs are more long term oriented, rely less on market relationships and where the government monitoring is higher (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001). In this distinction the role of the government is crucial, since the government can regulate social responsible behaviour when the firm has no intrinsic motivation to act socially responsible. This is also in line with Hall and Soskice (2001) in which they state that a firm's strategy depends on the institutional structure. Furthermore, Williamson (2000) argues that formal institutions - in this case laws – establish the rules of the game under which the society operates. As a result, the firm will make

strategic decisions whether to act sustainable based upon strategies of the government, meaning that the extent to which the government supervises socially responsible behaviour affects the decisions of the firm whether to engage in corporate social responsibility.

Zu and Li's (2013) model shows that the game equilibrium is related to 1) the management of the firm (whether to engage in corporate sustainability or not), 2) the cost of the government's supervision and 3) the level of the fine for not adhering to the strategy of the government. First, it appears that the higher the cost of supervision, the lower the probability of supervision, since firms know that the government will consider a cost-benefit analysis. Second, the higher the cost of the management of not becoming sustainable, the higher the possibility that the firm will become sustainable. The firm's decision not to engage in sustainability could lead to a bad image and is therefore more encouraged to become sustainable. Third, when firms are afraid that fines are high, the probability of the firm becomes sustainable is also higher. This means that the probability of the firm to become sustainable depends on the government's probability of supervision. It is argued that the government in a CME is stronger, monitors on a large scale and has a closer relationship with firms, since laws are weaker. In contrast, LMEs have stronger laws, and rely more on markets, meaning that the market participants will punish firms for not engaging in corporate sustainability. Despite the fact that laws are stronger in LMEs, it is expected that in CMEs the probability of government's supervision in CMEs is higher, because the government has a stronger relationship with the firm and monitors on a large scale. From the shareholders versus stakeholders approach, firms in CMEs act also on the interest of other stakeholders, such as the government instead of only on the interest of shareholders. This means that the probability of government's supervision is expected to be higher in CME in comparison to LME and the probability of the firm to engage in corporate sustainability is expected to be higher in CMEs. CSR and SRI are gradually linked, since CSR provides a framework to analyse how the investment targets act in the ESG-areas (Scholtens & Sievänen, 2013). As a result, SR investors make investment decisions, by taking issues concerning other stakeholders into considerations, meaning that CME countries are expected to have more sustainable investments than LMEs. The following hypothesis can be formulated.

H1: CME countries exhibit more SRI than LME countries.

3.2 Culture

Behavioural theories argue that investor's preferences are influenced by the trade-off between risk and return (utility), values, tastes, and status (expressions) and feelings (emotions) (Statman, 2014). The change to a broader definition of the fiduciary duty shows that the importance of incorporating ESG-criteria among pension beneficiaries is increasing (Motivaction, 2012; I&O Research, 2015; Delsen &

Lehr, 2015; Erbé, 2008). According to Hofstede's onion, culture reflects a set of values of a given group, which makes a connection between the individual and culture (Hofstede & Hofstede, 1991). This could lead to different practices of SRI and CSR. Culture has been argued to be added as a fourth and central pillar to original three pillars of sustainable development: environment, social and economic development. The basis for this comes from differences in the interpretation of sustainability and development. Culture shapes how a society defines sustainability and development, and thus shows why societies behave differently towards sustainable development (Nurse, 2006). Different views on corporate social responsibility can explain the heterogeneity of SRI, since SR-investors try to influence firms to incorporate corporate sustainability into their business by making the access of capital (equity and debt) dependent on CSR practices (Cochran, 2007). In particular, Sandberg, Juravle, Hedesström and Hamilton (2009) argue that terminological and practical differences in SRI can be explained by differences in values, norms and ideology. Moreover the decision making process of firms and households are influenced by their social norms and values (Bénabou & Tirole, 2010). Bengtsson (2008b) investigated the drivers of SRI and stresses the importance of culture in the explanation of SRI. Scholtens and Sievänen (2013) found that in Nordic countries feminine societies, such as Norway and Sweden feel at ease with SRI.

The concept of culture is still ambiguous and difficult to define. A very broad definition of culture is: "it denotes a historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate and develop their knowledge about and attitudes towards life" (Geertz, 1973, p. 89). Hofstede (2001, p. 9) on the other hand considers culture as a distinguishing factor and defines culture as: "the collective programming of the mind that distinguishes the members of one group or category of people from another". Within economics and management the definition of Hofstede or a comparable one is used to define culture (De Jong, 2009).

3.2.1   Hofstede's cultural dimensions

There are several models that aim to measure cultural differences, such as the study by Trompenaars, by Schwartz (1992) and the GLOBE project (Chhokar, Brodbeck, & House, 2013). It is said that these models found similar basic value differences, but are different with respect to their research design. De Mooij and Hofstede (2010) provide a clear overview of these differences and argue that different research designs cause differences in results. The main difference that causes differences in results of measuring culture, is asking for the desired or desirable. Whereas "the desirable reflects how people think the world ought to be, the desired reflects what people want for themselves" (De Mooij & Hofstede, 2010, p. 87). Explaining the differences in SRI reflect the investment behaviour of investors and how investors trade-off between utilitarian, expressive and emotional benefits. The current study follows Hofstede's framework, because the desired - as measured by Hofstede (2001) - is closer to the

actual behaviour of people, than the desirable. The second reason for following Hofstede (2001) is to stay close to the variables that are used in preliminary model of Scholtens and Sievänen (2013). The third reason for choosing Hofstede's framework is that the current study focuses on cross-cultural differences. The fourth reason is the importance of Uncertainty Avoidance on institutions described by De Jong (2009). The Hofstede's framework stands out in cross-cultural research because of its "clarity, parsimony and resonance with managers" (Kirkman, Lowe, and Gibson, 2006, p. 286). The cultural dimensions represent independent preferences for one country over another country, meaning that these dimensions only make sense by comparison. Despite the framework's long-standing popularity, several studies have questioned the applicability of Hofstede's cultural value scores (McSweeney, 2002; Shenkar, 2001; Schwartz, 1992). One major criticism is that the dimensions fail to capture the change of culture over time (Kirkman, Lowe, & Gibson, 2006), since the dimensions are only measured once. Hofstede (2001) on the other hand argues that national culture is stable over time. Since the current study is interested in cross-cultural differences, Hofstede's (2001) dimensions are a good proxy, because relative cultural differences are not affected by the time dimensions (Beugelsdijk, Maseland, & Van Hoorn, 2013). The Hofstede's framework consists of six dimensions: uncertainty avoidance, masculinity vs. femininity, collectivist vs. individualistic, power distance, long-term orientation and indulgence vs. restraints. These dimensions are defined as follows (Hofstede, 2011, p. 8):

- Uncertainty avoidance — "related to the level of stress in a society in the face of an unknown future."

- Individualism versus collectivism — "related to the integration of individuals into primary groups."

- Power distance — "related to the different solutions to the basic problem of human inequality."

- Masculinity versus femininity — "related to the division of emotional roles between women and men."

- Long-term orientation — "related to the choice of focus for people's efforts: the future or the present and past."

- Indulgence versus restraint — "related to the gratification versus control of basic human desires related to enjoying life."

Impact on SRI

The direct impact of culture on SRI can properly be explained, by assessing each Hofstede's cultural dimension to SRI. This sub-section discusses these relationships, determines whether the dimension impacts the size of SRI (positive or negative) and formulates hypotheses.

Uncertainty Avoidance – Societies that score high on uncertainty avoidance aim to reduce risk to a minimum and have a negative attitude towards competition and conflicts. In order to avoid this, these societies rely more on strict rules, laws and regulations (Hofstede, 2001). Individuals in countries that score low on uncertainty avoidance want to take more risk. Risk is highly correlated with unethical business (Peng, Dashdeleg, & Chih, 2012; Ho, Wang, & Vitell, 2012), meaning that investors in low uncertainty avoidant countries invest more in unethical business. Furthermore, investors in countries that score high on uncertainty avoidance want to be sure about the ethical nature of their investments. This means that these investors increase ESG integration in order to be sure of the ethical nature of the firm and to reduce the risk of investing in firms that are engaged in unethical business (Scholtens & Sievänen, 2013).

H2: Uncertainty Avoidance positively impacts SRI.

Individualism - It is argued that an individualistic society is less embedded into groups, meaning that self-interest is more important than reaching collective goals (Hofstede, 2001). In contrast, managing sustainable issues and achieving the goals of corporate sustainability is a collective enterprise. Moreover, sustainable investments started with the belief that by the unison of ethical investors the practices and policies of a firm can be influenced through the market mechanism. By not purchasing or selling shares of firms on a large scale, investors can make a difference (Cochran, 2007). Despite the fact that sustainable development is a collective goal, sustainability or environmental movements emerged largely from the activity of widely dispersed interest groups, rather than centralised associations. Empirical studies found evidence of this relationship and show that more individualistic societies exhibit more environmental sustainability (Husted, 2005; Kyriacou, 2015). Matten and Moon (2008) found that firms in individualistic countries are more engaged in explicit CSR, such as donation to the church. Voluntary activities are part of SRI, meaning that individualism impacts positively the engagement in CSR. Peng, Dashdeleg and Chih (2012) found support for this relationship and conclude that individualism and the engagement of firms in CSR is positive, using the Dow Jones Sustainability Index as a proxy for CSR. A more recent study found evidence of the negative relationship between individualism and non-finacial performance and CSR engagement (Thanetsunthorn, 2015). Scholtens and Sievänen (2013) related SRI to individualism and hypothesised that investors in collective societies are said to be more introvert. Introversion reduces the interest in SRI, meaning that an individualistic society exhibit more SRI (Scholtens & Sievänen, 2013). Therefore individualism is expected to impact SRI positively.

