



The Impact of Elite Quality on Market Performance

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Abstract

The present paper provides empirical evidence on the impact of elite quality on market performance. This study extends the recent literature about elite quality, specifically about the Elite Quality Index, while contributing with a different approach. Our sample is based on the 32 countries present in the Elite Quality Index 2020 and from it, two studies are made - one for the period between 2019-2020 and another for the period between 2005-2020. A regression analysis is implemented to find whether countries with elites of high quality provided the frameworks necessary for their stock market indexes to outperform countries with low quality elites. The first base model did not provide any statistically significant results, mainly due to a lack of data. Hence, a second model was applied, where the Elite Quality Score was replaced by a dummy, distinguishing countries with high quality elites from the remaining. Inflation and the real exchange rate proved to have a negative and significant impact on stock market indexes returns. Furthermore, it was found that the monetary base growth, the lending interest rate, and the elite quality did not present any statistically significant impact on stock market indexes performance. Consequently, these results without statistical significance on the impact of elite quality on market performance mean that none of our hypotheses was proven and that further research is necessary in order to find a relation between elite quality and market performance.

Keywords: capital markets, elite quality, macroeconomics, stock returns.

JEL Classification: E44, G12, G14, G15

Resumo

O presente estudo apresenta evidência empírica sobre o impacto da qualidade das elites nos retornos de mercado. Este estudo pretende estender a mais recente literatura sobre a qualidade das elites, mais especificamente sobre o “*Elite Quality Index*”, enquanto contribui com uma abordagem diferente. A nossa amostra é baseada nos 32 países presentes no “*Elite Quality Index 2020*” e dela dois estudos são criados – um para o período entre 2019-2020 e outro para o período entre 2005-2020. Uma análise de regressão é implementada para perceber se os países com elites de alta qualidade proporcionam as estruturas necessárias para que os seus índices de mercado apresentem retornos superiores aos de países com elites de baixa qualidade. O primeiro modelo base não demonstrou qualquer resultado com significância estatística, principalmente por falta de dados. Então, aplicou-se um segundo modelo, onde o “Elite Quality Score” foi substituído por uma *dummy* que distingue países com elites de alta qualidade dos restantes. A inflação e a taxa de câmbio real provaram ter um impacto negativo e significativo nos retornos dos índices de mercado. Além disso, foi encontrado que o crescimento da base monetária, a taxa de juro aplicada a empréstimos e a qualidade das elites não apresentaram qualquer impacto na performance dos índices de mercado com significância estatística. Por consequência, estes resultados sem significância estatística relativamente ao impacto da qualidade das elites na performance de mercado significam que nenhuma das nossas hipóteses foi provada e que é necessária pesquisa futura de modo a encontrar uma relação entre a qualidade das elites e a performance de mercado.

Palavras-chave: mercados de capitais, qualidade das elites, macroeconomia, retornos de ações.

Classificação JEL: E44, G12, G14, G15

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1. Introduction

Academic literature has developed several theories for what determines the economic and human development of a country. Geography (Gallup, Sachs, & Mellinger, 1999), Financial Instability (Dornbusch & Reynoso, 1989), Democracy (D. Acemoglu, Naidu, Restrepo, & Robinson, 2019) and mainly the Quality of Institutions (Daron Acemoglu, Johnson, & Robinson, 2001; Daron Acemoglu & Robinson, 2012; Engerman & Sokoloff, 2002; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997; Nunn, 2009; Rodrik, Subramanian, & Trebbi, 2004) have been some of the considered factors.

Although these causes certainly have an impact on the development of a country, Casas and Cozzi (2020) reckon that there is one social group at the origin of the causal chain: Elites. These leading figures of society affect human and economic development outcomes, either directly or indirectly, via their sway on institutions that lay down the frameworks necessary for growth. Their “quality” will determine the economic and human development of a country, owing to the fact that high quality elites will engage in business models that create value rather than in ones that extract it. Accordingly, an example of a high quality elite would be a CEO in the energy sector, taking the risk of investing in 4th industrial revolution technologies, while an example of a low quality elite, would be if the same CEO would leverage his political power to promote a trade barrier that pre-empts innovative new entrants (Casas & Cozzi, 2020).

