CEU Department of Political Science: One-year MA Program in Political Science
2012-2013

The Role of Perceived Qualities of Governance on Domestic Stock Market Returns (2002 – 2011)

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Submitted to
Central European University
Department of Political Science

In partial fulfillment of the requirements for the degree of Master of Arts

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Budapest, Hungary
(2013)

Abstract

This thesis tests the relationship between perceived qualities of governance and domestic stock market returns from 2002 to 2011. The hypothesis is that higher qualities of institutions and governance will lead to a safer risk-return relationship, with less variation in returns and less high-return opportunities. The first section of the thesis serves as an introduction to previous literature analyzing the impact of political institutions and governance on a variety of economic and financial indicators. This research analyzes the impact on stock market returns and volatility. To test this relationship, the World Bank Governance Indicators (Rule of Law, Regulatory Quality, and Bureaucratic Performance) serve as independent variables and the Morgan Stanley Capital International Country Indices as the dependent variable. Additionally, the research will analyze whether institutions and qualities of governance hold any relationship regarding the overall size of the domestic equity market.The results of the implemented regression analysis, indicate a negative correlation between qualities of governance and average stock market returns; however as affirmed in the hypothesis, quality of governance is also associated with an inverse relationship in the variability of returns, implying that higher levels of governance are associated with more stable returns. Lastly, the statistical models presented in this thesis indicate that larger equity market capitalizations as a percentage of GDP are also associated with states maintaining higher levels of governance.

Acknowledgments

I would like to thank my thesis supervisor Laura Von Daniels for her invaluable support throughout my academic year at CEU and her supervision and assistance in the conception of the research plan and this final thesis. I would also like to thank Central European University for providing me with the opportunity to pursue my master's degree here and for the high quality academic experience this year has provided me. Lastly, I'd like to thank my friends and family who provided invaluable emotional support during the course of my studies at CEU.

Table of Contents

Introduction

Institutions create rules and procedures of certainty and order in a state. They define property rights, legal procedures, maintain peace and stability, and define the regulation of domestic markets. They constrain social behavior by limiting corruption, creating and enforcing rule of law, and establish codes of human behavior. In addition, they also promote incentives for undertaking certain activities, promote political preferences, and create frameworks for social activism and collective action. As such, institutions are essential for not only citizens, market stability and growth, but also multinational and domestic business interests, and there have been significant efforts devoted to identifying which institutions can best maximize economic performance, living standards and income (North 1990, Oatley, 2012). While the impacts of economic institutions to market growth are quite intuitive, such as fiscal institutions, central banks, and financial market regulatory bodies, the role of political institutions on economic behavior has also been shown to be important (Eicher and Leukert 2009). Political risks of government expropriation, volatile regulatory changes, the quality of courts and bureaucracy, enforcement of contracts, all have a significant impact on society, businesses, and economic development. The purpose of this research is to examine what roles the perceived qualities of institutional governance play in financial market returns; specifically domestic stock market returns.

The relationship between economic growth and political institutions has been investigated in previous empirical research in many ways, yet there has been very little definitive conclusions reached in the academic literature over its true impact. Chapter 1 of this thesis will focus on reviewing such literature that has provided ample support for the theories that advance the utility of institutions on economic growth. Where there has been considerably less attention, however, is how political institutions impact specific assets and asset classes within financial markets. To this aim, the thesis relies heavily on the text

Democratic *Processes and Financial Markets* by William Bernhard and David Leblang which represents seminal research in this interdisciplinary research endeavor.

Chapter 2 advances current research by testing perceived institutional strength of 28 governments against domestic stock market growth between 2002 and 2011. It will outline the methodology and data chosen for this research project as well as justifications for its conceptualization. The research relies primarily upon descriptive analysis and regression models to test the expected relationship between the variables. The World Bank Governance Indicators will be used as proxy for the perceived quality of institutions and Morgan Stanley Capital International domestic equity indices representing the returns and volatility of the broad equity markets. This thesis holds three hypotheses about the test. It is hypothesized first that based upon previous theoretical and empirical research that states with higher levels of perceived quality of governance and less political volatilitywill have an average lower return in their domestic stock markets and secondly lower volatility of returns due to a perceived level of stability and the promotion of private sector development, secure property rights, and an absence of unexpected government intervention. The third hypothesis argues that, while equity returns will be less in states with higher qualities of governance, the overall size of the domestic equity market will be larger with higher institutional quality.

Lastly, chapter 3 will analyze the statistical output from the empirical test and measure it against the proposed hypothesis. In fact, the models indicate and affirm the first hypothesis that higher levels of governance are associated with lower equity returns. Hypothesis two was also affirmed that higher governance states maintain smaller standard deviations of equity returns. As such, increases of governance holds a lower risk and lower return profile for broad market returns. Lastly, higher levels of governance are associated with larger equity market capitalizations as a percentage of GDP. This also affirms the third hypothesis. The chapter concludes by stating the limitations of this research project and areas

of future research based upon the results. This research serves as an important contribution to institutional analysis by attempting to show a relationship between political governance and financial market returns and can be useful for academics interested in political economy and its relation to finance and markets.

Chapter 1: The Role of Institutions and Governance on Economic Growth and Investment

This chapter will begin by providing a review of development literature that advances the value of institutions and governance for economic growth and business development. It will then continue on to the theoretical rationales for how these institutions also impact investor behavior, and as such the prices of financial assets.While there is an abundance of literature on the role of institutions on economic growth and performance, the results of the studies are often presented by mixed, and sometimes contradictory, results. However, while the extent to which institutions can be argued by the degree of their impact, there are seldom situations in which they have no role in development. Where there is considerably less research is the impact to which institutions and governance impact financial assets, which will be the focus of this thesis.

1.1 Governance and Economic Growth

Previous research on the level of institutional performance and economic growth has shown that institutions matter more in some countries than others (Eicher and Leukert 2009). Specifically, research indicates that, while institutions such as rule of law, bureaucratic effectiveness, absence of corruption, civil liberties, promotion of private sector development, and fiscal and monetary regulations matter in all countries, they are particularly important to improving economic performance in developing nations by assuring potential investments will be safeguarded from government appropriation and other political risks. While the quality of institutions are of critical importance in all nations, Eicher and Leukert's models argue that they help explain the variability of economic performance in emerging markets much more than in developed nations according to their study. This is likely attributable to other variables becoming of greater concern, such as levels of human capital and productivity, when the quality of institutional stability is already assumed.

While economic activity and market growth involves significant complexity and a large number of potential variables; for example, human capital development, natural resources, geography and proximity to trade, levels of trade accessibility and integration; research has indicated that institutions are of fundamental concern. It should be noted that it is unlikely that a single variable can provide sufficient explanatory power to merit discrediting other variables. The work of Hall and Jones 1999 argued that much of an economy's ability to produce and effectively utilize human capital, i.e. the ability for individuals to accumulate and apply skills and education, is dependent upon institutional effectiveness. The accumulation and application of a highly skilled labor supply has been shown to be a significant, and intuitive, determinant to long-term economic growth, as such institutions and many other variables hold a certain degree of endogeneity (whereby several independent variables may impact development as well as other independent variables simultaneously). The authors argue that the institutional and cultural establishment of social infrastructure systems, i.e. promotion of educational access and quality, measures to limit corruption and resource misuse, etc., is a considerable factor in labor productivity and educational attainment. This coupled with relevant material and resource inputs and technological attainment are a large determinant of the labor output in a nation.