H3: Individualism positively impacts SRI.

Power Distance - A society that scores high on power distance is more willing to accept unequal distribution of power (Hofstede, 2001). This is associated with sustainable development, since the respect for authority leads to weaker capacity for debates about sustainable issues. Sustainable development is concerned about taking action to combat climate change. Strong debates on such issues can create awareness and engagement. When strong debates are missing there is less awareness and engagement, which leads to a weaker response of firms to combat sustainability problems such as climate change (Husted, 2005). A society that scores high on power distance is therefore expected to be less involved in sustainable development. Husted (2005) tested the distribution of power, using an egalitarian measure. He found that more equal societies exhibit more environmental sustainability. This reasoning is also supported by Park, Russel, and Lee (2007) who found empirical evidence of a negative relationship between power distance and environmental sustainability. Moreover, the dialogue of firms with its stakeholders in high power distance countries is less. As a result, there is less dialogue between the management team and employees and consumers, which means that consumer pressure on firms to engage in CSR practice is less (Peng, Dashdeleg, & Chih, 2012). In addition, firms in higher power distance countries are found to be more engaged in questionable business practices (Ho, Wang, & Vitell, 2012; Ringov & Zollo, 2007). SR investors aim to reduce the risk of investing in firms that are more engaged in questionable issues. Furthermore, SRI use engagement of investors to influence firm's behaviour. Pension funds which use corporate engagement can promote higher corporate, social and environmental standards of firms that adds long-term value and provide long-term benefits to future pension beneficiaries. Since firms in societies that score high on power distance exhibit less dialogue with its stakeholders, it is expected that power distance impacts SRI negatively.

H4: Power Distance negatively impacts SRI.

Masculinity - Masculinity is associated with the degree of competition, assertiveness and making money. On the other hand, femininity is associated with the degree of social relationships, the quality of life and the future (Hofstede, 2001). Since sustainability is long term oriented and focuses on the quality of life, it is expected that a more feminine society is related to a higher degree of sustainability. Empirical studies confirm this relationship and found a positive relationship between femininity and environmental sustainability (Park, Russell, & Lee, 2007; Husted, 2005; Ringov & Zollo, 2007). Moreover, masculinity is associated with greed and competitiveness, which are found to be related to unethical behaviour (Ho, Wang, & Vitell, 2012), meaning that feminine societies take ESG-criteria more in consideration for ethical reasons. In addition, competitiveness and focus on making money of a masculine society suggests that masculine investors are focused on financial benefits, rather than environmental, social and governance benefits. This is also in line with the relationship on SRI, since the notion of SRI involves feminine values. As a result, values-driven investments are more

undertaken by women (Bauer & Smeets, 2011). Scholtens and Sievänen (2013) found that a feminine society has a more developed SRI market.

H5: Masculinity negatively impacts SRI.

Long-term orientation - Sustainability is mostly concerned with a long-term focus, since it is tries to deal with long-term problems, such as global warming and scarcity of natural resources. Long-term orientation is expected to be positively correlated with sustainability, since long-term orientation affects the way a society handles its natural environment (Hofstede & Minkov, 2010). Long-term orientation is found to be positively related to CSR, using a multidimensional CSR Index (Halkos & Skouloudis, 2016). CSR provides a framework for investors to integrate ESG-criteria, meaning that SRI also enables a long-term focus of investors. As a result, it is expected that long-term orientation positively impacts SRI.

H6: Long-term orientation positively impacts SRI.

Indulgence – Indulgence is said to be more or less complementary to the long-term versus short-term orientation and focuses on aspects that are not covered in the other five dimensions. Indulgence is strongly linked to the happiness of a society. Whereas restrained society have fewer very happy people, lower importance of leisure, are less likely to remember positive emotions, and freedom of speech is not a primary concern, indulgent societies declare themselves more as very happy, have a high importance of leisure, are more likely to remember positive emotions and freedom of speech is a primary concern (Hofstede, 2011). The use of indulgence in economic literature and in particular, its relationship with CSR and SRI is limited. Despite the fact that Halkos and Skouloudis (2016) find a positive relationship between indulgence and the multidimensional CSR Index, this relationship is not supported by theoretical arguments. Moreover, the relationship between indulgence and SRI is inclusive. Restraint societies are more capable of controlling their basic needs, which means that they have a long-term orientation. Indulgent societies are more focused on the short run in order to increase direct benefits. This suggests that indulgence positively impacts SRI, since these societies are more long term oriented. On the other hand, individuals in an indulgent society declare themselves more as very happy, meaning that they are more likely to consider other benefits. As a results, investors in indulgent societies could increase their expressive and emotional benefits in addition to the utilitarian benefits. Furthermore, indulgence can be considered as an ambiguous dimension, because it focusses on happiness research. Kahneman (2010) offers his criticism, which is threefold. The first trap is the reluctance to admit complexity, since the word happiness is applied to many things, which makes happiness a useless word. Second, happiness economics does not distinguish experience and memory properly. Where the experiencing self is focused on happiness in the moment, the remembering self is

focused on what satisfies a person when he thinks about his life. The third trap is a focusing illusion. Researchers are convinced that many factors are of a great importance in assessing people's happiness, but not all these factors have a major influence. Moreover, happiness is viewed differently among different cultures. Considering the ambiguity of the impact on SRI and the validity of the dimension, the current study will not take this dimension into account.

3.3   Economic development

Scholtens and Sievänen (2013) could not relate any indicator of economic development to the size of SRI among Nordic countries. Whereas economic openness is found to be related to the composition of SRI, GDP among the Nordic countries were found to be rather similar. Although Scholtens and Sievänen (2013) concluded that economic development does not impact the size of SRI, the current study does take economic development into consideration. Economic development is linked to SRI through the increasing need to consider expressive and emotional benefits in addition to utility. The Maslow's (1970) hierarchy of needs theorem considers five hierarchal levels of needs, meaning that an individual can satisfy a need in the higher level after he satisfied the need in the preceding levels. The first level of need should be met in order to reach the second level. The first need concerns physical needs, such as food and health. The second is safety needs. The third level concerns love and affection. The fourth level includes self-esteem and respect. The fifth and last level consists of self-actualisation, such as knowledge, creativity and self-expression. It is argued that sustainability is towards the top of the hierarchical pyramid, meaning that people that already met their basic needs are looking for higher-order needs (Jeucken, 2010). When investors are looking for higher-order needs, such as sustainability, they are willing to increase the benefits of these higher-order needs at the expensive of utility, since these needs have already been met. As discussed earlier, SRI started in the 1960s and 1970s with a small group of investors. Currently, people moved more towards the top of the hierarchal pyramid, meaning that more investors try to increase non-financial benefits (Jeucken, 2010). When enough investors strive for higher-order needs a market is created: the SRI market. This means that countries in which individuals already satisfy their basic needs will be more willing to fulfil higher-order needs and are therefore more willing to integrate ESG-criteria. The main aim of economics is to satisfy the needs of individuals in a society, meaning that the hierarchical theory of needs theorem allows economists to see economic development in a specific order. Applying economic development to SRI suggests that social responsible investments and economic development have a positive relationship, since investors in developed countries are more towards the top of Maslow's hierarchical pyramid of needs. Moreover, the reason for the inclusion of this measure is that other theories used in this paper have a link with economic development (Maslow, Frager, & Cox, 1970; Hofstede, 2001; Hall & Soskice, An Introduction to Varieties of Capitalism., 2001). In particular, Hofstede suggests controlling for economic development when taking culture into

consideration, because "if 'hard' variables predict a country variable better, cultural indexes are redundant" (Hofstede, 2001, p. 68).

H7: Economic development positively impacts SRI.

3.4   Financial development

Scholtens and Sievänen (2013) investigate whether financial indicators: banking system, financial markets and institutional investors relate to SRI (Appendix A). Whereas financial markets and the banking system are related to the composition of SRI, the size of institutional investors stimulates norm- and value-based investing and responsible investments in general. Scholtens and Sievänen (2013) measured the size of institutional investors by pension fund assets as a percentage of GDP. The importance of financial intermediaries is in line with Scholtens (2006), who argues that finance relates to CSR. When financial intermediaries account for CSR in providing capital, it impacts the equity and bonds they hold in their portfolios. Especially financial intermediaries are in the screening stage capable of amending the course of the firm to a responsible direction (Scholtens, 2006). Within the SRI market, institutional investors are the most important investors (GSIA, 2015). As discussed earlier, fiduciary institutions has been identified as institutional investors that are bound by the duty of loyalty and care. The rise of fiduciary institutions has been characterised as fiduciary capitalism or universal ownership. Fiduciary capitalism means that a large number of institutional investors holds highly diversified equity. Although there are many institutional investors, holdings are concentrated among a few large institutions. Since these investments are highly diversified because of their explicitly policy of indexing, the ability to meet its fiduciary obligations depends on the economy as a whole. This means that fiduciary institutions are often characterised as universal owners. As a result, the portfolio they hold represents the entire market, meaning that it has both positive and negative externalities (Hawley & Williams, 2007). Consequently, universal owners have a natural interest in sustainable development, since they benefit from positive externalities of firms they hold in their portfolio and negative externalities reduces benefits (Hawley & Williams, 2002). Since pension funds aim to achieve long-term value of the firm, the standards of firms needs to be in order. As a result, pension funds focus on the behaviour of firms on social and environmental issues in order to reduce risk. Corporate engagement can promote higher corporate, social and environmental standards of firms that adds long-term value and provide long-term benefits to future pension beneficiaries. This confirms Vitols (2011) in describing the threefold contribution of pension funds in the development of SRI.