With this idea in mind, Casas i Klett, Cozzi, Diebold, and Zeller (2020) developed a new approach: an analytical framework to interpret the state of the world and its future called the Elite Quality Index (EQx). This groundbreaking index, developed for the first time in 2020, intends not only to close the gap found in literature, regarding the analysis of the business models chosen and run by elites but also to highlight where improvement is possible and needed in order to facilitate growth and development. Before 2020, it was not possible to quantify elite quality, now, thanks to the EQx, there is a composite index where the underlying indicators provide quantitative evidence of different degrees of value creation and their opposite, value extraction (Casas i Klett, Cozzi, Diebold, & Zeller, 2020). The results for the pilot study – “Elite Quality Report 2020” - involved 32 countries and were based on 72 different indicators.

Since elite quality is perceived as having such an impact on human and economic development, it seems reasonable to assume that countries with high quality elites will recover better from financial crises, such as the one we are currently living (Casas & Cozzi, 2020). Therefore, the main objective of this dissertation is to analyze the impact of elite quality on a countries market performance. To do so, this study developed an econometric model that tested the relationship between several macroeconomic variables (including the EQx score) and stock market indexes. The study relies on the premise that countries with high quality elites will possess the frameworks necessary to recover faster and better from the financial damages originated by the virus and also the frameworks necessary to have had promoted financial stable growth in the past.

This dissertation represents an innovation in the field of elite quality. It is the first study that analyses the impact of elite quality on market performance, something that was very difficult to do before the Elite Quality Index. This was the main driver for this topic, presenting ground-breaking results. Also, it provides to the scientific community some fresh proof of the relationship between stock market indexes and the macroeconomic variables studied, like inflation and the real exchange rate. None of the studies analysed in our empirical studies section was as broad in the number of countries included, nor it was as recent in terms of years included.

However, with such innovation, came the problem of having limited data. When we started writing this dissertation, there was only a pilot study available, with data for 1 year and 32 countries. In the meantime, we were fortunate to have a new release – the Elite Quality Index 2021 – with data for 150 countries. Nonetheless, since we only had data for 2 years, we decided to implement a dummy that would differentiate countries based on their elite quality for the past 16 years, to complement this dissertation with a different methodology.

The methodology used is based on data spanning from 2005 to 2020 and follows the empirical models presented in section 2.5 of our Literature Review, having as theoretical base the study of Chen, Roll and Ross (1986). The base model sample is comprised of between 23 and 7 countries, depending on the combination of variables used.

Our findings suggest that variables such as inflation and the real exchange rate negatively impact market performance, whilst the monetary base growth, the lending interest rate and

elite quality did not present any statistically significant results. Consequently, our dissertation failed to prove the premise that elite quality impacts positively a countries' market performance on the basis of the available data.

In order to fulfil the objectives of this dissertation, it became essential to obtain answers to some research questions: How was the market performance for any given country during the ongoing Covid-19 pandemic and the past sixteen years? What was the impact of our macroeconomic variables on a given country's market performance? What was the impact of elite quality on a given country's market performance?

It was necessary to obtain an answer to these questions to understand the Impact of Elite Quality on Market Performance.

The remainder of the study proceeds as follows. Chapter 2 reviews the existing literature on: theories on what determines economic and human development, quality of elites, the Elite Quality Index, theory and empirical studies on macroeconomic variables impact on stock returns, and Covid-19 impact on the financial markets. Chapter 3 details the hypotheses the research seeks to test. Chapter 4 describes the methodology followed, the variables and the data used. Chapter 5 presents the results, their interpretations and their consistency with the theoretical hypotheses and existing literature. Chapter 6 provides concluding remarks and Chapter 7 suggestions for future research.

2. Literature Review

2.1 Theories on Economic and Human Development

This section of the literature review focuses on different theories for what determines the economic and human development of a country. Even though there are some factors to consider, the scientific community seems to acknowledge the quality of institutions as the most important determinant for growth. Notwithstanding this view, empirical evidence for geography, history, financial stability, and democracy as determinant factors is shown.