Other research has indicated that once the contributions of institutional effectiveness on economic growth are controlled for, proxies to trade and geography (location, climate, resources, etc.) are significantly less important determinants, comparatively (Rodrik, et. al., 2004). While admittedly, long-term economic growth involves so many complex variables and factors that correctly identifying and accounting for all determinants is highly unlikely, their analysis indicate that institutions explain much more variability in economic growth across nations than many other factors. This makes intuitive sense, as even a country with close proximity to trade opportunities and an abundance of natural resources will not find

abundant investment opportunities if institutions do not protect property and contract rights and maintain order and rule of law within their borders. Regardless of the specific regime type that implements and develops institutional reforms, for example authoritarian or democratic regimes, maintaining stability, promoting sustainable competition through incentives for market development and constraints on fiscal misuse will encounter a much higher chance of improved economic performance (Rodrik, et. al., 2004).

The predictability and stability of political outcomes also effect economic growth and the interconnection between broad economic growth and financial market development has been well-investigated (Graff 2003). As such political volatility and institutional effectiveness impacts the prices of financial instruments, i.e. stocks, bonds, currencies, etc., as investors reallocate funds according to their perceptions of future events and their possible impacts on economic growth and business behavior. Investors, unlike a state or citizens which are limited in their mobility to some extent, have greater ability to move to other locations. This can cause asset fluctuations, currency depreciations, and declines in economic growth if too many investors flee a domestic market. Similarly, governments which promote rule of law, regulatory effectiveness and private sector development should find investors allocating additional capital to their economic markets in expectation of safer returns. This represents the theoretical underpinning of the three interconnected hypotheses; that investors' continuously allocated capital towards profitable assets with lower volatility and will react to perceived risks towards their investments. As such, markets that maintain a stable environment should have larger market capitalizations as well. Political volatility, either as a result of political actors or institutional frameworks, can create this market uncertainty. Ignoring market demands can cause an exodus of firms and capital elsewhere, taking along employment, investment projects and capital resources (potential tax revenues, financing, etc.).Previous research has also shown that increased market volatility has direct costs to

governments through increased costs of financing, decreased economic growth and damage to the reputations of governments and incumbent politicians (Bernhard and LeBlang 2006). This leads to the assumption that states with higher levels of governance should have larger market capitalizations relative to states with weaker governance structures.

The growing literature on political risk indicates a significant relationship between political instability and declines in economic performance, foreign direct investment, stock market returns and currency regimes (Beaulieu et al, 2005; Alesina and Perotti, 1996, Biglaiser and Staats, 2010). Additionally, the level of economic freedom granted to private sector enterprises, such as rule of law, property rights, minimization of bureaucratic intervention and red tape, has been shown to increase FDI access, and as such investment and growth, within a state (Kapuria-Foreman, 2007). This also supports this thesis' hypotheses. This will be especially relevant in states where foreign companies may list their shares on the domestic exchange to increase financing opportunities and thus expanding the overall market capitalization of the domestic markets. Government's decisions can have a significant impact on increases in investment and private sector productivity or conversely can cause a flight of capital from the country and increase credit spreads (Das et al 2011). The impact on stock market growth is due to possibilities that the government can impact the business environment through a variety of channels including expropriation, taxation, regulation, and changes in capital controls. These channels of government involvement can lead to increases in the volatility of stock returns and a possible increase in risk premium required by investors to hold securities linked to such risks as well as an increase in the cost of financing these firms are required to pay for equity and debt issuances.

Institutions are not only relevant for domestic growth and stability, but they can also impact other countries as well (Bernhard and Leblang 2006, chapter 4). Due to technological innovation, increasingly more open capital accounts and global financial integration, markets

are becoming ever more intertwined. A political or economic shock in one nation can spill over into other markets. The degree to which a nation can shield itself from contagion, or actually gain from another country's shocks, can be attributed to the institutional frameworks of both the foreign and domestic country. Bernhard and Leblang's analysis rests on the assumption that asset holders will shift their funds from one country to another in the event of unpredictable political change. The degree to which, and where, asset managers reallocate their capital depends upon the safety and predictability of national governments and institutions such as capital controls, central bank independence, partisanship strength and policies, and foreign exchange commitments. States with political and economically predictable outcomes, such as stable tax policies, exchange rate commitments and central bank independence, will allow asset owners to anticipate policies and promote stability. In states such as these, they argue that potential political shocks (such as a change in partisan control) will have lesser effects on market returns and cross-border capital flights.

Additionally, the creditworthiness of a government impacts economic growth, the banking sector, and domestic firms' ability to raise and refinance debt for their business operations, which will likely impact the profitability of these sector's equities (Paoli et al., 2011, Das and Papaioannou, 2011). The research in Paoli et al. show that there are significant costs for increased sovereign debt spreads or defaults. The immediate gains received from excessive debt issuances, or refusing to pay previous debts, are met with consequences including higher future bond spreads, decreases in credit rating, inflation and depreciation of domestic currency. Additionally, the major creditors to governments tend to be domestic banks. Thus, issues in declining quality of government financing resulting in either deteriorating bond prices or default, according to their work, tends to bring about banking crises and/or currency crises simultaneously as a result of government fiscal irresponsibility. Similarly, the work by Das et al., 2011 show that the sustainability of government debt is also

correlated with domestic firms' ability to raise capital; adversely affecting the level of investment, productivity and growth in the economy. Their empirical analysis of bonds, loans and equity issuances by domestic firms in emerging markets from 1993 – 2007 indicate a strong relationship between sovereign debt spread changes and multiple business sectors ability to raise adequate capital for years after sovereign debt troubles. Excessive government spending and political volatility can thus severely impact a domestic economy, even when default has not yet occurred.

1.2 Overview of Implications for Financial Assets

An investment "is the current commitment of money or other resources in the expectation of reaping future benefits" and investors determine which investments to purchase by "anticipating that the future proceeds from the shares will justify both the time that her money is tied up as well as the risk of the investment" (Bodie, et. al., 2010, p. 1). These basic definitions of investor behavior outline what is commonly referred to a risk-return tradeoff. Essentially, investors will be willing to invest in an asset, in this case equities, only if the perceived returns warrant the expected risks associated with holding the asset. This tradeoff represents the framework by which investors assemble their portfolio of assets and can largely be determined by perceptions of risk rather than the actual risks that have occurred in the past. While the past is certainly a guide for anticipating future events, this theoretical component argues that broad perceptions of the levels or qualities of governance play a role in shaping investors perceptions of risk and return, even in the absence of direct historical evidence of government malfeasance towards the particular firm under evaluation.

Of course, there are also many other factors guiding investors' allocation decisions other than levels of governance. Levels of firm debt, past profitability, sector risk, the productive capacity of the economy, and the broader macroeconomic outlook all certainly play significant roles as well (Bodie, et. al., 2010). This research does not argue that the

political environment is the sole or primary source of analysis for investor allocation; however the empirical research conducted does show that there appears to be a statistically significant relationship between qualities of governance and the equity market returns for that country.

It is also important to note that this research focuses solely on financial asset return, and specifically private firm equity markets, rather than real assets and other financial assets. Real assets represent the actual drivers of economic activity and firm growth; for instance machinery, land, buildings etc. Financial assets, on the other hand, are how the ownership and income allocation from these assets are distributed among members of an economy. While further research needs to be conducted to determine whether these perceived levels of governance also play a role in returns and volatility in other financial assets such as debt and derivative markets, this research indicates a statistically significant impact on stock market returns and as a result, it may be expected that it impacts other financial assets as well.

This research is important for more than investor allocation decisions and is relevant for economic development and policy making. Financial assets are an integral part of any functioning economy and provide a variety of benefits. In essence, they help make the most of an economy's real assets and financial markets can promote the efficient use of resources. As this research helps provide evidence that the quality of government can impact the profitability and size of equity markets, this advances past research by arguing further to policy makers and researchers that institutional quality is a determinant for a state's economic prosperity and development. What follows are five commonly held benefits of financial markets to an economy that have been examined in previous research (Bodie, et al, 2010):

With the increasing globalization of capital markets, more and more investors are participating in determining the performance of financial markets in other countries. As stock prices reflect the collective judgment and perceptions future firm growth and allocation of

capital resources, there are beneficial informational roles of financial markets. If investors believe a firm has good profit prospects, they may purchase the shares and as a result bid up the price. This increase in market capitalization allows the firm greater access to capital, through either issuing additional shares or gaining access to additional financing, to expand their projects and operations and, ideally, utilize the capital in productive economic endeavors.