H8: Pension fund capitalisation positively impacts SRI.

3.5 Mediation

The current study follows Scholtens and Sievänen's (2013) model. This model suggests indirect relationships. Scholtens and Sievänen (2013) postulate that institutions condition economic and financial development, and cultural dimensions condition institutions, economic and financial development. The indirect relationships are illustrated in figure 2 by the black arrows. In order to analyse the indirect effects, a mediation model will be used. A mediation model aims to identify the relationship between the dependent and independent variable via the inclusion of a third variable, which is also known as the mediator. In relationship 3 (Figure 2), the independent variable is SRI, the dependent variable is institutions and the mediator is economic development.

Figure 2: Determinants of SRI
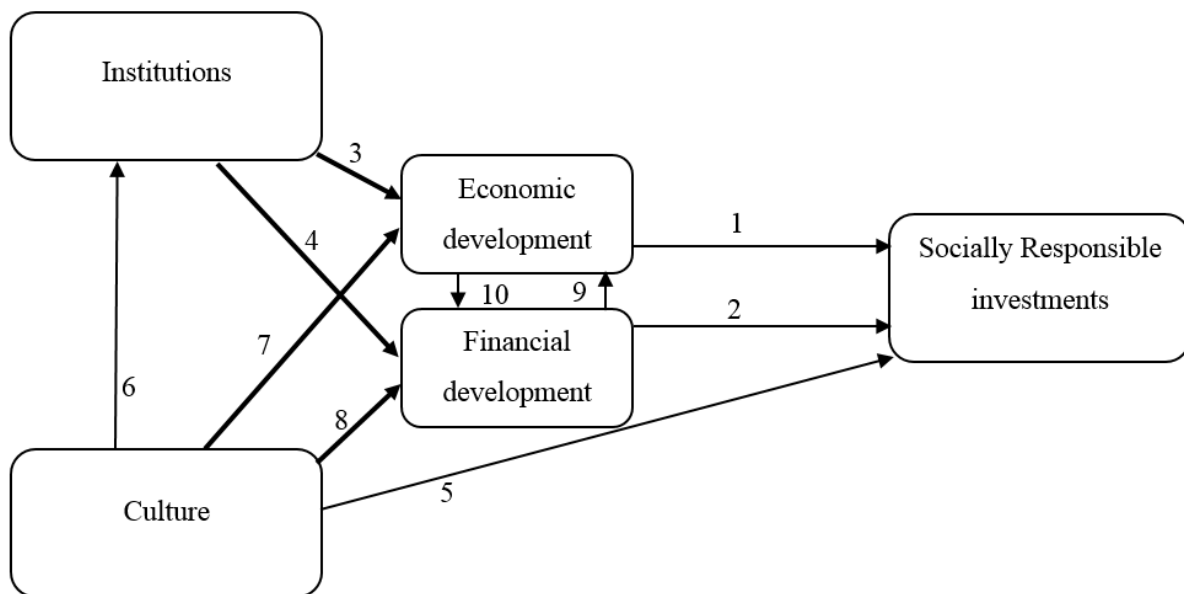
Adapted from Scholtens & Sievänen (2013, p. 616)

The remainder of this sub-section discusses the relationship between the dependent variable and the mediator theoretically in order to formulate hypotheses. The relationship of institutions as dependent variable (3 and 4) and culture as dependent variable (6, 7 and 8) will be discussed, respectively.

3.5.1 Institutions

Institutions and Economic development

Scholtens and Sievänen's model (2013) suggests that institutions condition economic development. Economic literature is fascinated by the fundamental causes of the large difference in income per capita, in which the differences in institutions has grown in attention (Knack & Keefer, 1993; Mauro, 1995; Acemoglu, Johnson, & Robinson, 2001). There is no doubt that there is a relationship between the quality of institutions and economic development. The current study follows the VoC approach by

Hall and Soskice (2001), meaning that coordinated market economy or a liberal market economy conditions GDP. Hall and Soskice (2001) analysed the role of different types of capitalism and economic development, and conclude that there is no system superior to the other. Although one system is not superior to the other, each type of capitalism has its pros and cons. The different types of economies tend to differ in their capacities for innovation.

H9: Institutions condition economic development.

Institutions and financial development

Institutions are postulated to condition financial development in the impact on SRI (Scholtens & Sievänen, 2013). Scholtens and Sievänen's model (2013) measured financial development by indicators of financial institutions, financial markets and the size of pension funds. The current study takes only the size of pension funds into consideration, meaning that institutions condition the size of pension funds. Based on the VoC approach (Hall and Soskice, 2001) it is found that there are differences among CME and LME countries in funded pension fund assets. Whereas LMEs rely more on funded pension funds and CMEs on non-funded pensions (Wiß, 2011). Ebbinghaus (2015) found the same significantly differences in the size of pension funds across the two types of capitalism. Within CMEs, two developed countries: Netherlands and Switzerland outperform average LMEs. Ebbinghaus (2015) argues that these investments are made by the Dutch collectively negotiated and the Swiss mandatory pension funds. Furthermore, the Netherlands has a pseudo mandatory pension fund system. Since there seem to exist large differences between LMEs and CMEs, the current study argues that institutions condition the size of the pension funds.

H10: Institutions condition the size of the pension funds.

3.5.2 Culture

Culture conditions Institutions

As argued previously, institutions are embedded in a society, meaning that culture shapes the institutional environment. According to Williamson's (2000) four levels of analysis, the institutional environment is embedded in shared values of a society. Moreover, institutions work only properly when these "are embedded in a societies' shared habits of thought and behaviour" (Hodgson, 2006, p. 6). Studies that investigated the impact of culture on institutions focus on a particular sector of the economy: financial systems, labour markets, the type of products produced and the government's policy with respect to the openness of the economy. The current study, however, follows the diversity of capitalism approach. De Jong (2009) combines studies that investigated the role of culture on

different sectors in the economy and concludes that uncertainty avoidance is the main relevant dimension of Hofstede. On labour markets De Jong (2009, p. 87) reveals "that a low level of uncertainty avoidance is related to a low level of employee protection, decentralised wage bargaining and individualised wages", which are further associated with a market-based financial systems. The current study acknowledges a correlation between uncertainty avoidance and institutions, since the De Jong (2009, p. 90) concluded that "a systematic pattern emerged suggesting a structure in which institutions are complementary to each other and systematically related to one culture dimension; Hofstede's Uncertainty Avoidance Index, because a society in which inhabitants accept uncertainty relatively easily is characterised by a market-based financial system, flexible labour markets, an open economy and specialises in innovative products."

H11: Uncertainty avoidance conditions the type of institutions.

Culture conditions Economic development

Scholtens and Sievänen (2013) postulate that culture conditions economic development. The impact of culture on economic development has been studied extensively and found that cultural values had a significant impact on economic development, using different cultural models (Marini, 2004; Zak & Knack, 2001). The current study measures culture and economic development by the Hofstede's framework (2011) and GDP, respectively. Hofstede (2001) found individualism and economic growth (measured by GDP) to be negatively correlated. Power distance and uncertainty avoidance are found to be positive in explaining past economic growth between 1960 and 1970 (Hofstede, 2001). De Jong (2009) performed an analysis of Hofstede's cultural dimension on economic growth measured by GDP per capita, using a dataset of 24 wealthy countries. De Jong (2009) found a negative correlation for individualism and masculinity in explaining GDP per capita (insignificant). Uncertainty avoidance is found to positively impact GDP per capita for this sample at a 10% significant level. Since the current study uses a similar dataset of De Jong (2009), it is expected that individualism, masculinity and uncertainty avoidance has no effect on GDP per capita. Hofstede (2011) found that long-term orientation positively impacts economic growth. Long term oriented societies are more oriented to future events and therefore save a large share of their income. As a result, it is expected that long-term orientation conditions economic growth.

H12: Long-term orientation conditions economic development.

Culture conditions financial development

Scholtens and Sievänen (2013) postulate that culture conditions financial development, measured by financial institutions, financial markets and the size of pension funds. The size of financial markets

and financial institutions are found to be impacted by culture (Kwok & Tadesse, 2006). However, the current study takes only the size of the pension funds into consideration, meaning that there culture needs to condition the size of the pension funds. Culture tends to influence how pensions are organised. This is also reflected in pension schemes, since these societies have more separate pension systems for different classes of employees. In contrast, low power distance countries tend to minimise income differences and use social pensions in order to minimise income differences for retirees. The Power resource theory argues that trade unions achieved more egalitarian working class power, which indicates that societies that score low on power distance have a higher trade union density. Moreover, power distance is found to be negatively correlated with corporatism. Corporatism "is a type of social organisation that is intermediary between capitalism and socialism, representing economic activities, such as labour union and employers' associations" (De Jong, 2009, p. 78). This means that countries with lower power distance have a high degree of corporatism. Pension funds that became world leaders in SRI have a strong role of labour trustees (Vitols, 2011). Higher power distance countries prefer more separate plans for different employee groups, and low power distance countries are separate plans for different employee groups unacceptable. Moreover, culture influences the size of pension funds via power distance. Power distance tends "to reserve many privileges for high status or ranking individuals, while low Power Distance societies tend to try to minimise status differentials" (Hempel, 1998, p. 279). As a result, it is expected that lower power distance countries have more generous social pension in order to reallocate income to people with lower income.

H13: Power distance conditions the size of pension funds as proxy for financial development.