Gallup, Sachs, and Mellinger (1999) consider that geography, more precisely location and climate, has large effects on economic development through its effects on transport costs, disease burdens, agricultural productivity, among others. Regions located far from the sea and ocean-navigable rivers tend to have high costs for international trade. Also, regions with high population density have not been following modern economic growth (Gallup et al., 1999). However, Rodrik, Subramanian and Trebbi (2004) show empirical evidence that the main determinant of income levels around the world is the quality of institutions. When institutions are controlled for, neither does trade or geography, have large impacts on the level of income. The effect of geography on income levels is largely indirect via its impact on the quality of institutions (Rodrik et al., 2004).

Acemoglu and Robinson (2012) also argue that a country's economic success depends largely on the quality of its institutions, mainly, on the frameworks created, which shape saving, investment and innovation. The authors differentiate between inclusive and exclusive institutions. They consider that the former foster growth through innovation and investment, while the latter, extract resources and exploit society (Daron Acemoglu & Robinson, 2012).

There is also a fair amount of research regarding the importance of historical events on the economic development of a country. Several authors argue that Europe's colonization had a large impact on the development of former colonies, mainly, because of domestic institutions that persisted after independence (Daron Acemoglu et al., 2001; Engerman & Sokoloff, 2002; La Porta et al., 1997; Nunn, 2009).

Financial instability, especially hyperinflation, also influences economic development. The disruption of the price system suspends normal economic development and drives savings to foreign countries. (Dornbusch & Reynoso, 1989). This a scenario that is very familiar in Argentina, one of the countries present in our study.

A recent study shows evidence that democratization has a positive effect on GDP per capita since it drives higher investments in capital, schooling, and health. In other words, it leads to a change into political institutions that favour investments in value creation business models (D. Acemoglu et al., 2019). However, this change in political institutions will not be enough for economic development if elites contradict this change with higher investments in political power. If, for example, elites increase lobbying or the use of paramilitary forces, they will offset their previous loss of power. In this scenario, we reach a democracy that favours the institutions where elites have control, hence, not a real democracy. The conclusion is that economic institutions are decided by groups or individuals that possess more political power, elites (Daron Acemoglu & Robinson, 2008).

The perspective that is being suggested by Casas i Klett, Cozzi, Diebold and Zeller (2020) is one where elites sway their power into institutions and hence determine economic growth and human development over mid to long-term horizons.

2.2 Quality of Elites

According to Khan (2012), “Elites are those with vastly disproportionate control over or access to a resource”, which allows them to attain power in a given society. According to Casas and Cozzi (2020), “Elites are narrow, coordinated groups with business models that successfully accumulate wealth; they are an empirical inevitability and exist in every society on earth”. Therefore, elites are leading figures in diverse sectors, that have a major bearing on society, such as political, military, business, unions, and so on (Parry, 2005). Elites will achieve cooperation through common backgrounds, coinciding interests, and social interaction, solidifying their accumulation of wealth and power (Gilens & Page, 2014).

It can be easily understood how elites can turn into engines of inequality. They will define the access and control over institutions that explore the most common resources, such as education, energy, health and countless others (Khan, 2012). Hence, the importance in the quality of given society elites.

Casas i Klett, Cozzi, Diebold, and Zeller (2020) define “high quality elites” as elites that engage in value creation business models. Such elites are more likely to invest in fields that develop human capital - such as the education system or the public health system - or even promote the use of renewable energies because these behaviors are aligned with the ideals for value creation business models. It is argued, *ceteris paribus*, that a country with high quality elites will surpass financial crisis with the lowest amount of social loss and non-creative destruction possible (Casas & Cozzi, 2020). The authors consider “low quality elites” as elites that engage in value extraction business models, such as rent-seeking activities. It is very important to highlight a clear definition for the term rent-seeking. It is a term largely build upon the work of Tullock (1967) and Krueger (1974). It is defined as seeking to obtain economic rent by manipulating the social or political environment, rather than by creating new wealth. Rent-seeking activities are personally beneficial, however, they represent an unearned reward that comes from the usage of resources in a non-productive manner (Hillman & Ursprung, 2015; Krueger, 1974; Tullock, 1967). A common example of rent-seeking is when a company lobbies the government for grants or subsidies.