Secondly, the allocation of capital to stocks represents personal and corporate savings in excess of what is needed for current consumption. As such financial markets allow investors a means of productively utilizing funds in the present without the need to spend. If these assets are profitable it increases the available wealth of society that can be later utilized for other productive purposes or allow firms and individuals a cushion of wealth during low-earnings periods.

Thirdly, the authors note that stock markets can facilitate the process of utilizing an economy's real assets by allowing risk to be transferred to investors with appropriate bearance for risk. Well functioning and diverse markets allow investors greater opportunities to allocate capital to firms with a risk profile more appropriate for their needs. More risk averse investors may simply not enter a market if there are insufficient options to invest in that fit their preferences; conversely a market with a diverse and abundant set of options may receive more resources as investors find more suitable options for investment. Similarly, some may have a greater risk appetite and seek to allocate funds to projects that may bring about large financial and economic gains.

Fourthly, stock markets promote separation of ownership and the management of the firm. While in many countries businesses may still be owned and managed by the same individual, this makes large-scale production extremely difficult. Not only are individuals unlikely to secure funding to achieve an economy of scale in their business, but the

management of such operations requires large-scale efforts and management teams. Also, if an owner of the firm no longer wishes to be a part of the company, stock markets allow the easy transfer of ownership without damaging the overall management of the company. Such policies allow management to concentrate on the profitability of the firm and allow owners greater flexibility in determining their financial choices. The potential drawback noted by Bodie, et al, however, is referred to as the principal-agent problem; in which management, without adequate supervision, may not act in the best interests of the owners.

They note, however, that there are mechanisms that help alleviate this issue. Stock holders can design compensation plans that tie the overall income of managers to the profitability of the firm, ideally minimizing corporate malfeasance. Owners with voting rights may also have the possibility of ousting poorly performing management teams and replacing them with more effective leaders. Largely traded firms also have a series of outsiders investigating their performance. Security analysts, institutional investors and regulators can all monitor the performance and actions of the firm and make buy/sell recommendations, sell a substantial block of shares and enforce proper procedures, respectively. Lastly, poorly performing private firms can be susceptible to their competitors. The threat of a takeover can also improve corporate performance as managers seek self-preservation.

Lastly, Bodie, et al, note that some have argued that publicly traded firms can promote corporate ethics and governance by allowing greater transparency into the firms operations. This however, can be a mistaken assumption in some cases, as history clearly elucidates. While public firms may be subject to greater regulatory scrutiny than small businesses, corporate scandals and management deception continue to plague even the most developed financial markets. The ongoing debate about whether publicly traded firms can promote corporate ethics can also signify the importance of regulatory quality for a states' in financial markets. This will be examined further in this research by testing whether levels of

regulatory quality, i.e. the ability of a government to successfully implement and enforce regulations, has an impact on equity returns.

Changes to equity market returns hold significance for much more than asset owners, they also hold serious political and economic consequences (Bernhard and Leblang 2006). As the investment decisions of the owners of capital fundamentally shape the economic performance of the state, they collectively hold the power to sustain an increase in economic growth, or create a decline quite suddenly. With the ever increasing ability for asset owners to quickly reallocate capital outside of their domestic markets, this power becomes increasing more evident. Additional to investors and asset managers, many firms are reliant on equity markets for financing and expansion of business operations which affects employment and government revenue from business income taxation. While corporations issue equity to finance operations, investors purchase these assets with the hope that the shares will increase in value. If investors believe that political events may impact firm profitability, they may be less likely to take an ownership state in the firm and the shares will decline in value, impacting the firm's ability to gain sufficient capital.Pension systems have also become increasingly more reliant on equity markets to fund pensioners' stipends and without adequate capital to disperse funds, declining asset prices can also impact those not actively engaged in the market (Bodie, et al, 2010).Lastly, many other employees have found themselves more reliant on equity returns for their retirement due to increasing use of defined contribution retirement plans (such as 402K's), declining asset prices will directly impact these employees retirement options.

Given the mixed results of studies examining the impact of institutions and political processes on financial and economic variables, it may be presumed that they have little systematic effect on these markets. Yet the prevalence of media coverage surrounding political events and the sometimes dramatic shifts in equity prices in the event of a political

change, it seems to be intuitive that they do, indeed, matter. In fact the field of economics supports this claim under the concept of the efficient markets hypothesis, which simply defined, means that markets will incorporate all available information into prices so that they adjust (almost) immediately as it is disseminated by market participants (Bodie, et al, 2010). Intuitively, any political change or regime structure that holds unstable policies or unpredictable results should see participants actively searching for information relevant to forecast future business environments. The authors of *Democratic Processes and Financial Markets* by William Bernhard and David Leblang have supplied the academic community with a series of robust statistical and theoretical tests that provide some explanation to this perceived inconsistency and show that in many instances political uncertainty can directly impact asset market prices. As such their theoretical framework has had tremendous influence on the theoretical justification for this thesis.

Where this thesis may bring some departure from their work is that they focus on unexpected political events and their immediate and continued outcomes on financial assets. This thesis will focus on broad aggregated perceptions of risk and test whether their continuous presence can impact market returns. In this sense, it is not the actual political event; say a government providing unfair advantages to a firm over others, or an explicit expropriation of assets from the private sector, but rather the continued presence of uncertainty and its potential impact on the risk/return profile of the equity sector. It may not matter if a government ever appropriates assets from a firm, so long as investors are never confident or assured that it will not happen they are likely to maintain the belief that the assets are riskier than others in other political environments. This can change from party to party, however in an institutional environment that could permit such behavior from occurring, there are still increased perceptions that the event may occur relative to a state

which has a continued respect for rule of law and institutions that do not permit such events from occurring.

Changes in asset markets can also exert tremendous influences on political processes. Political outcomes that initiate a selloff in asset markets can increase the cost of borrowing for firms and the state (Das, et al, 2011). This can potentially limit the governments' ability to maintain current programs and create new initiatives. It has also been shown in previous research that disorder in financial markets can have direct political costs, such as a reduction in party approval rating (Bernhard and Leblang, 2006). As such, the authors note the possibility of capital markets threatening the qualities of democracy by limiting the choices available to voters and politicians. As politicians know that certain policies may be unfavorable to asset markets, though possibly favorable to their constituents, they may pursue actions that are not in line with their voters preferences. However, if they initiate policies that create financial upheaval in markets, they may also see declining approval ratings. It is their belief that asset owners as a whole may then have the opportunity to compel governments towards more 'asset friendly' policies and institutions as governments cater to more and more pro-market policies to keep capital in their markets.

While asset owners may hold additional influence over some policies, the review of the literature argues that the presence of a well-functioning financial market is essential to a well-functioning economy. Bond, stock, currency and real estate markets connect lenders with borrowers, those with underutilized savings to those who desire capital to be put to productive uses. The more opportunities for profit, the greater this demand will be to access borrowers' capital, which is connected to future consumption and economic growth. This is also linked to the prices of these assets. Prices reflect the risk and potential profitability of the asset. As these assets prices change with perceptions of future events, risk is relative to the environment in which the asset operates. Investors will require compensation for holding

such assets, and assets with more perceived riskiness will not be sold at such a price as one that has a lower perceived risk. This is the theoretical concept behind the hypothesis that countries with lower levels of governance, hence increased riskiness, will trade differently that states with much higher and stable levels of governance. Risky assets hold much more variability in prices that safe assets, as such investors will require a greater return on these assets relative to comparable, yet safer, assets. This is comparable to similar companies with different market capitalizations and investment options, take a safe, large, and highly established company compared to a new start-up firm in the same industry. One has a much more stable track record for performance and is reputable and the start-up company is much more likely to have troubled cash flows. As such, the start-up would likely have much more variability in its expected profits and investors would require higher compensation for holding that asset relative to the established firm. Lastly, it would be intuitive that the well established firm would likely hold a higher market capitalization than the start up due not only to being in the market longer but also because its perceived safety can attract more investment.