4   Data and Research Methodology

The current study attempts to identify cross-country variation in the size of the SRI market, using a panel dataset of 15 countries between 2005 and 2013. Based on the theoretical model in the previous section, the current study uses a dataset of the following variables:

- Socially Responsible Investments
- Institutions
- Cultural dimensions
- Economic development

4.1   Data

This sub-section elaborates on how the dependent variable (socially responsible investments) and the other variables are obtained.

4.1.1   Socially Responsible Investments

As there is no unified definition of socially responsible investments, this study follows Eurosif (2014) and defines SRI as: "any type of investment process that combines investors' financial objectives with their concerns about environmental, social and governance issues" (Eurosif, 2014, p. 8). This definition for European studies is also reflected in similar studies in the United States, Australia, Canada and Japan. The shared definition is provided by the GSIA (2014) and defines SRI as "an investment approach that considers environmental, social and governance factors in portfolio selection and management." (GSIA, 2014, p. 6).

In order to have clear understanding of sustainable investing it can be divided into two major strategies: core and broad investments. The core SRI segment consists of multiple ethical exclusions, such as norms- and values-based as well as different types of positive screens, such as Best-in-Class and thematic funds. On the other hand, the broad SRI segment consists of the use of simple exclusions, engagement, and integration (GSIA, 2014). Data for both core and broad investments are available of the European SRI market for the period between 2005 and 2013. Studies on sustainable investments in the USA, Canada, Australia, New Zealand and Japan do not make a distinction between these different strategies, meaning that there is only data available covering the total SRI market. European data are obtained from the Eurosif studies. Data for USA, Canada, Australia, New Zealand and Japan are obtained from USSIF, Responsible Investment Association Canada, Responsible Investment Association Australasia and the Japan Sustainable Investment Forum, respectively. The use of different sources could lead to different measures, since SRI is a broad and no unified concept. Despite this, the measures can be compared, because the GSIA compares also these different measures in its report in 2012 and 2014. In order to compare the data properly the values are converted into US

Dollars. To control for the size of the economy the current study takes the total SRI market as a share of a country's GDP. Table 2 shows the development of the SRI market as a share of a country's GDP. Despite some missing values, the table shows a clear growth between 2005 and 2013. The table is first sorted by the highest share in 2013 and second by the values of 2011. As can be seen, the top 5 countries are located in Europe, demonstrating the high SRI market in Europe.

Table 2: SRI as a % of GDP

Panel A: CME	2005	2007	2009	2011	2013
Switzerland	3.10	8.41	8.68	139.12	439.68
Norway	-	111.21	220.89	251.20	318.15
Denmark	-	77.32	161.52	137.63	-
Sweden	-	73.45	120.88	124.54	265.28
The Netherlands	9.3	57.65	78.73	116.98	208.81
Finland	-	48.46	65.09	67.46	79.84
Belgium	51.82	104.13	69.56	29.19	63.47
Germany	0.24	0.52	0.62	24.50	33.45
Austria	0.51	0.53	0.90	3.07	9.07
Japan	-	0.17	0.12	0.23	0.17
Panel B: LME					
United Kingdom	30.92	47.35	60.50	72.56	106.36
Canada	33.60	44.02	36.60	40.75	62.97
United States of America	17.49	18.73	21.28	24.13	39.44
New Zealand	2.26	10.73	9.65	13.17	15.27
Australia	3.34	7.76	7.34	11.63	15.18
Total	**151.96**	**422.74**	**596.45**	**667.11**	**1,904.37**

Data are obtained from Eurosif studies, USSIF, Responsible Investment Association Canada, Responsible Investment Association Australasia and the Japan Sustainable Investment Forum. Afterwards the data are converted into US Dollars, using the exchange rate on 30 September of the particular year and divided by the country's GDP. Data on GDP are obtained from the OECD website.

4.1.2   Institutions

The VoC approach by Hall and Soskice (2001) distinguishes between liberal market economies: United States, Canada, Australia, New Zealand and UK, and coordinated market economies: Austria, Belgium, Denmark, Finland, Germany, Netherlands, Norway, Sweden, Switzerland. Table 2 illustrates the distinction between liberal market economies and coordinated market economies in relation to the SRI market as share of GDP. A univariate test is performed in order to test whether CME exhibits more SRI. According to table 3, the mean SRI of CME countries is lower (2.9186) in comparison to the mean of LME countries (3.0392)[1]. This suggests that LME countries exhibit more SRI. The t-test is, however, insignificant ($p = 0.2322$).

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[1] The natural logarithm of SRI as a % of GDP is used

Table 1: Univariate test SRI

	CME	LME	Difference	t-statistic	p-value
Mean	2.9186	3.0392	0.1207	0.8171	0.2322
St. dev.	2.4912	0.9476			

This table presents the results of the univariate test. It shows the mean, standard deviation, median of SRI for CME and LME countries and its difference. The t-test is used to test the difference of the mean.

4.1.3 Culture

Table 4 provides an overview of the cultural dimensions per country. As follows from the table, there are large differences across the countries. Power distance ranges from 11 in Austria to 68 in France and Poland. Furthermore, masculinity ranges from 5 in Sweden to 95 in Japan. Long-term orientation ranges from 21 in Australia to 88 in Japan. Uncertainty avoidance from 23 in Denmark to 94 in Belgium. Less extreme differences are found in the dimension: individualism.

Table 4: Hofstede's cultural dimensions

Panel A: CME	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-term orientation
Austria	11	55	79	70	60
Belgium	65	75	54	94	82
Denmark	18	74	16	23	35
Finland	33	63	26	59	38
Germany	35	67	66	65	83
Netherlands	38	80	14	53	67
Norway	31	69	8	50	35
Sweden	31	71	5	29	53
Switzerland	34	68	70	58	74
Japan	54	46	95	92	88
Panel B: LME					
UK	35	89	66	35	51
USA	40	91	62	46	26
Canada	39	80	52	48	36
Australia	36	90	61	51	21
New Zealand	22	79	58	49	33

Data are obtained from https://geert-hofstede.com/national-culture.html, based on the definitions of Hofstede (2011).

Table 4 shows a distinction between CME and LME countries. Uncertainty avoidance is considered as the main dimension that distinguishes the CME and LME countries (De Jong, 2009). A univariate test is performed in order to test whether CME score higher on uncertainty avoidance. According to table 5, the mean of CME countries is higher (59.3) in comparison to the mean of LME countries (45.8). This suggests that CME countries score higher on uncertainty avoidance on average. The t-test performed in this paper shows that CME countries score higher on uncertainty avoidance, significantly ($p = -2.9953$).

Table 5: Univariate test Uncertainty Avoidance

	CME	LME	Difference	t-statistic	p-value
Mean	59.3	45.8	-13.5	0.0037	-2.9953
St. dev.	3.1247	1.1504			

This table presents the results of the univariate test. It shows the mean, standard deviation, median of uncertainty avoidance for CME and LME countries and its difference. The t-test is used to test the difference of the mean.

4.1.4 Economic development

The current study uses the traditional measure of economic development: GDP per capita. The reason to measure economic development by GDP per capita is twofold. First, Maslow's (1970) pyramid of needs argues that people living in a country that has high economic development are more towards the top of Maslow's hierarchical pyramid of needs. This makes sense, because individuals in higher economic developed countries are more able to fulfil their needs. To include economic development for testing the Maslow theory, GDP per capita is often used (Hagerty, 1999). Second, Hofstede (2011) suggests to include GDP per capita when assessing his cultural dimensions, because "if 'hard' variables predict a country variable better, cultural indexes are redundant" (Hofstede, 2001, p. 68). Data are obtained from the OECD database and illustrated in table 6.

Table 6: GDP per Capita in US$, constant prices, constant PPP, reference year 2010

Panel A: CME	2005	2007	2009	2011	2013
Norway	59,402	61,464	59,190	58,618	59,310
Switzerland	48,113	51,385	50,207	51,706	52,048
Netherlands	42,797	45,771	44,393	45,307	44,322
Austria	39,945	42,418	41,208	42,940	42,861
Sweden	40,088	42,834	39,734	42,546	42,274
Germany	37,483	40,308	38,698	41,859	41,960
Denmark	42,736	44,389	41,351	42,148	41,693
Belgium	38,114	39,832	38,602	39,663	39,273
Japan	33,268	34,512	32,251	33,670	34,858
Finland	37,619	40,842	37,380	39,126	37,919
Panel B: LME					
United States	48,677	49,903	47,503	48,704	49,784
Australia	40,283	41,839	41,818	43,058	43,742
Canada	39,931	41,003	39,306	40,922	41,576
UK	36,555	37,929	35,623	36,288	37,028
New Zealand	30,421	31,710	31,209	31,803	32,690

Data are obtained from https://stats.oecd.org/index.aspx?queryid=60702#. Data are initially in "national currency, in current prices and constant prices (national base year, previous year prices and OECD base year i.e. 2010) - and for comparative purposes in US $ current prices and constant prices (using exchange rate and PPPs). Expressed in millions and in indices. For the Euro area countries, the data in national currency for all years are calculated using the fixed conversion rates against the euro" (OECD, 2016a).

The table distinguishes CME and LME countries. Hall and Soskice (2001) analysed the role of different types of capitalism and economic development, using a large dataset between 1974 and 1998.

Despite some variation over specific periods there is no system superior to the other in the long run. The current study performs a univariate test (Table 7) in order to analyse whether this is in line with Hall and Soskice (2001). The table shows that the mean of CME countries (10.662) is higher in comparison to LME countries (10.585)[2]. The t-test performed in this paper shows that the difference (-0.0767) is significant (p = -2.056). This indicates that institutions could condition economic development, meaning there is an indirect effect on SRI through economic development. The indirect relationship will be further analysed in the mediation model.