In other words, while high quality elites grow their slice of the pie by growing the entire pie, low quality elites grow their slice of the pie by extracting from the other slices (Casas i Klett et al., 2020).

2.3 The Elite Quality Index

The Elite Quality Index (EQx) is an analytical framework created to assess the degree of value creation of elites' business models. It does so employing a composite index, where the underlying indicators provide quantitative evidence of different degrees of value creation and their opposite, value extraction (Casas i Klett et al., 2020).

The Elite Quality Index is composed of a multi-layered architecture. It starts with two Sub-Indexes: Value and Power (Casas i Klett et al., 2020). Value will measure countries elites based on where their business models fall under the Value continuum, with Value Creation business models on one extreme and Value Extraction business models on the other. Power will be measured as rent-seeking potential. Each of these two Sub-Indexes is divided into two different dimensions: Political and Economic. Therefore, the Index is based on four main quadrants. Political Power measures the potential for value capture through the rules of the state; the rules of human labour; and business regulation. Political Value measures the extraction of value by the state through its unearned income; taking of income; and its giving of income. Economic Power measures elite dominance in the economy; at the firm level; and in creative destruction terms. Economic Value measures value extraction from the economy's three markets: products and services; capital markets; and labour markets. The fourth level of the Index consists of the Indicators that represent the twelve pillars mentioned before. (Casas & Cozzi, 2020).

Table 1 on the next page synthesises the structure of the elite quality index.

Table 1. Structure of the elite quality index. Retrieved from (Casas i Klett et al., 2020).

<i>Index</i>	<i>Sub-Index</i>	<i>Index area</i>	<i>Pillar</i>
EQx	I Power	i. Political Power	i. 1 State Capture
			i. 2 Regulatory Capture
			i. 3 Human Capture
		ii. Economic Power	ii. 4 Industry Dominance
			ii. 5 Firm Dominance
			ii. 6 Creative Destruction
	II Value	iii. Political Value	iii. 7 Giving Income
			iii. 8 Taking Income
			iii. 9 Unearned Income
		iv. Economic Value	iv. 10 Producer Rent
			iv. 11 Capital Rent
			iv. 12 Labor Rent

Note: Structure of the EQx. The 12 pillars consist of a total of 72 indicators (107 for 2021).

Some indicators will measure value creation linearly, so, a higher/lower score will represent more value creation or less rent-extraction. However, other indicators will measure value creation non-linearly, defining deviations from the optimum (Casas i Klett et al., 2020). These results in different scales and measurement units, leading to the requirement for normalization (OECD, 2008). Normalized values are transformed in a way that a value close to 100 represents a high level of elite quality, while a value close to 0 represents a low level of elite quality. After the weighting of different pillars, Index areas and Sub-Indexes, the EQx develops a score for each country's elites, from 0 to 100 (Casas i Klett et al., 2020). The score will provide easier communication of insights to decision-makers, allowing them to compare performances with other countries as well as to track progress over time (OECD, 2008).

Before the groundbreaking study by Casas i Klett, Cozzi, Diebold, and Zeller (2020) there was no framework available to quantify the quality of a given country's elites. Now, it is possible to rank countries according to the quality of their elites and to test if such quality influences the recovery from financial crises, such as the one we are currently living in.

2.4 Theory on Macroeconomic Variables Impact on Stock Returns

The relationship between macroeconomic fundamentals and stock market returns has been a major topic of discussion within financial researchers.