While it may seem somewhat counterintuitive that states with high levels of governance, and as a result a safe and stable risk environment, should have lower returns than lower quality governance states, the presence of high quality institutions should foster high attraction of attention and capital. As more and more businesses move towards opportunities in these states, excessive profits should diminish from heightened competition and a well-functioning regulatory environment that prevents some players from receiving any unfair market advantages. Conversely, the higher risk of operating in an uncertain political and regulatory environment may deter some from entering these markets; as a result, one would expect less fierce competition from other firms and the possibility of gaining excess profits for the additional risks these firms would be expected to encounter. With this in mind, this

thesis will continue its focus on three broad themes of institutions and governance: rule of law, regulatory quality, and government effectiveness and examine their impacts on domestic equity returns, volatility and size.

Chapter 2: Data and Methodology

The previous chapter outlined the theoretical argument of this thesis; specifically that political institutions and qualities of governance impact financial asset returns. Higher qualities of governance should lessen the variability of returns by promoting stability and effective control over a state's markets and political behavior. As such, a lower return on investment will be required for receiving capital under the assumption of a risk-return tradeoff typical of financial theory. More on this concept will be explained further in this chapter vis-à-vis the Sharpe Ratio and the discounted cash flow approach. This perception of market stability should also permit a larger market to exist within the domestic financial market as investors feel more comfortable allocating capital to that states market. This chapter outlines the methodology of the empirical test of this thesis. It surveys the World Bank Governance Index methodology as well as the MSCI index construction and argues for the appropriateness of these indices for such an analysis. Lastly, it outlines the statistical procedures used to analyze the dataset, which includes descriptive and regression analyses. The results of the analysis will be presented in chapter 3.

2.1 World Bank Governance Index (WGI) Methodology

The World Bank Governance Indicators are aggregated data sets that seek to measure the qualities of certain aspects of institutional governance in 215 countries. The indicators relevant to this research are Government Effectiveness, Regulatory Quality, and Rule of Law. Additionally, the average of the three indicators will be used in the statistical analysis to observe net levels of governance against market returns and deviations.

These descriptors are compiled from a variety of sources including public opinion polls, published statistical data and expert opinion, which come from a range of source providers (NGO's, government agencies, universities, for-profit firms, etc.). The fact that this data is compiled from many different sources is helpful in measuring the broadly-defined

perceived level of governance, rather than assuming that the World Bank measurements represent a true, theoretically accurate measure of actual levels of governance quality. These aggregated datasets measure each governance quality on a range of +/- 2.5 (positive meaning a higher quality of governance) and create a standardized comparable measurement of perceived governance which can be used in time series and/or cross sectional analysis. For the purposes of this study, the mean of each indicator will be used to represent the average level of perceived governance quality for the 10-year period.

With that in mind, it is important to note the distinction between the broader levels of governance used for this test and political volatility and change. This study will rely on a broad aggregated dataset to measure if there remains a statistically significant pattern between countries. It does not, however, measure changes in governance within the country. For example, a country that experiences a revolution or other dramatic political shift during the 10 year period would no doubt impact financial markets. However, this study does not pick up on the changes during the period and instead analyzes the average state of governance. Further research and case study analysis would provide a more robust time series approach to examine specific changes in governance and its impact on financial markets.

Descriptions of what is being measured according to World Bank Indicators:[1]

Government Effectiveness: captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

[1] http://info.worldbank.org/governance/wgi/

Regulatory Quality: captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

Rule of Law: captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

While the rationale for utilizing the World Bank Governance Indicators (WBGI) has been briefly defined, it is important to provide a more in-depth survey of the specific methodology and utility of the index and its construction. These aggregated indicators of perceptions of qualities of governance rely on several hundred individual variables from a variety of sources, and intuitively there are many difficulties associated with effective measurement with this kind of data, which will be further outlined below (Kaufmann, Kraay, and Mastruzzi, 2010).

The authors, also the architects of the index, provide caution when being too over-reliant on the WGI data for specific means of comparison that might not produce practically significant results. The data is analyzed and transformed using what is called the Unobserved Components Model, which standardizes these diverse sources of data into comparable units, aggregates them according to a weighted average that seeks to give higher weights to indicators with minimal variance (to reduce 'noisy' indicators impact), and finally constructs margins of error around the indicators to reflect the inherent imprecision of measuring perception-based data. In instances where a variable or source is added or deleted from the index, WGI is updated and the most recent index published supersedes all previous publications for the entire time period.

Beyond this, there is also an unavoidable issue of proper conceptualization of what is implied by 'governance' or 'institutional quality' noted by the authors. This is no small area of academic dispute and many academics use different definitions based upon different conceptualizations of governance with little consensus about a 'proper' definition. For instance, some may assess the rule of law of a state by relying on *de jure* notion of law, meaning what is written or codified by the state, yet others rely on *de facto* analysis, or what actually happens. Neither is necessarily more correct than the other, it rather depends on the particular circumstance and research project utilizing the evaluations. For the construction of the indicators, the authors define governance as "the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interaction among them" (Kaufmann, Kraay, and Mastruzzi, 2010 p. 4).

They also admit that it is necessary to understand a certain overlap between the six indicators and these should not be viewed as completely independent of each other. For instance, better rule of law may limit corruption and greater accountability or government effectiveness may also limit corruption or promote a better regulatory environment. As such, they note that many of these indicators are highly correlated (which will be evident in the next chapter). This overlap may also be in part to WGI's reliance exclusively on perception-based measures of governance. While this is key to this research project's aims, for instance firms base their investment decisions based upon their perceptions of the investment climate and government performance, it is also important to highlight the inherent subjectivity in measuring in this way. However, the authors note that imprecision does not disqualify the measure, it only means it needs to be interpreted with due diligence (Kaufmann, Kraay, and

Mastruzzi, 2010 p. 19). In previous publications they assessed potential biases with this type of research, including whether types of respondents perceptions of governance differ significantly, whether respondents face biases from the country's underlying development and economic performance and whether the data providers rely on each other's assessments to result in biased or correlated results and all were found to be, according to their assessment, not of practical importance for their results.

Despite there being a variety of other possible indicators focusing on measuring political institutions and governance, the WGI's were best suited for this particular research project. Political Risk Services International Country Risk Guide, the Economist Intelligence Unit's Democracy Index and Country Risk indices, and Freedom House's indices on Political Rights and Civil Liberties would also be appropriate variables for analysis as they all measure various aspects of institutional development and have extensive experience in analysis. Yet WGI was still chosen for two reasons. First, WGI utilizes their information for their own index construction and as such should remain correlated with their results. In fact, much of the component data they use to calculate their indices has significant data correlations despite coming from different organizations and surveys with various sampling variations and methodologies. And secondly, the specific focus of this research is to remain on broad perceptions of governance. WGI accomplishes this task by not only utilizing multiple ratings of governance, but also by incorporating a definition of governance and institutions that relies on "on the ground" perceptions and incorporating and standardizing a wide range of survey and respondent data. This does however, admittedly, come at a cost of losing some of the nuances of the specific source methods and definitions.