Table 7: Univariate test Economic Development

	CME	LME	Difference	t-statistic	p-value
Mean	10.6619	10.5851	-0.0767	0.0433	-2.0563
St. dev.	0.0217	0.0301			

This table presents the results of the univariate test. It shows the mean, standard deviation, median of economic development for CME and LME countries and its difference. The t-test is used to test the difference of the mean.

4.1.5 Financial development

The current study follows Scholtens and Sievänen (2013) and measures the size of the pension funds by its assets. In order to control for the size of the economy, the pension fund assets are measured as a percentage of the national GDP. Data is derived from the OECD (2016) website.

Table 8: Pension fund assets as a percentage of GDP

Panel A: CME	2005	2007	2009	2011	2013
The Netherlands	113.552	125.954	110.091	126.899	148.741
Switzerland	106.93	105.93	102.022	101.127	113.364
Finland	65.669	68.066	73.508	42.373	48.695
Denmark	32.893	31.893	41.888	48.429	42.093
Japan	6.598	-	-	17.581	19.035
Sweden	8.536	8.086	7.781	8.799	9.149
Norway	6.563	6.827	7.21	7.214	8.105
Germany	4.142	4.611	5.31	5.524	6.115
Austria	4.635	4.658	4.914	4.783	5.658
Belgium	4.279	4.287	3.946	4.114	4.992
Panel B: LME					
Australia	77.962	106.006	82.217	92.428	102.209
United Kingdom	75.008	76.377	75.854	89.265	99.624
United States of America	74.253	77.283	69.17	71.071	81.844
Canada	56.684	60.963	58.773	61.84	70.801
New Zealand	11.423	11.511	11.725	15.56	18.772
Total	**649.127**	**692.452**	**654.409**	**697.007**	**779.197**

Data are obtained from https://data.oecd.org/pension/pension-funds-assets.htm. "Pension funds' assets are defined as assets bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. The pension fund is a pool of assets forming an independent legal entity. This indicator is measured as a percentage of GDP" (OECD, 2016b)

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[2] The natural logarithm of GDP per capita is used

Table 8 illustrates the size of the pension funds. The increasing size of pension fund assets, confirms Vitols (2011), who argues that the size of pension funds is increasing. As can be seen, there are large differences across these countries. Whereas the Netherlands' pension assets as a percentage of its GDP is 149% in 2013, Belgium has only 5% pension fund assets. Table 8 makes a distinction between the two types of capitalism. LME countries are expected to have more funded pension and CME countries on non-funded pensions (Wiß, 2011; Ebbinghaus, 2015). The current study performs a univariate test (Table 9) and shows a difference between CME and LME countries. Whereas the mean of pension fund assets as a % of GDP in CME countries is 38.40, the mean in LME countries is 65.14. The difference is significant on a 1% level ($p = 2.7199$). This indicates that institutions condition pension fund assets, meaning there is an indirect effect on SRI through financial development. The indirect relationship will be further analysed in the mediation model.

Table 9: Univariate test Pension fund assets

	CME	LME	Difference	t-statistic	p-value
Mean	38.3950	65.1449	26.7499	0.008	2.7199
St. dev.	44.3819	29.0909			

This table presents the results of the univariate test. It shows the mean, standard deviation, median of pension fund assets as a % of GDP for CME and LME countries and its difference. The t-test is used to test the difference of the mean.

4.1.6 Descriptive statistics

Table 10 presents the descriptive statistics, in which the mean, standard deviation, median and skewness are illustrated.

Table 10: Descriptive statistics

Variables	Mean	St. deviation	Median	Skewness
SRI as % of GDP	50.513	76.100	18.107	2.578
Log SRI as % of GDP	2.621	2.237	3.275	-.769
CME dummy	.737	.443	1	-1.076
Masculinity	50.053	24.897	58	-.421
Power Distance	40.263	15.885	36	.283
Individualism	71.316	12.321	71	-.271
Long-term orientation	52.211	19.804	51	.287
GDP per Capita	42,130	6,826.119	41351	.917
Log GDP per Capita	10.636	.156	10.630	.440
Pension fund assets as % of GDP	47.556	41.609	42.093	.465

The table above presents the mean, standard deviation, median and skewness of the variables used in this dataset. Socially Responsible Investments are corrected for the size of the economy, by taking the percentage of SRI relative to GDP. This study follows Hall and Soskice (2001) by determining the institutional setting. The CME-dummy equals 1 when the economy is a coordinated market economy and 0 otherwise. Uncertainty avoidance indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Masculinity is the distribution of roles between the sexes. Power distance is the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequal. Individualism describes the degree to which individuals are integrated into groups. Long-term orientation describes the prioritisation of countries to deal with present and future challenges. GDP per capita is in US\$, constant prices, constant PPP and reference year 2010 (OECD, 2016a). The pension fund is a pool of assets forming an independent legal entity. This indicator is measured as a percentage of GDP" (OECD, 2016b)

The dependent variable (socially responsible investments) and to a lower extent, GDP are positively skewed (as mean > median), meaning that the observations are not normally distributed. As a result, this study takes the natural logarithm and transforms these variables in order to correct for this. As the table presents, the log function of SRI and GDP are less skewed and therefore roughly normally distributed.

4.2 Empirical models

The current study analyses the impact of the four determinants proposed by Scholtens and Sievänen (2013) on the size of SRI. First, the model as a whole will be tested using a multivariate analysis (Hypotheses 1 – 9). Second, the mediation effects will be tested, using the Sobel test (Hypotheses 9 – 13).

4.2.1 Estimating the model

Panel data analysis allows researchers to measure time-variant variables (t) and time-invariant variables (i). Equation 4.1 presents the functional form of the model, in which socially responsible investments are denoted as SRI, institutions is specified as I, economic development is represented by E, F is the financial indicator and ϵ stands for the error term.

$$\text{SRI}_{it} = \alpha_i + \beta_1 I_i + \beta_2 C_i + \beta_3 E_{it} + \beta_4 F_{it}\ \epsilon_{it} \qquad i = 1,\dots,16 \qquad t = 1,\dots,5 \qquad (4.1)$$

In econometrics, there are several different estimation procedures to analyse panel data, namely pooled regression analysis, random effects and fixed effects. This section discusses these three estimation procedures briefly in order to determine which model is relevant.

Estimation models

The pooled OLS regression assumes that the parameter values of the countries are identical, since the pooled regression pools every single regression into one single regression. As a result, it uses 96 data points to estimate the parameters. This is, however, a strong assumption that is unrealistic to impose. A more flexible estimation is to assume that the parameters are different from each other, but are fixed over time. Creating a dummy variable for each country allows to have separate equation for each country. This, however, can only be used when having a dataset that that is "long and narrow", meaning that the dataset considers many years and only a few cross-sectional units. Since this dataset is "short and wide", creating a dummy variable for each country is not of practical value. The fixed effects model is an estimation procedure that considers a different intercept for each country and can be applied with any number of cross-sectional units. This allows each parameter to change for each cross-sectional unit in each time period. A restriction of this model is that it cannot consistently

estimate 3*I*T parameters, when there are only IT observations. Therefore, this model restricts the slope parameters to be constant across all countries and all time periods (Hill, Griffiths, & Lim, 2008). As a result, only the intercept parameter varies, meaning that "all behaviour differences between countries are captured by the intercept" (Hill, Griffiths, & Lim, 2008, p. 391). As equation 4.1 indicates, the error term consists of an error term specific for time variant and time invariant variables. The fixed effects model gets rid of the error term, because it omits all time invariant variables, i.e. variables that do not change over time. This model is, however, not of practical value since the variables institutions and culture will be omitted in the estimation procedure. The random effects model assumes that each cross sectional unit is centered around a mean intercept, meaning that time-invariant variables will be estimated. The generation process is relevant, because the model assumes that the sample is randomly drawn (Hill, Griffiths, & Lim, 2008). As this study considers macroeconomic data, it can be assumed that the sample is randomly drawn. Since the pooled OLS regression is unrealistic, dummy estimation procedure and the fixed effects model are not of practical use, the random effects estimation will be performed in the current study.

4.2.2 *Mediation*

The current study aims to test mediation as hypothesized in section 3, using a mediation model. A simple mediation model aims to identify the relationship between the independent variable and the dependent variable by the inclusion of a mediator variable. The diagram (Figure 3) shows that the direct effect is equal to the coefficient "C". The indirect effect is a product of the coefficients "A" and "B". The direct effect measures the effect of the independent variable on the dependent variable, when the mediator remains stable. The indirect effect measures how much the dependent variable changes when the independent variable remains stable and the mediator changes with the amount it changed when the independent variable increased with one unit.