The theoretical foundations for this subject started with Markowitz' (1952) mean variance portfolio model. His work inspired Sharpe (1964), Lintner (1965) and Mossin (1966) to develop the Capital Asset Pricing Model (CAPM). The CAPM relates the expected return of an asset to its riskiness, which is measured by the variance of the asset's historical rate of return relative to its asset class. Risk can be systematic or specific. Systematic risk is the risk of holding the market portfolio. Specific risk is the risk which is unique to an individual asset. It represents the component of an asset's return which is uncorrelated with general market movements (Lintner, 1965; Mossin, 1966; Sharpe, 1964). Criticism emerged about the unique role of the market in the model and, as a result, several researchers decided to add extra variables to the model, creating multifactor models.

This led to the emergence of the Arbitrage Pricing Theory by Ross (1976). The APT says that the return on an asset is specified as a function of several risk factors common to that asset class. The model assumes that investors take advantage of arbitrage opportunities in the broader market, therefore, an asset's rate of return is a function of the return on alternative investments and other risk factors. The APT in contrast to the CAPM acknowledges several sources of risk that may affect an asset's expected return (Ross, 1976).

When considering multifactor asset pricing models, it is considered that any variable that affects the future investment opportunity set or the level of consumption could be a priced factor in equilibrium (Merton, 1973). In a risk-averse economy, securities affected by such undiversifiable risk factors should earn a risk premium (Ross, 1976). Macroeconomic variables, such as inflation or interest rates, are candidates for such extra-market risk factors since changes in these variables simultaneously affect many firms' cash flows and can influence the risk-adjusted discount rate. Chen, Roll and Ross (1986) were the first to employ specific macroeconomic factors as proxies for undefined variables in the APT.

Chen, Roll and Ross (1986) explained mathematically how this happens. Assuming stock prices can be written as expected discounted dividends:

$$p = \frac{E(c)}{k} \quad (2.1)$$

where c is the dividend stream and k is the discount rate. This implies that actual returns in any period are given by:

$$\frac{dp}{p} + \frac{c}{p} = \frac{d[E(c)]}{E(c)} - \frac{dk}{k} + \frac{c}{p} \quad (2.2)$$

Therefore, systemic forces that influence returns are the ones that change discount factors, k , and expected cash flows, $E(c)$.

Several macroeconomic variables fit the description given for forces that influence returns. The level of interest rates, the term structure spreads across different maturities and unanticipated changes in the risk premium affect the discount rate. Changes in the risk-free rate influence the value of future cash flows. Changes in the indirect marginal utility of real wealth, suggestively measured by real consumption changes by Chen et al (1986), influence pricing, which will show up as unanticipated changes in risk premium. Changes in the expected rate of inflation influence nominal expected cash flows as well as the nominal interest rate. Changes in the expected level of real production affect the current real value of cash flows (Chen, Roll, & Ross, 1986). Nonetheless, the following section will review several studies to assure which variables should be included in the model present in this study.

It is intended with this study to add a new variable to the available literature, the EQx score. According to Casas and Cozzi (2020), the EQx is a macro signal, or at least a fundamental independent indicator, determining long-term economic growth and the wealth of nations that result from high-quality elites. Hence, it is a plausible candidate to fit regressions such as the ones presented in the next section of this Literature Review.

2.5 Empirical studies

Chen et al (1986) found a gap between theoretical studies that suggest the presence of underlying exogenous influences on the stock market and the identification of which economic variables, if any, were responsible for such impact. Therefore, they aimed to model equity returns as functions of macro variables and nonequity asset returns. To do so, the researchers used a set of derived series that intended to measure the impact of Industrial Production, Inflation, Risk Premia, Term Structure, Market Indices, Consumption and Oil Prices on Stock Prices. The study was focused on the United States market and concluded that mainly the spread between long and short interest rates, expected and unexpected inflation, industrial production, and the spread between high- and low-grade bonds were found to be significant in explaining Stock Prices. Also, market indices, exposure to innovations in real per capita consumption and oil price changes seem to have no significant effect.