2.2 Morgan Stanley Capital International (MSCI) Methodology

The independent variable in this study is the inflation-adjusted geometric mean returns and standard deviations of domestic stock market activity and listed stock market

capitalization as a percentage of GDPin 28 countries. The data used for determining domestic equity growth will be from MSCI (Morgan Stanley Capital International) data services, a leading provider of indices and investment decision support tools worldwide.Their indices are useful for this research because they utilize standard indexing and weighting procedures that are more useful for comparative analysis. MSCI provides country-level equity indexes for many developed and emerging market countries; however some information was not available for free and public use. In the event that the index was created after 2002, their data is back-tested to reflect market changes prior to the index formation. For more information regarding which countries and data are included, please see Appendix.

To determine whether governance can be a determinant to market size, stock market capitalization to GDP will also be under analysis. Market capitalization to GDP indicator is from The World Bank's World Development Indicators for all countries except for Taiwan. A sufficient indicator for Taiwan was unavailable for the complete time period. As such, an estimate was used using data from 2007 to 2011.

The MSCI indices used for this research project were specifically chosen based upon the objectives and methodology of the index creators. Specifically, it was the need for standardized methodology across country's markets. While using local market indices would have allowed for a much larger country sample size, different exchanges rely on different weighting and measurement frameworks that would make cross country comparison of total market changes cumbersome to standardize effectively. Instead, these indices created for financial institutions allow a state's market index to be comparable to others without encountering cross-border differences in investment measurement (MSCI Index Research, 2013). This section outlines the specifications of MSCI index creation and the principle considerations MSCI employs in the index construction.

While most domestic indexes focus on specific equity inclusion, MSCI seeks to define the equity universe to its maximally appropriate extent, including preferred shares and in some cases Real Estate Investment Trusts and certain income trusts for each country. Each security is screened to ensure proper minimum size, liquidity and free float requirements and whether foreign trading is included. Within this range, the index is analyzed to determine the appropriate market segments in the index. Within the total equity universe available, the standard index composes at least 85% of the domestic total market capitalization. This standard index is the index most used in this research; however this was not available for all countries due to the domestic market quality and size, in this case the Investable Market Index was used. This should not lead to far divergent results as the IMI is stated to cover approximately 99% of the standard index so it is more inclusive of other firms not meeting the standard indexes requirements.

These indices are monitored, updated and maintained to ensure: index continuity, continuous investability and replicability of its constituents, and overall index stability. Changes to the index are made quarterly and reviews are published in February and August. In the event of corporate events, for example a non-constituent company merges with a constituent company, a constituent firm declares bankruptcy, or an initial public offering of a firm meeting necessary requirements; the index may include and update immediately rather than wait for quarterly updates. All country indices equity components must, however, be incorporated within that country; meaning that multinationals listing shares on multiple exchanges will only be represented in the index of their country of incorporation. In cases of multiple listings, for instance a firm lists in the Netherlands for tax and legal advantages, the country of its primary listing will prevail.

This primary listing affects some companies over others. In instances where a foreign firm lists in the USA and conducts the majority of its operations there, it may be included in

the USA index; additionally European firms are also subject to this primary listing and majority of operations rules. Because of China's equity ownership restrictions, MSCI sets additional provisions to determine whether firms in Hong Kong or China will list on an index according to their source of revenue, accessibility of ownership and location of original listing. While these classification rules can complicate directly assessing domestic-only equity market growth, it should not adversely skew results as it occurs on a limited case-by-case basis for a few selected countries (MSCI Index Research, 2013 p. 80).

Instances of whether shares are free-floating may also be an important area of concern. Shares deemed to be 'strategic' are excluded from consideration and may, in some circumstances prevent a firm from being listed in the index. Shares held by governments, by the company itself, banks, officers, board members, and employees are all not considered and are not placed under consideration. Additionally, in cases where a country or firm has imposed foreign ownership limits, the calculation of total shares outstanding is also decreased by the limits being applied (MSCI Index Research, 2013 p. 85).

2.3 Overview of the Statistical Analysis

The domestic stock market indexes for the given countries are a relevant measure of investor sentiment and firm growth within the country. While other measures of financial markets could also be plausible measurements, i.e. bonds, foreign exchange rates, derivatives), stock market valuation typically depends on valuation methods that are based upon perceptions of future economic, regulatory environment and political events. While all financial instruments require, to varying extents, estimating future actions and events, this study will rely on theoretical assumptions of the Discounted Cash Flow Model, the Sharpe Ratio, which focuses on pricing adjustments to changes in expected future outcomes relative to a benchmark or stock market pricing based on historical volatility. While this thesis will not utilize the specific calculations of these financial models, it is important to emphasize

their use in financial asset valuation and the concept that political institutional quality should be taken into consideration in their use in evaluating financial assets in a comparative international context.

The discounted cash flow approach to asset valuation evaluates an asset using all expected future cash flows of the firm and discounting them by a certain rate (depending upon the model) to bring all cash flows to a present value, i.e. the 'intrinsic' current value of the firm (Bodie et al, 2010). The rate of discount is determined by a combination of two factors: the risk-free rate of return and a risk premium factor. This risk premium is the extra return an investor requires for compensation given the level of uncertainty of the firm receiving the cash flow. Broadly defined, the model states that any perception of an event that will precipitate a change in expected cash flows, business environment or profits will cause investors to revalue shares according to the new expected outcomes, causing share prices to adjust to the new expected equilibrium. In institutional environments that cannot maintain adequate rule of law, effectiveness or predictable regulatory efficiency, the forecastability of these cash flows should become more uncertain, relative to other stable states. This will not only lead to higher variability of cash flow receipts but also a higher risk premium for holding the assets.

Another key concept of understanding the risk-return tradeoff expected in the statistical analysis can be explained by the Sharpe Ratio; which is simply the expected return of an asset or financial market (which can be either the historical return or the forecasted return based upon historical projections) minus the risk-free rate of return divided by the standard deviation of the asset (Bodie et al, 2010). This provides a return per unit of risk which makes assets comparable on a risk adjusted basis. Under this concept, an investor would only purchase a relatively more risky asset only if there is an expectation of additional compensation for bearing such risk and variability. For a hypothetical example relevant to

this study, an investor can purchase shares of a financial firm in Switzerland (higher quality of governance according to WGI) or an 'identical' Indonesian financial firm (lower quality of governance according to WGI). Given all other constraints constant, this thesis seeks to observe whether investors consider the governance of a market's country of origin to be particularly important in this risk-reward framework; or rather, do investors require a higher rate of return for holding assets of lesser governance quality state's financial assets?

This study will use the 10 year annualized inflation-adjusted stock index returns as the response variable. A twelve year time frame was chosen to analyze recent perceptions in institutional governance. This is meant to include a time frame long enough to include trends and relevant changes in institutional and market environment, but also limit its scope to relevant financial market pricing changes, i.e. the institutional and stock market environment of an economy in the 1950's, for instance, may be less relevant to current government and market sentiment. To control for differences in inflation within these countries, the research design will use the inflation-adjusted returns to control for monetary policy differences, expressed as $G = \sum_{i=1}^{n} \frac{(1+g_i)}{(1+r_i)} - 1$. Where G is the inflation-adjusted growth rate, i is the year, g is the unadjusted annual stock market growth rate, r is the annual level of inflation. Many of the MSCI indexes are calculated in US dollars, in this event the index was discounted by the US inflation rate for the period. While this may not completely control for monetary factors, and indeed may include exchange rate fluctuations, this method attempts to control for such extraneous factors. Nonetheless, further research will need to be conducted to make a more complete set of control factors. The geometric mean of the annualized inflation-adjusted domestic stock index data, expressed as$\log G = \frac{1}{n}\sum_{i=1}^{n} \log X_i$, more accurately reflects investor return from investing in the stock market versus the standard mean return which can distort perceived gains from investments over subsequent time periods.

The aggregated data shown in chapter 3 was placed within a correlation and linear bivariate regression model to test whether there can be a perceived relationship between perceived levels of governance and recent stock market growth. Much of the statistical analysis will not delve into complex statistical concepts. Rather much of the relationship can be observed from a descriptive point. And additional variable was synthesized, labeled as (GOV) which is the combined measures of governance given equal weight in the variable. This will serve as an adequate variable for analysis that will encompass the three component governance measures against the market variables.