Figure 3: Mediation model
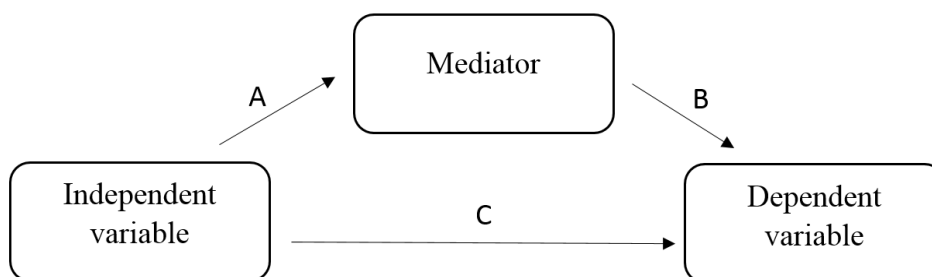
Adapted from Baron and Kenny (1986, p.1176))

In order to analyse mediation it follows the estimation procedure outlined by Baron and Kenny (1986):

1. Regress the mediator as dependent variable in order to confirm the independent variable is a predictor of mediator (Path A).

$$E_{it} = \alpha_i + \beta_{20}I_i + \beta_{21}C_i + \beta_{22}F_{it} + \epsilon_{it} \qquad (4.3)$$

2. Regress the dependent variable on the independent variable and the mediator (Path B).

$$SRI_{it} = \alpha_i + \beta_{30}I_i + \beta_{31}C_i + \beta_{32}E_{it} + \beta_{33}F_{it}\ \epsilon_{it} \qquad (4.4)$$

3. Estimate the regression in order to identify the relationship between the dependent and independent variable (Path C).

$$SRI_{it} = \alpha_i + \beta_{10}I_i + \beta_{11}C_i + \beta_{12}F_{it} + \epsilon_{it} \qquad (4.2)$$

Full versus partial mediation

A variable functions as a mediator when 1) variations in the independent variable (β_{10}) account significantly for the mediator (Path A), 2) variations in the mediator (β_{32}) significantly account for the variation in the dependent variable (Path B) and 3) variations in when path A and B are controlled. Full mediation occurs when the relationship of the independent on the dependent variable (Path C) becomes zero, after the inclusion of the mediator. Partial mediation occurs when the mediator accounts for some, but not all. This implies that this effect includes an indirect and a direct effect (Baron & Kenny, 1986). When the relationships are significant, the significance of the mediation effect will be analysed using a Sobel's test. This means that in case one of the relationships are not significant, the current study will not perform a Sobel's test. In econometrics, the Sobel's test is a useful tests in order to test the significance of the mediation effect i.e. how much the effect of the independent variable on the dependent variable reduces after inclusion of the mediator (Baron & Kenny, 1986).

5   Empirical results

This section elaborates on the results of the empirical tests for the estimation of the model and the mediation effects.

5.1   Multivariate test

Table 11 presents the results of the direct effects, using a random effects model. The table presents four regression analyses. Where the first takes all variables into consideration, the second, third and fourth analysis excludes individualism, long-term orientation and uncertainty avoidance, respectively. As can be seen in all the four analyses, economic development positively impacts SRI at a 1% significance level. This is in line with the expectations, hypothesis 3, since economic development is expected to positively impact SRI. Furthermore, masculinity negatively impacts SRI at a 5% significance level. This variable is also in line with the expectations, hypothesis 5, since more feminine societies exhibit more SRI. These results correspond with Scholtens and Sievänen (2013), since masculinity is found to impact the size of SRI.

The CME dummy is negatively insignificant. A negative coefficient implies that CMEs exhibit lower SRI in comparison to LMEs. This is not in line with the expectation, since it was expected that CMEs exhibit more SRI. The coefficient of long-term orientation is positive and in line with the expectations, but insignificant. Individualism, power distance and uncertainty avoidance on the other hand are not in line with the expectations, since these are respectively negative, positive and negative (but insignificant). Pension fund assets relative to GDP is in line with the expectation, since the coefficient is slightly positive, but insignificant. This does not correspond with the findings of Scholtens and Sievänen (2013), since the size of pension fund assets are found to positively impact SRI in general.

Appendix C provides an overview of the correlations between the variables. If independent variables are highly correlated, the accuracy of the model is reduced, because it affects the calculations of the variables. This phenomenon is called multicollinearity and will be tested using a variance inflation factor (VIF). The VIF provides an index that measures how much the variance increases, because of multicollinearity. As can be seen the CME dummy has a high VIF value (16.24), indicating that this could affect the estimation procedure. A VIF value of 16.24 indicates that the standard errors "inflated" with more than four times ($\sqrt{16.24} = 4.030$), which means that standard error of this variable is 4.03 higher than it would be if the variable was uncorrelated with the other variables. This value is problematic, since a threshold of 10 is often used (Hair, Black, Babin, & Anderson, 2010). The correlation matrix in Appendix C provides an overview of the correlation coefficients between the various independent variables. As can be seen, CME has its highest correlation with individualism (-.7327). A correlation coefficient of 0.7 is considered as a threshold (Hair, et al., 2010) meaning that

individualism could affect the estimation procedure. As a result, individualism is excluded in the second analysis. The VIF value of CME drops to 9.47, which is an improvement (Appendix C). As can be seen, the coefficients remain almost the same. The coefficients become slightly smaller for all the variables. This could indicate that the VIF value was not problematic for the estimation of the coefficients or the problem still exists. Despite the other coefficients are below the threshold of 10 (VIF) or 0.7 (correlation), several correlation can still be problematic for the analysis. The second column presents the results of the analysis in which individualism is excluded.

Table 11: Random Effects; four regression analyses on the determinants of SRI

	(1)	(2)	(3)	(4)
Intercept	-67.087	-65.081	-53.914	-52.468
	(-2.52)***	(-2.50)**	(-2.29)**	(-2.29)**
CME dummy	-2.848	-.2.333	-.881	-1.110
	(-1.05)	(-1.18)	(-0.84)	(-1.46)
Uncertainty Avoidance	-.002	-.001	-.013	
	(-0.04)	(-0.01)	(-0.34)	
Individualism	-.018			
	(0.26)			
Power Distance	.006	.004	.030	.022
	(0.11)	(0.09)	(0.81)	(0.83)
Masculinity	-.066	-.062	-.045	-.051
	(-1.98)**	(-2.12)**	(-2.19)**	(-3.83)***
Long-term Orientation	.037	.033		
	(0.90)	(0.87)		
Economic Development	6.979	6.635	5.556	5.422
	(2.66)***	(2.70)***	(2.51)**	(2.52)**
Pension fund assets	.007	.006	.006	.007
	(0.71)	(0.66)	(0.71)	(0.83)
R^2: within	0.3216	0.3205	0.3232	0.3245
R^2: between	0.7127	0.7277	0.7379	0.7344
R^2: overall	0.5339	0.5399	0.5451	0.5410
Number of observations	67	67	67	67
Number of countries	15	15	15	15

(1): includes all variables
(2): excludes individualism
(3): excludes individualism and long-term orientation
(4): excludes individualism, long-term orientation and uncertainty avoidance
Table 6 presents the results of the random effects model, The 1%, 5%, and 10% significance levels are represented as ***, **, and * respectively. The first regression analysis includes all variables.

The correlation coefficients of long-term orientation with CME, and uncertainty avoidance are 0.6150 and 0.6628, respectively. The VIF value of long-term orientation is 6.09. Excluding long-term orientation in the analysis drops the VIF value of 2.55 for CME. The regression analysis without long-term orientation is illustrated in the third column. As can be seen in table 11 the signs of the coefficients do not change. The impact of economic development on SRI drops to 5.556, but is still

significant. The overall fit of the model seems to increase, as indicated by the R^2. Although the VIF values dropped, the correlation between uncertainty avoidance and power distance and masculinity are 0.5952 and 0.5628, respectively. As a result, uncertainty avoidance is excluded in the analysis. The results of the regression analysis without uncertainty avoidance is illustrated in column 4. The signs of the coefficients remain the same. The overall fit of the model improves slightly, since the R^2 increased slightly. In summary, the results of the random effects model show that masculinity and economic development significantly impact SRI negatively and positively, respectively.

5.2 Mediation

The mediation effects are tested using Baron and Kenny's (1986) estimation procedure. The results of the following mediation effects, which are hypothesised in section 3 will be presented.

5.2.1 *Institutions*

Mediation of institutions on economic development

The first mediation effect is institutions on economic development. Appendix E (Table 16) presents the results of the regression analyses. Economic development functions as a mediator when variations in the institutions variable account significantly for economic development (Path A). The coefficient is 0.084, but insignificant. In addition, variations in the economic development significantly account for the variation in SRI (Path B). Economic development positively impacts SRI. Full mediation occurs when the relationship of institutions on SRI (Path C) becomes zero, after the inclusion of economic development. The impact of institutions is increased, since the coefficient becomes higher (from -.338 to -.881), but insignificant. As a result, there is no mediation effect.

Mediation of institutions on financial development

The second mediation effect is institutions on pension fund assets. Appendix E (Table 17) presents the results of the regression analyses. Pension fund assets functions as a mediator when variations in the institutions variable account significantly for pension fund assets (Path A). The coefficient is -10.265, but insignificant. In addition, variations in pension fund assets significantly account for the variation in SRI (Path B). Pension fund assets positively impacts SRI, but insignificant. Full mediation occurs when the relationship of pension fund assets on SRI (Path C) becomes zero, after the inclusion of economic development. The impact of institutions is reduced, since the coefficient becomes smaller (from -.984 to -.881), but insignificant. As a result, there is no mediation effect.

5.2.2   Culture

Mediation of uncertainty avoidance on institutions

The third mediation effect is uncertainty avoidance on institutions. Appendix E (Table 18) presents the results of the regression analyses. Institutions functions as a mediator when variations in the uncertainty avoidance variable account significantly for the institutions (Path A). The coefficient is 0.158, but insignificant[3]. In addition, variations in uncertainty avoidance significantly account for the variation in SRI (Path B). Uncertainty avoidance negatively impacts SRI, but insignificantly. Full mediation occurs when the relationship of uncertainty avoidance on SRI (Path C) becomes zero, after the inclusion of institutions. The impact of institutions is reduced, since the coefficient becomes smaller (from -.034 to -.013), but insignificantly. As a result, there is no mediation effect.