Motivated by the gap found by Chen et al (1986), Flannery and Protopapadakis (2002) used what they considered at the time to be the most extensive announcement dataset ever evaluated in this literature. The researchers also focused on the United States market and used data on 17 macro announcement series from 1980 to 1996. As a result, they identified three nominal variables – Consumer Price Index (CPI), Producer Price Index (PPI) and Monetary Aggregate – and three real variables – Balance of Trade, Employment Report and Housing Starts – as strong candidates for priced factors. The money supply was the only variable to affect both the level and volatility of equity returns. CPI and PPI affected only the level of returns while the real variables affected only their conditional volatility. Surprisingly, Industrial Production and Gross National Product (GNP) did not appear among the risk factors (Flannery & Protopapadakis, 2002).

A recent article by Dodig (2020) provides critical insight into the relationship between macro-economic variables and stock indices returns, in the short and long run, in five economies in Southeast Europe: Bosnia and Herzegovina, Croatia, North Macedonia, Serbia, and Slovenia. These countries present very little activity in their capital markets, limiting the study with short series of data – 31 December 2005 to 31 December 2016 - and with the inability to control all the external influence factors (Dodig, 2020). Therefore, the article might serve as

a good example of the limitations of measuring elite quality impact on some of the least capital active countries in the EQx. Dodig (2020), uses as selected macro-economic indicators: Gross Domestic Product per capita (GDPPC) in euros, Inflation (HICP) in nominal value, the levels of Industrial Production Indexes (IPI), the local currency Exchange Rate (FX) with the United States dollar (US\$) in nominal value, the Money Market Interest Rate (MMIR) in nominal value, and the Balance of Payments Net Financial Account (BOPNFA) in euros. The results demonstrate that there is no estimated impact of the statistically significant short-run individual macroeconomic indicators on the relationship with Stock Exchange Indices (SMI). In the long run, there is an associating negative impact on the value of SMI from an increase in the MMIR and HICP. However, there is no sign of an existing long-run relationship with the FX and IPI indicators. This might derive from the lesser relevance of the U.S dollar on the economies of these countries, the prevalence of U.S dollar sensitive investors or the representative importance of the industrial production sector on the overall capital markets and economies (Dodig, 2020).

The five countries analysed may benefit from bringing their capital markets legislation closer to those of developed economies and by improving corporate governance and transparency, leading to higher investors trust and liquidity (Dodig, 2020). Characteristics that fall in line with convergence to elites of higher quality.

Focusing on the impact of macroeconomic variables on the stock performance of a developing economy, Pal and Mittal (2011) studied the long-run relationship between the Indian capital markets - S&P CNX Nifty and BSE Sensex - and key macroeconomic variables such as Interest Rates, Inflation Rate, Exchange Rates and Gross Domestic Savings (GDS) of Indian economy. Their results concluded that Inflation has a significant impact on both indices. Interest Rates have a significant impact on the S&P CNX Nifty, and the Foreign Exchange Rate has a significant impact on the BSE Sensex only. GDS does not have a significant impact on Indian capital markets even though it is rising (Pal & Mittal, 2011).

Consequently, Pal and Mittal (2011) consider that the Government of India should concentrate on promoting equity shares as leading financial instruments since this would increase liquidity conditions of the Indian markets, making them more predictable. This measurement would be in line with the behaviour presented in a country with High Quality Elites.

A study by Kyereboah-Coleman and Agyire-Tettey (2008), focuses on the impact of macroeconomic variables on the stock market performance of a small country, Ghana. The dependent variable is the GSE all-share-index (GSI). As independent variables, besides the ones already seen in other studies – Inflation (Inf), Exchange Rate (Exr), Lending rate (Ldr), and Treasury Bill rate (Tbr) – the researchers use a dummy to take care of the structural effect of the listing of Ashanti Goldfields Company (AGC) on the market. AGC is by far the largest company listed on the market and hence it has an expected influence on fundamental market attributes such as liquidity, volatility and turnover (Kyereboah-Coleman & Agyire-Tettey, 2008). Such technique might be useful to use in other small countries with a prominent big company accounting for a large share of the index size. The results of the study show that the Tbr had a positive but statistically weak effect on GSI's performance. All the other variables had a statistically significant effect on the performance of the exchange, with special notice for the fact that investors were benefited from exchange rate losses when the cedi depreciated (Kyereboah-Coleman & Agyire-Tettey, 2008).