Chapter 3: Analysis and Results

This chapter will provide the results of the statistical analysis described in the previous chapters. It surveys the descriptive statistics of the data and analyzes the output of the linear regressions conducted on the qualities of governance against domestic stock market returns, volatility and size. The analysis concludes that the three aforementioned hypotheses are confirmed by the conducted research. While the analysis provides statistical significance to believe that there is a discernible relationship between the data, the chapter also highlights some caution going forward with this information and possible limitations. The chapter concludes by highlighting the limitations of the research and areas that deserve further consideration in future studies.

3.1 Descriptives

This section will highlight the important features of the descriptive analyses conducted on the variables. It serves as an important starting point for further interpretation of the data and regression output that will follow. Figure 1 highlights the key measures for this section.

Descriptives of Variables (Figure 1)

GIA Return		*St. Dev.*	
Mean	1.08	Mean	0.33
Median	1.09	Median	0.32
Standard Deviation	0.07	Standard Deviation	0.10
Kurtosis	1.62	Kurtosis	0.78
Skewness	0.71	Skewness	0.86
Range	0.34	Range	0.41
Minimum	0.95	Minimum	0.18
Maximum	1.30	Maximum	0.59
MCAP/gdp		*Gov't Effectiveness*	
Mean	101.93	Mean	0.94
Median	77.95	Median	1.09
Standard Deviation	82.99	Standard Deviation	0.79
Kurtosis	8.06	Kurtosis	-1.38
Skewness	2.46	Skewness	-0.19
Range	397.94	Range	2.55

Minimum	29.14	Minimum	-0.40
Maximum	427.08	Maximum	2.15
Reg. Quality		*Rule of Law*	
Mean	0.87	Mean	0.73
Median	0.98	Median	0.91
Standard Deviation	0.76	Standard Deviation	0.90
Kurtosis	-1.24	Kurtosis	-1.37
Skewness	-0.34	Skewness	-0.33
Range	2.36	Range	2.74
Minimum	-0.45	Minimum	-0.88
Maximum	1.90	Maximum	1.86
GOV			
Mean	0.85		
Median	0.98		
Standard Deviation	0.80		
Kurtosis	-1.39		
Skewness	-0.29		
Range	2.40		
Minimum	-0.53		
Maximum	1.88		

The basic measures of range for the three governance indicators as well as the weighted average constructed indicator already show similarities. All three indicators have similar minimum and maximums with regulatory quality holding a minimal range of 2.36 and rule of law at a maximal of 2.74. As noted in chapter 2, the World Bank admits difficulty in completely being able to construct indicators that are independent of each other, and this simple test highlights this. This becomes even more intuitive from the similarity between the standard deviations, with a minimum of .76 and a maximum of .90. The extent to which this may pose a question of multicollinearity will be explained further in this chapter when dealing with the regression output. The combined governance indicator (GOV) is also shown in figure 1, however it represents the equal-weighted combination of the three and does not provide, at this point, much utility. It will however, be utilized later in the analysis.

Although important to all statistical tests, with a limited number of variables it is key to analyze the extent to which the data may deviate from a traditional normal distribution curve essential to standard statistical tests such as regressions. The skewness of a data set

measures the asymmetry of the distributions. A skew equal to zero implies that the median is equal to the mean, implying that the distribution is symmetrical; greater than zero is a right skewed data set with more values concentrated on the left side of the mean (a greater number of variables with values less than the mean) and conversely less than zero is left skewed, with more values concentrated on the right side (a greater number of variables with values greater than the mean). From the skewness output in figure 1, it is evident that the majority of the variables have a skewness of between -1 and 1. The only exception is the market capitalization as a percentage of GDP (MCAP/gdp). Looking at the data, it is apparent that this is due to one significant outlier: Hong Kong's measure of 427.08% market size relative to its gdp. When Hong Kong is removed from the data set, however, the skewness of the data turns from 2.46 to 0.96. This large difference may be due to the limited availability of country data, where one data point may impact the entire dataset. This will be further expounded upon later. Despite the financial variables with higher skewed variables, it is useful to note that all four governance indicators have a skew close to zero.

Kurtosis measures the extent to which the variables are grouped around the mean or considerably dispersed from it. A perfectly normal distribution curve will have a kurtosis measure of 3; greater than 3 implies that values are more concentrated around the mean but a higher probability of encountering chances of extreme values far from the mean and less than 3 implies a flatter distribution, where the probability of extreme values is less than a normal distribution curve but the values are wider spread from the mean. Almost all variables have kurtosis measures of less than 3, with the exception again being the MCAP/gdp. If the outlier, Hong Kong, was again removed from the analysis, the kurtosis also falls below 3 (0.25, to be precise). From this it can be inferred that many of the variables are concentrated close to the mean of the variable, however there lies a greater chance for extreme values in the data set. From this preliminary analysis it seems acceptable to continue on to other areas of inquiry.

These two measures, skewness and kurtosis, are important for understanding the potential usefulness of the regression models that will follow.

Top and Bottom Five on GOV Ranking (Figure 2)

Country	GOV	GE	RQ	RL	GIA	SD	MCAP
Singapore	1	1	2	7	14	12	4
Switzerland	2	2	6	2	19	27	2
New Zealand	3	5	3	1	10	17	23
Canada	4	3	7	4	13	16	10
Australia	5	4	5	3	17	9	9
India	24	25	27	21	12	7	16
China	25	23	25	24	6	4	17
Philippines	26	26	24	26	9	8	21
Indonesia	27	27	28	27	1	3	25
Russia	28	28	26	28	20	5	19

Figure 2, above, shows the first and last five countries ranked according to the equally weighted governance indicator. This shows an interesting trend among their rankings across the other indicators. While it is intuitive that they should be ranked similarly among the three governance indicators, as it is their combined average, it should be noted that there is some variation among the quality rankings. The financial indicators, though not perfectly aligned with governance, do show an intuitive theme that is in accordance with the three hypotheses of this thesis. It is hypothesized that higher qualities of governance should bring about lower returns, as represented by the geometric inflation-adjusted returns (GIA). In fact, there seems to be a marked difference between the top and bottom five, with higher returns tilted towards the bottom five. Additionally, higher qualities of governance are hypothesized to be related to lower standard deviation of returns. This is also evident from the figure, as higher ranked states exhibit lower ranking on the returns standard deviation (lower rank implies a smaller standard deviation). Lastly, higher qualities of governance ranked states were hypothesized to have a larger market capitalization as a percentage of GDP. Indeed it appears intuitive from figure 2 that, while not a perfect representation, it does appear that the top five ranked states

exhibit larger market capitalizations (with the exception of New Zealand) than the bottom five states.

3.2 Correlations and Regressions

This section highlights the important features of the regression and correlation outputs conducted on the three qualities of governance as well as the combined equally-weighted governance variable and a multivariate regression of the three indicators against the respective financial variable. All regressions were conducted at a 5% alpha level and the analysis of the regressions will be discussed by each governance indicator separately below. The alpha level for the hypothesis tests determines the expected probability that the test will provide a type I error; or the chance that the regression will provide statistical significance between the variables when, in fact, none exist. This critical region was chosen as it is, by convention, a commonly utilized level for social science publications, though a more conservative level would yield more confident results (Gravetter and Wallnau 2011, p. 202) The regression equations, adjusted R-square, test statistics, and alpha are all shown in Figure 3.