Mediation of culture on economic development

The fourth mediation effect is culture on economic development. Appendix E (Table 19) presents the results of the regression analyses. Economic development functions as a mediator when variations in culture account significantly for economic development (Path A). The coefficients for uncertainty avoidance, power distance and masculinity are -.001, -.001 and -.001, respectively, but insignificant. In addition, variations in economic development significantly account for the variation in SRI (Path B). Economic development positively impacts SRI. Full mediation occurs when the relationship of economic development on SRI (Path C) becomes zero, after the inclusion of economic development. The impact of culture is to some extent reduced, since the coefficient of masculinity (from -.052 to -.045) is reduced, significantly. The coefficients of uncertainty avoidance (from -.018 to -.013) and power distance (from .031 to .030) also become smaller, but insignificant. Despite the significant reduction of the coefficient of masculinity, there is no mediation effect, because masculinity does not account significantly for economic development (Path A).

Mediation of power distance on pension fund assets

The fifth mediation effect is power distance on pension fund assets. Appendix E (Table 20) presents the results of the regression analyses. Pension fund assets functions as a mediator when variations in the power distance account significantly for the pension fund assets (Path A). The coefficient is 1.147, but insignificant. In addition, variations in the pension fund assets significantly account for the variation in SRI (Path B). Pension fund assets positively impacts SRI, but insignificantly. Full mediation occurs when the relationship of power distance on SRI (Path C) becomes zero, after the

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[3] Institutions is measured by a dummy variable, meaning that a random effects model is not appropriate. A logit model is used in order to estimate the effect of uncertainty avoidance on institutions. Despite the small variation in the sample, a cross sectional analysis is used. Furthermore, the number of variables are reduced, meaning that power distance, economic development and pension fund assets are used as control variables.

inclusion of pension fund assets. The impact of power distance is reduced, since the coefficient becomes smaller (from 0.036 to 0.030), but insignificant. As a result, there is no mediation effect.

6   Conclusion and discussion

The results of the current study show that economic development and culture impact the size of SRI. Where economic development positively impacts SRI, masculinity impacts the size of SRI negatively. The current study shows that CMEs do not exhibit more SRI, meaning that institutions as measured by Hall and Soskice (2011) could not be related to the size of SRI. This supports Scholtens and Sievänen's (2013) preliminary model, which could not relate institutions to the size of SRI. Feminine societies seem to exhibit more SRI, which is in line with Bauer and Smeets (2011). The other cultural values: uncertainty avoidance, power distance and long-term orientation are found to be insignificant. This is in line with Scholtens and Sievänen (2013), since they concluded that feminine societies seem to ease SRI and could not found associations with the other cultural variables. Economic development has a positive impact on SRI, which supports Jeucken (2010), who applied the Maslow theory of needs to SRI. Scholtens and Sievänen (2013) could not relate economic development as measured by GDP to the size of SRI. The reason for this is that economic development across Nordic countries is rather similar, whereas the current study considers more countries and years. Pension fund assets could, however, not be related to the size of SRI. This is not in line with Scholtens and Sievänen (2013) who concluded that the size of institutional investors - measured by pension fund assets to GDP - stimulates norm- and value-based investing and SRI in general. Moreover, this does not support the importance of pension funds according to Vitols (2011). The current study could not detect mediation effects as argued by Scholtens and Sievänen (2013). This means that institutions do not condition economic and financial development, and culture does not influences institutions and economic and financial development in the size of SRI. The reason for this could be that the current study focuses only on the size of SRI. The indirect effects can perhaps be found when taking the composition of SRI as a dependent variable. This is therefore a suggestion for further research.

The results of this study could be questioned because of some limitations. First, the quality of the data is a limitation. This study tackled the problem of different interpretations of SRI, by using a comprehensive definition. Data consistent with the definition of GSIA (2015) are collected using different sources of which the categories are not very strict. Furthermore, the data is only measured once per two years and do not make a distinction between core and broad investments. More and detailed information increases the reliability of the study, which is expected to be more available are SRI continues to grow. Therefore, by using the most widely known sustainable investment measure, it only provides an *indication* of the determinants on the size of SRI. Second, the data collected for this research are limited. Due to the measurement of institutions and the availability of SRI data, this study could only take 15 countries and 5 years into consideration. Institutions are measured using the VoC approach (Hall & Soskice, An Introduction to Varieties of Capitalism., 2001). The VoC approach has been influential, but has also been criticised, which raised some points of attentions. The main

criticism focused on its simplicity, missing dynamic elements of economic change and its terminations of the two types of market economies (Hancké, Rhodes, & Thatcher, 2005; Crouch, 2005; Jackson & Deeg, 2008). To deal with its simplicity, by measuring institutions using a dummy, less extreme values can be considered. Using a dummy, countries, such as the Netherlands and Belgium are considered CME countries. However, it is argued that the Netherlands and Belgium have institutions that have CME and LME characteristics. Hall and Gingering (2009), for example, constructed an index that lies between 0 and 1, based on six factors, namely shareholder power, dispersion of control, size of stock market, level of wage coordination, degree of wage coordination and labour turnover. When considering these values instead of dummies, the accuracy of the measurement will be increased.

In conclusion, this study shows that economic development and femininity impact the size of SRI positively, using a dataset of 15 developed countries.

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8   Appendices

Appendix A: Variables Scholtens and Sievänen (2013)

Table 12: Variables used in Scholtens and Sievänen's (2013) model

Domain	Variables	Scholtens and Sievänen (2013)		Current study
		Composition	Size	
Institutions				
Legal institutions	Risk of ex-propriation	-	-	
	Risk of contract repudiation	-	-	
	Accounting standard	-	-	
Labour market institutions	Union density	-	-	
	Availabilty of skilled labour	-	-	
Political institutions	Economic Freedom Index	-	-	
	Human Development Index	-	-	
	Corruption Index	-	-	
Culture				
	Power Distance	-	x	x
	Individualism	-	-	x
	Masculinity	-	-	x
	Uncertainty Avoidance	x	-	x
Economic indicators				
	Imports + exports as % of GDP (2005)	x	-	
	Inflow + outflow of FDI as % of GDP (2000 – 2005)	x	-	
	Per capita GDP(US$ 2000-2005)	-	-	x
	Per capita GNI (US$ current prices)	-	-	
	Gross savings rate 2005 (as % of GDP)	-	-	
Financial indicators				
Pension funds	Pension fund assets/GDP	x	x	x
Banking system	Bank deposits/GDP	x	-	
	Domestic private credit/GDP	-	-	
	Stock market capitalization/GDP	x	-	
Financial markets	Stock market value traded/GDP	x	-	
	Public bond market capitalization/GDP	x	-	
	Private bond market capitalization/GDP	x	-	

This table presents the variables used in Scholtens and Sievänen's (2013) model. An "X" indicates an effect on the composition or size. An "–" indicates that it has no effect. The last column indicates whether the variable is included in the current study.

Appendix B: Game theory model

Game theory provides a framework in order to model and analyse how actors make decisions. Since the government is a representative of the society, the government gains from promoting socially responsible behaviour. By actively monitoring and sanctioning a firm's behaviour the government i.e. the society gains from corporate social behaviour. In the literature the strategic interaction between the government and the firm is rarely explained using game theory. Moreover, the analysis of which market economy fosters corporate socially behaviour of extrinsic motivated firms are never so far not analysed using game theory. The model of Zhu and Li (2013) will be used in order to theoretically assess which market economy will more likely to motivate extrinsic motivated firms to engage in corporate social responsibility.

The assumptions of the model are as follows:

1. There are two agents in the economy: the firm and the government.
2. The firm is regarded as a rational agent, which aim is to maximise shareholder value. This means that there is no intrinsic motivation of engaging in corporate sustainability.
3. The firm faces two possibilities: to engage in corporate sustainability or not to engage in corporate sustainability.
4. The government acts as a representative of the society, which means that it gains from firms that engage in corporate sustainability.

Since extrinsic motivated firms believe that engaging in corporate sustainability will add to costs, this model denotes *M* as the costs of engaging in corporate social responsibility (CSR). In case the firm acts socially responsible, the government will make a profit, *M*. In order to ensure that firms engage in CSR, the government makes a costs of supervision: *N*, and consequently could fine the firm *F*, where *F > N*. The probability of the government to supervise is *p*, the probability that the firm engages in CSR is *q* (Table 13).

Table 13: Payoff matrix with government's intervention

		Firm	
		CSR *(q)*	No CSR *(1-q)*
Government	Supervision *(p)*	*(M - N, - M)*	*(M + F - N, -F - M)*
	No supervision *(1-p)*	*(M, - M)*	*(0, 0)*

Source: Zhu, W., & Li, H. (2013, p. 612)

The expected payoff of the government when it supervises is: $W_1(1,q) = (M - N) \cdot q + (M + F - N) \cdot (1 - q)$. The government's expected payoff when it does not supervise is $W_2(0,q) = M \cdot q + 0 \cdot (1 - q)$. When the payoff of a government that supervise and no supervision are equal, so $W_1(1,q) = W_2(0,q)$, then: $q^* = \frac{M+F-N}{M+F}$. This indicates that when the probability that the firm by undertaking

social responsibility is higher than q^*, the government will choose not to supervise. When the probability that the firm acts socially responsible is lower than q^*, the government will supervise. In case the probability is equal to q^*, the government is indifferent.