Maysami, Howe and Rahmat (2005) developed a study for the Singapore market that focused not only on the overall market index but also on three stock market's sector indices: finance, property, and hotel. The variables used were in accordance with previous analysed studies: Interest Rate, Inflation, Exchange Rate, Industrial Production, and Money Supply. The results showed that both the Singapore stock market and the SES All-S Equities Property Index formed significant relationships with all macroeconomic variables identified, while the SES All-S Equities Finance Index and SES All-S Equities Hotel Index form significant relationships only with selected variables (Maysami, Howe, & Rahmat, 2005).

Mukherjee and Naka (1995) followed a different methodological approach and decided to employ Johansen's (1991) vector error correction model (VECM) to examine if exchange rate (EX), inflation (CPI), money supply (M), real economic activity (IP), long-term government bond rate (LGB), and call money rate (CMR) and the Tokyo Stock Exchange (TSE) index are cointegrated. They found that the VECM exhibits superior forecasting ability to the vector autoregressive model (VAR) and that the findings are robust to the selection of macroeconomic variables and subperiods (Mukherjee & Naka, 1995).

Table 2. Review of Empirical Studies

Authors	Main Goals	Sample	Results
Chen, Roll and Ross (1986)	First ones to model equity returns as functions of macro variables and nonequity asset returns.	United States	The variables that had a significant impact on stock returns were Industrial Production, Inflation, Risk Premia, Term Structure
Mukherjee and Naka (1995)	Studied the effects of macroeconomic variables on the Tokyo Stock Exchange (TSE) index.	Japan	The variables that had a significant impact on stock returns were Exchange Rate, Inflation, Money Supply, Real Economic Activity, Long-term Government Bond Rate, Call Money Rate.
Flannery and Protopapadakis (2002)	Used what they considered at the time to be the most extensive announcement dataset ever evaluated in this literature.	United States	The variables that had a significant impact on stock returns were Consumer Price Index, Producer Price Index, Monetary Aggregate, Balance of Trade, Employment Report and Housing Starts.
Maysami, Howe and Rahmat (2005)	Studied the effects of macroeconomic variables on the Singapore market.	Singapore	The variables that had a significant impact on stock returns were: Interest Rate, Inflation, Exchange Rate, Industrial Production, and Money Supply.

Authors	Main Goals	Sample	Results
Kyerboah-Coleman and Agyire-Tettey (2008)	Studied the effects of macroeconomic variables on a small economy like Ghana.	Ghana	The variables that had a significant impact on stock returns were Inflation, Exchange Rate, Lending Rate and a dummy to take care of the structural effect of the listing of Ashanti Goldfields Company (AGC) on the market, the biggest company on the exchange by far.
Pal and Mittal (2011)	Studied the effects of macroeconomic variables on the Indian Capital Markets	India	The variables that had a significant impact on stock returns were Inflation, Interest Rates and Exchange Rate.
Dodig (2020)	Studied the effects of macroeconomic variables in five economies in Southeast Europe.	Bosnia and Herzegovina, Croatia, North Macedonia, Serbia, and Slovenia	The variables that had a significant impact on stock returns were Inflation and the Money Market Interest Rate.

2.6 Covid-19 and Financial Markets

In December of 2019 a novel coronavirus, structurally related to the virus that causes severe acute respiratory syndrome (SARS), was recognized, posing critical challenges for the public health, research, and medical communities (Fauci, Lane, & Redfield, 2020). The virus epicentred in the Hubei Province of China and has since spread to almost every country in the world (Velavan & Meyer, 2020). On 11 March 2020, the World Health Organization (WHO) officially declared the coronavirus (COVID-19) outbreak to be a global pandemic (WHO, 2020). As of 3 January 2021, the cumulative number of COVID-19 cases is over 83 million and there are already over 1.8 million deaths due to the disease (WHO, 2021).