Additionally, the correlation matrix table can be seen in figure 4. The correlation coefficients measure the linear relationship between the two variables listed in the matrix. Sticking with conventional interpretation, coefficients between zero and +/- .30 will be a weak relationship; implying very little covariance among the variables. Between +/- .30 and +/- .60 will be interpreted as a moderate statistical relationship. This implies that there exists some form of statistical relationship, identified by their covariance of the sample, yet there are additional explanatory factors behind their movements. Finally, any coefficient higher than +/- .60 will be a strong relationship; implying robust validity and strength behind their covariance. The correlation of the data can imply some measure of the predictability and strength of the statistical relationship to be surveyed by this thesis.

Descriptives of Regression Outputs (Figure 3)

Regression	Equation	Adj. R-2	t-stat	Alpha < .05
GE,GIA	-0.04(x)+1.12	0.17	-2.54	Y
GE,SD	-0.07(x)+0.40	0.33	-3.81	Y
GE,MC/GDP	51.86(x)+53.24	0.21	2.87	Y
RQ,GIA	-0.05(x)+1.12	0.20	-2.79	Y
RQ,SD	-0.07(x)+0.39	0.30	-3.57	Y
RQ,MC/GDP	53.46(x)+55.42	0.21	2.84	Y
RL,GIA	-0.04(x)+1.11	0.21	-2.86	Y
RL,SD	-0.06(x)+.37	0.30	-3.57	Y
RL,MC/GDP	38.00(x)+74.00	0.14	2.31	Y
GOV,GIA	-0.04(x)+1.12	0.20	-2.78	Y
GOV,SD	-.07(x)+0.39	0.32	-3.72	Y
GOV,MC/GDP	48.16(x)+61.10	0.19	2.69	Y
Multi,GIA	-0.07(rl)-0.04(rq)+0.07(ge)+1.10	0.17	-1.07,-0.57,0.93	N,N,N
Multi,SD	0.02(rl)-0.01(rq)-0.09(ge)+0.41	0.28	0.28,-0.13,-0.95	N,N,N
Multi,MC/GDP	-149.37(rl)+71.30(rq)+153.57(ge)+5.49	0.28	-2.06,1.08,1.84	Y,N,Y

Correlation Matrix (Figure 4)

	GE	RQ	RL	GOV
GIA	-0.45	-0.48	-0.49	-0.48
ST DEV	-0.60	-0.57	-0.57	-0.59
MCAP/gdp	0.49	0.49	0.41	0.47

3.3 Government Effectiveness

The correlation coefficient for government effectiveness and stock market returns in figure 4 was -.45. This indicates a moderate inverse relationship between returns and quality of government which is in line with the first hypothesis, indicating that increases in government effectiveness are followed with declines in equity returns. The correlation coefficient for government effectiveness and stock market standard deviation was -.60. This indicates a moderate inverse relationship between deviations and the quality of government which affirms the second hypothesis. This means that for an increase in government effectiveness, the data shows a decline in variability of equity returns. The correlation coefficient for government effectiveness and market capitalization as a percentage of GDP was .49. This indicates a moderate positive relationship between the quality of government

and the size of domestic stock market relative to GDP. This is in line with hypothesis number three.

The regressions on government effectiveness show mixed but positive results. Similar to the correlation output, the equations show an inverse relationship between quality of government effectiveness and stock market returns and standard deviations. The relationship between government effectiveness and market capitalization also shows a positive relationship, indicating an increase in the size of overall stock market for an increase in the quality of government effectiveness. These three regressions had an adjusted R-square of 0.17, 0.33, and 0.12 respectively and were all significant at a 95% confidence. This shows, however, that while these models are statistically significant, they have little explanatory power over the variance of the response variables. While conventional wisdom on what level of R-square leads to confident results may vary depending upon the type of study, the higher the better. This indicator shows how well data points fit along the regression line. The higher the r-square, the closer the data points rest towards the line. While the regressions are statistically significant according to the alpha level and test statistic, these r-square coefficients imply that there are other explanatory factors driving these financial asset data than governance alone; meaning that while there exists statistical significance, the strength of such significance may be limited.

3.4 Regulatory Quality

The correlation coefficient for regulatory quality and stock market returns was -.48. This indicates a moderate inverse relationship between returns and quality of regulations, implying that high levels of regulatory quality are associated with lower average equity returns. The correlation coefficient for regulatory quality and stock market standard deviation was -.57. This indicates a moderate inverse relationship between deviations and the quality of

regulation, which goes with the second hypothesis. The correlation coefficient for quality of regulation and market capitalization as a percentage of GDP was .49. This indicates a moderate positive relationship between the quality of regulation and the size of domestic stock market relative to GDP. This is in line with the third hypothesis.

The regressions on regulatory quality, like government effectiveness, also show mixed but positive results. Similar to the correlation output, the equations show an inverse relationship between quality of regulation and stock market returns and standard deviations. The relationship between regulatory quality and market capitalization also shows a positive relationship, indicating an increase in the size of overall stock market for an increase in the quality of government effectiveness. These three regressions had an adjusted R-square of 0.20, 0.30, and 0.21 respectively and were all significant at a 95% confidence. This similarly shows, however, that while these models are statistically significant, they also may have little explanatory power over the variance of the response variables.

3.5 Rule of Law

The correlation coefficient for rule of law and stock market returns was -.49. This indicates a moderate inverse relationship between returns and the rule of law, again affirming the first hypothesis. The correlation coefficient for rule of law and stock market standard deviation was -.58. This indicates a moderate inverse relationship between deviations and rule of law. The correlation coefficient for rule of law and market capitalization as a percentage of GDP was .41. This indicates a moderate positive relationship between rule of law and the size of domestic stock market relative to GDP. This is in line with the third hypothesis.

The regressions on rule of law show mixed but positive results like the other indicators. Similar to the correlation output, the equations show an inverse relationship between rule of law and stock market returns and standard deviations. The relationship between rule of law and market capitalization also shows a positive relationship, indicating an increase in the size of overall stock market for an increase in the quality of government effectiveness. These three regressions had an adjusted R-square of 0.21, 0.30, and 0.14 respectively and were all significant at a 95% confidence. This shows, however, that while these models are statistically significant, they have little explanatory power over the variance of the response variables.

3.6 Multivariate Output

The regression output for the multivariate regression show the least promising explanatory power. When government effectiveness, regulatory quality, and rule of law were all regressed against stock market returns, deviations and size, none of the equations generated statistically significant results. In some instances variables yielded positive coefficients, other instances highly negative. This is attributable to the apparent high level of multicollinearity in the variables, that is, a phenomenon when highly correlated variables are placed in a multivariate regression and can produce inconsistent and erratic coefficient estimates. This was to be a likely phenomenon as it was described in the descriptive analysis that these indicators showed significant similarities. To test for this further, the correlations among the qualities of governance were analyzed. In fact, the three indicators yielded correlations among each other of 0.96 to 0.97, indicating a very high, almost perfect, level of collinearity. As such, the multiple regression output does not yield sufficient explanatory power over the univariate regressions above but was provided to further highlight the interconnections among the governance data.

3.7 Limitations and Further Research

A concern with this data analysis is that, while the hypotheses are affirmed by the data, the strength of this relationship appears weak. The correlation coefficients provide evidence that the variables do hold covariance similar to what was hypothesized, yet the extent of their comovements is not completely accounted for and is attributable to other economic or political factors. As such, while this research does contribute to the existing body of literature on the topic, there is a great need for further investigation and testing which will be described in further detail.

While the results indicate a statistical, yet weak relationship between quality of governance and domestic stock market returns, size and volatility, there are several limitations to this research that require attention and future research. The first limitation is the total sample size of 28 countries may be inadequate to make broad generalizations across other markets. Morgan Stanley Capital International (MSCI) does create and maintain 50 country level indices, yet only the 28 used were apparently accessible for non-institutional investors. MSCI was not able to adequately respond to requests for obtaining the remaining 22 country level statistics and the addition of those indices into the analysis would provide much better robustness to this research framework.