For given p, the expected payoff of the firm of CSR *(q = 1)* or no CSR *(q = 0)* are the following. When the firm acts sustainable, the payoff is $W_3(p, 1) = -M \cdot p + (-M) \cdot (1 - p)$. When the firm does not act sustainable $W_4(p, 0) = (-F - M) \cdot p + 0 \cdot (1 - p)$. When the payoff of the *(q = 1)* and *(q = 0)* are the same: $W_3(p, 1) = W_4(p, 0)$, $p^* = \frac{M}{(M+F)}$. This means that when the probability of the government supervision is less than p^*, the firm will not act sustainable. When the probability of government supervision is higher than p^*, the firm will act sustainable. In case the probability of government supervision equals p^* the firm is indifferent. This means that the Nash equilibrium of the mixed strategy is when the government supervises and the firm is sustainable $(p^*, q^*) = (\frac{M}{M+F}, \frac{M+F-N}{M+F})$.

Appendix C: Correlation and Variance Inflation Factor

Table 14: Variance Inflation Factors

Variable	1	2	3	4
CME dummy	16.24	9.47	2.55	1.39
Long Term Orientation	6.58	6.09		
Individualism	6.47			
Masculinity	5.90	4.93	2.61	1.20
Uncertainty Avoidance	5.00	4.90	4.29	
Power Distance	3.60	1.70	2.04	1.02
GDP	1.86	1.43	1.33	1.32
Pension fund assets	1.59		1.40	1.27

This table presents the Variance Inflation Factors. The first analysis shows the values with all the variables: regression 1. The other values are consistent with regression 1, 2 and 3.

Table 15: Correlation matrix

	SRI	CME	UA	IND	PD	MSC	LTO	GDP	PENSION
SRI	1.0000								
CME	-0.0284	1.0000							
UA	-0.4975	0.3308	1.0000						
IND	0.4574	**-0.7327**	**-0.5428**	1.0000					
PD	0.0169	0.0224	**0.5952**	0.0387	1.0000				
MSC	-0.7071	-0.2882	**0.5628**	-0.2000	0.2149	1.0000			
LTO	-0.3326	**0.6150**	**0.6628**	**-0.5811**	0.4466	0.3556	1.0000		
GDP	0.4299	0.2340	-0.2214	0.1338	-0.1135	-0.3942	-0.1892	1.0000	
PENSION	0.2327	-0.3072	-0.2666	**0.5105**	0.0847	0.0847	-0.1832	0.2100	1.0000

This table presents the correlation between the variables. SRI is Socially Responsible Investments, CME is Coordinated Market Economy. UA is Uncertainty Avoidance, IND is Individualism, PD is Power Distance, MSC is Masculinity, LTO is Long-term orientation. Pension is Pension fund assets as a % of GDP.

Appendix D: Mediation analyses

Table 16: Mediation effect institutions on economic development

	Path A*	Path B	Path C
Intercept	10.662	-53.914	5.256
	(65.62)***	(-2.29)**	(4.30)***
CME dummy	**.084**	**-.881**	**-.338**
	(0.62)	**(-0.84)**	**(-0.36)**
Uncertainty Avoidance	-.001	-.013	-.018
	(-0.15)	(-0.34)	(-0.53)
Power Distance	-.001	.030	.031
	(-0.05)	(0.81)	(0.91)
Masculinity	-.001	-.045	-.052
	(-.054)	(-2.19)**	(-2.76)***
Economic Development		**5.556**	
		(2.51)**	
Pension fund assets	.001	.006	.002
	(1.66)*	(0.71)	(2.07)**
R^2: within	0.0328	0.3232	0.0828
R^2: between	0.2521	0.7379	0.7635
R^2: overall	0.2212	0.5451	0.5527
Number of observations	73	67	67
Number of countries	15	15	15

*Economic development is the dependent variable.
This table presents the result of the mediation analysis. Path A presents the results of the relationship between institutions and economic development (dependent variable). Path B shows the relationship between institutions and SRI. Path C presents the relationship between institutions and SRI, without taking economic development into consideration. The 1%, 5%, and 10% significance levels are represented as ***, **, and * respectively.

Table 17: Mediation effect institutions on pension fund assets

	Path A*	Path B	Path C
Intercept	-483.838	-53.914	-57.261
	(-1.44)	(-2.29)**	(-2.65)***
CME dummy	**-10.265**	**-.881**	**-.984**
	(-.029)	**(-0.84)**	**(-0.99)**
Uncertainty Avoidance	-1.188	-.013	-.019
	(-0.95)	(-0.34)	(-0.56)
Power Distance	1.147	.030	.036
	(0.90)	(0.81)	(1.04)
Masculinity	.367	-.045	-.044
	(0.52)	(-2.19)**	(-2.28)**
Economic Development	51.208	5.556	5.913
	(1.65)*	(2.51)**	(2.93)***
Pension fund assets		**.006**	
		(0.71)	
R^2: within	0.0328	0.3232	0.2846
R^2: between	0.2748	0.7379	0.7475
R^2: overall	0.2582	0.5451	0.6049
Number of observations	73	67	69
Number of countries	15	15	15

Pension fund assets is dependent variable.
*This table presents the result of the mediation analysis. . Path A presents the results of the relationship between institutions and economic development (dependent variable). Path B shows the relationship between institutions and SRI. Path C presents the relationship between institutions and SRI, without taking pension funds into consideration. The 1%, 5%, and 10% significance levels are represented as ***, **, and * respectively.*

Table 18: Mediation effect uncertainty avoidance on institutions

	Path A*	Path B	Path C
Intercept	-189.249	-53.914	-48.571
	(0.184)	(-2.29)**	(-2.14)***
CME dummy		**-.881**	
		(-0.84)	
Uncertainty Avoidance	**.158**	**-.013**	**-.034**
	(1.27)	**(-0.34)**	**(-1.24)**
Power Distance	-.194	.030	.043
	(1.02)	(0.81)	(1.30)
Masculinity		-.045	-.035
		(-2.19)**	(-2.20)**
Economic Development	17.974	5.556	5.015
	(1.33)	(2.51)**	(2.37)**
Pension fund assets	-0.039	.006	.006
	(-1.36)	(0.71)	(0.77)
$R^{2:}$ within		0.3232	0.3248
$R^{2:}$ between		0.7379	0.7307
R^2: overall		0.5451	0.5431
Pseudo R^2	0.3928		
Number of observations	15	67	67
Number of countries	15	15	15

*Institutions is the dependent variable.
This table presents the result of the mediation analysis. Path A presents the result of the relationship between uncertainty avoidance and institutions (dependent variable). Path B shows the relationship between uncertainty avoidance and SRI. Path C presents the relationship between institutions and SRI, without taking institutions into consideration. The 1%, 5%, and 10% significance levels are represented as ***, **, and * respectively. Institutions is measured by a dummy variable, meaning that a random effects model is not appropriate. A logit model is used in order to estimate the effect of uncertainty avoidance on institutions. Despite the small variation in the sample, a cross sectional analysis is used. Furthermore, the number of variables are reduced, meaning that power distance, economic development and pension fund assets are used as control variables.

Table 19: Mediation effect culture on economic development

	Path A*	Path B	Path C
Intercept	10.662	-53.914	5.256
	(65.62)***	(-2.29)**	(4.30)***
CME dummy	.084	-.881	-.338
	(0.62)	(-0.84)	(-0.36)
Uncertainty Avoidance	**-.001**	**-.013**	**-.018**
	(-0.15)	**(-0.34)**	**(-0.53)**
Power Distance	**-.001**	**.030**	**.031**
	(-0.05)	**(0.81)**	**(0.91)**
Masculinity	**-.001**	**-.045**	**-.052**
	(-.054)	**(-2.19)****	**(-2.76)***
Economic Development		**5.556**	
		(2.51)**	
Pension fund assets	.001	.006	.002
	(1.66)*	(0.71)	(2.07)**
R^2 within	0.0328	0.3232	0.0828
R^2 between	0.2521	0.7379	0.7635
R^2: overall	0.2212	0.5451	0.5527
Number of observations	73	67	67
Number of countries	15	15	15

*Economic development is the dependent variable.
This table presents the result of the mediation analysis. Path A presents the results of the relationship between culture and economic development (dependent variable). Path B shows the relationship between culture and SRI. Path C presents the relationship between culture and SRI, without taking economic development into consideration. The 1%, 5%, and 10% significance levels are represented as ***, **, and * respectively.

Table 20: Mediation effect power distance on pension fund assets

	Path A*	Path B	Path C
Intercept	-483.838	-53.914	-57.261
	(-1.44)	(-2.29)**	(-2.65)***
CME dummy	-10.265	-.881	-.984
	(-.029)	(-0.84)	(-0.99)
Uncertainty Avoidance	-1.188	-.013	-.019
	(-0.95)	(-0.34)	(-0.56)
Power Distance	**1.147**	**.030**	**.036**
	(0.90)	**(0.81)**	**(1.04)**
Masculinity	.367	-.045	-.044
	(0.52)	(-2.19)**	(-2.28)**
Economic Development	51.208	5.556	5.913
	(1.65)*	(2.51)**	(2.93)***
Pension fund assets		**.006**	
		(0.71)	
R^2: within	0.0328	0.3232	0.2846
R^2: between	0.2748	0.7379	0.7475
R^2: overall	0.2582	0.5451	0.6049
Number of observations	73	67	69
Number of countries	15	15	15

Pension fund assets is dependent variable.
This table presents the result of the mediation analysis. . Path A presents the results of the relationship between power distance and pension fund assets (dependent variable). Path B shows the relationship between power distance and SRI. Path C presents the relationship between power distance and SRI, without taking pension funds into consideration. The 1%, 5%, and 10% significance levels are represented as ***, **, and * respectively.