Another limitation to the empirical results is the time series under analysis. This project relied on data from 2002 to 2011 and as such only compared qualities of governance and stock market returns for the ten year period. While arguably a shorter time period such as this can better reflect the holding period of an investor, it may not adequately reflect the level of observation necessary for the field of political science, which obviously would be more concerned with the political implications of the research. Unfortunately, the World Bank Governance Indicators are a relatively knew addition to the world of governance assessment and the data is somewhat limited by this aspect. While the index begins at 1996, it is only

available for every other year until 2002 when assessments were tabulated annually. The only way to expand this, and still keep the World Bank Governance Indicators as the primary source of assessment, would be to create proxies for the missing years via linear interpolation. This, however, would create its own analytical limitation as the missing years data points would only represent the 'best guess' approximation between the previous and following year and would not represent the World Banks assessment of the quality of governance.

A further needed area of analysis is to expand on the statistical models utilized. This analysis focused on primarily descriptive and linear regression analysis of the data, further assessments of the data using a wider array of advanced statistical techniques and econometrics could greatly improve and shed light on relationships between the variables. This research aggregated ten years of data into a single representative point, which may have resulted in missing specific changes in governance. Further research could shed light on whether abrupt changes in governance lead to a lagged change in stock market returns and size. Also, proper incorporation of additional variables, including additional governance assessments and control variables could provide more confident results about the relationship between governance and equity size and returns. While World Bank Governance Indicators represent aggregated and broadly perceived qualities of governance, other indicators may provide more useful time series changes to specific areas of governance to lead to more specific insights into how political activity may alter equity market performance. An in-depth use of case studies or a nested combined approach may also provide greater insight.

Lastly, further research into the political implications of this and previous empirical research is needed. While it seems apparent that qualities of governance do play a significant role in equity market size and behavior as well as many aspects of economic growth and development, this poses the question of to what extent, then, do markets alter political institutions? Are financial markets adapting to political constraints, as a passive actor, or do

what extent do financial markets impact the governance of a state? If market gains can be dependent to some level on the political environment, what ways to markets potentially pose as either drivers of institutional reform, or worse, pose a threat to the quality of democracy? Does the desire for further market profitability and expansion dictate political interests that may interfere with the interests of the broader constituency or unfairly dominate political agendas, and if so, how to effectively determine its extent? These relevant questions fall beyond the scope and necessary research capacity of this paper.

Conclusion

Chapter one described previous development literature on the impact of political institutions on areas of economic growth and performance as well as investments and financial markets. It outlined the importance of quality of institutions on explaining variations in economic performance, the ability to safeguard investments from government appropriation, effectively utilize human capital, maintain business environment stability, and can even impact private sector creditworthiness. It also provided the necessary theoretical justifications to make the case that institutions and perceived levels of governance can also directly impact financial market prices as well.

Chapter two outlined the empirical study of this thesis. It described the methodology utilized, the tests conducted, and the rationales for the appropriateness of the variables used. The World Bank Governance Indicators (Rule of Law, Government Effectiveness, and Regulatory Quality) were utilized as the explanatory variables against domestic stock price returns and standard deviations, calculated by MSCI country indices. Also, the overall size of market capitalization was used to test whether governance and institutions played a role in the total size of domestic markets.

Chapter three provided the analysis of the statistical models created for this thesis to measure whether broad conceptualizations of institutions impact domestic stock market profitability, volatility and size. The study found that increases in governance, as conceived by the World Bank governance indicators, led to a predicted decline in returns as well as a decline in the variability of these returns. This implies that while equity growth may be depressed comparatively, these returns are nonetheless safer and more secured from erratic swings in price movements. Lastly there is also a statistically significant relationship between the quality of governance and the overall size of domestic stock markets as a percentage of GDP; the tests conducted show that higher qualities of governance are related to higher

market capitalizations as a percentage of GDP. This test affirms the three hypothesis of this thesis. Lastly, the chapter concludes with the limitations of these studies as well as areas for further research.

Appendix (Source of Country Data and Statistics)

Australia – MSCI Australia Index

Brazil – MSCI Brazil Index

Canada – MSCI Canada Index

Chile – MSCI Chile Investable Market Index

China – MSCI China Investable Market Index

France – MSCI France Index

Germany – MSCI Germany Index

Hong Kong – MSCI Hong Kong Index

India – MSCI India Index

Indonesia – MSCI Indonesia Investable Market Index

Italy – MSCI Italy Index

Japan – MSCI Japan Index

South Korea – MSCI Korea Index

Malaysia – MSCI Malaysia Index

Mexico – MSCI Mexico Investable Market Index Capped

New Zealand – MSCI New Zealand Investable Market Index

Philippines – MSCI Philippines Investable Market Index

Poland – MSCI Poland Investable Market Index

Russia – MSCI Russia Index

Singapore – MSCI Singapore Index

South Africa – MSCI South Africa Index

Spain – MSCI Spain Index

Switzerland – MSCI Switzerland Index

Taiwan – MSCI Taiwan Index

Thailand – MSCI Thailand Investable Market Index

Turkey – MSCI Turkey Investable Market Index

United Kingdom – MSCI United Kingdom Index

United States – MSCI United States Index

(Morgan Stanley Capital International) http://www.msci.com/

Inflation – Average Consumer Prices (percentage change), World Economic Outlook Database, October 2012, International Monetary Fund
(International Monetary Fund World Economic Outlook Data)
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Equity Market Capitalization to GDP Data, World Development Indicators, The World Bank (http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=world-development-indicators)

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Dataset Used for Statistical Analysis

Country	GIA Return	St. Dev.	MCAP/gdp	GE	RQ	RL	GOV
Australia	1.08	0.36	117.96	1.80	1.66	1.77	1.74
Brazil	1.11	0.32	56.56	0.00	0.11	-0.30	-0.06
Canada	1.09	0.30	115.66	1.89	1.61	1.74	1.75
Chile	1.15	0.40	110.19	1.19	1.47	1.28	1.31
China	1.12	0.44	69.74	0.07	-0.24	-0.43	-0.20
France	0.98	0.23	77.55	1.58	1.21	1.42	1.40
Germany	0.99	0.27	43.30	1.57	1.53	1.65	1.58
Hong Kong	1.06	0.32	427.08	1.73	1.90	1.53	1.72
India	1.10	0.40	71.12	-0.04	-0.33	0.05	-0.11
Indonesia	1.30	0.47	33.20	-0.32	-0.45	-0.73	-0.50
Italy	0.95	0.23	34.81	0.54	0.93	0.45	0.64
Japan	1.01	0.18	78.59	1.35	1.03	1.27	1.22
Korea	1.09	0.28	78.36	1.07	0.82	0.92	0.94
Malaysia	1.11	0.27	137.82	1.11	0.53	0.52	0.72
Mexico	1.12	0.31	29.84	0.19	0.36	-0.49	0.02
New Zealand	1.10	0.29	40.02	1.79	1.74	1.86	1.80
Philippines	1.11	0.38	50.18	-0.06	-0.15	-0.50	-0.24
Poland	1.08	0.35	29.88	0.53	0.83	0.53	0.63
Russia	1.03	0.41	63.40	-0.40	-0.30	-0.88	-0.53
Singapore	1.09	0.33	186.32	2.15	1.83	1.65	1.88
South Africa	1.16	0.28	205.87	0.54	0.57	0.09	0.40
Spain	1.02	0.26	85.99	1.23	1.23	1.15	1.20
Switzerland	1.05	0.19	219.55	1.98	1.63	1.84	1.82
Taiwan	1.02	0.34	148.52*	1.08	1.07	0.90	1.02
Thailand	1.20	0.51	66.68	0.28	0.25	-0.02	0.17
Turkey	1.10	0.59	29.14	0.21	0.24	0.07	0.17
United Kingdom	1.02	0.25	125.60	1.69	1.72	1.68	1.70
USA	0.97	0.20	120.99	1.56	1.54	1.56	1.55

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