The surge of Covid-19 came as an unprecedented event and led to governments across the world implementing emergency actions such as social distancing measures, public awareness programs, testing, quarantine policies and income support packages (Ashraf, 2020). These restrictive measures lead to significant impacts by limiting economic activities and by arising mass unemployment and business failures. Some industries, such as tourism and aviation, will certainly face turbulent times (Zhang, Hu, & Ji, 2020). Consequently, the spread of the virus had large impacts on financial markets all over the world, causing dramatic movements that led to significant losses in a very short period (Zhang et al., 2020). No previous infectious disease outbreak, including the Spanish Flu, has affected the stock market as forcefully as the COVID-19 pandemic (Baker et al., 2020). For example, the sequence of panic selling that occurred on March 9, 12, 16 and 23 of 2020 led to a cumulative 26% drop in the Dow Jones Industrial Average (Mazur, Dang, & Vega, 2020).

A study from Ashraf (2020) used data from January 22 to April 17, 2020, from 77 countries and found that announcements of government social distancing measures have a direct negative effect on stock market returns due to their impact on economic activity, while an indirect positive effect through the future reduction of Covid-19 confirmed cases. Also, government announcements regarding public awareness programs, testing and quarantining policies, and income support packages largely result in positive market returns (Ashraf, 2020). In another study, Albulescu (2020) found that both new infection cases and the fatality ratio recorded at a global level positively influenced the US financial markets' volatility (Albulescu,

2020). These volatility levels seen in the middle of March 2020 rival or surpass previous financial crises, such as the one in December of 2008 (Baker et al., 2020).

The ongoing COVID-19 crisis is informing investors, policymakers and the public at large that natural disasters of this order can inflict economic damage on a previously unprecedented scale (Goodell, 2020).

3. Research Hypothesis

This chapter is aimed at introducing the research hypothesis that will be empirically tested throughout this study. This dissertation is designed to provide empirical evidence on the impact of elite quality on market performance. Empirical evidence on this field is non-existent. The quantification of a countries' elite quality was impossible until 2020, when Casas i Klett, Cozzi, Diebold, and Zeller (2020) developed the EQx. Hence, this study aims to grab the opportunity to develop a framework, that will serve as a basis, for future researchers to use the EQx ranking as a macroeconomic indicator in studies that test the impact of such forces on market performance.

Also, the current health environment provided this study with the opportunity to analyze how elites cope with pandemic situations, such as the one we are currently living in, and how this affects the market performance of the respective countries.

Therefore, the hypotheses that will be tested throughout this study are formulated as follows:

Hypothesis 1 (H1): Countries with higher scores of elites' quality had a better market performance during the Covid-19 pandemic.

Hypothesis 2 (H2): Countries with elites of higher quality had a better market performance during the period between 2005-2020.

The literature on elites is long lasting and very rich. It is long known that commanding large groups have high costs and that narrow distributional elite coalitions will inevitably emerge in every society. Elites will therefore provide social networks, vaccines, green energy and every solution to society that requires a high coordination capacity (Casas & Cozzi, 2021).

Consequently, elites will be behind the frameworks that propel financial markets, either on the government side, adjusting interest rates or creating new laws, or on the private side, creating new innovative technologies and jobs. High quality elites will make good decisions in these fields and create value not only for themselves but also for the community in which they live. This value created by quality elites will eventually lead to better economic results for their companies. We argue that such value will eventually be reflected in the market

performance of these countries. Hence, countries with high quality elites should have better stock market performances than countries with low quality elites.

A regression analysis is furtherly implemented to understand and measure the impact of elite quality and other macroeconomic variables on market performance. The complete procedure is detailed in the Methodology section.

4. Methodology

Due to the completeness and theoretical importance to the basis of this research, the study performed by Chen et al (1986) regarding the impact of macroeconomic variables in stock returns will be used as a reference throughout this chapter. Also, the empirical studies mentioned in chapter 2.5, whose methodological techniques were used as a tool to improve the first study mentioned or as a tool to apply it to other economies, will be used as a resource to adapt this study to the countries in the Elite Quality Index. Therefore, a first regression analysis is implemented. In its most complete form, the regression looks like the following:

$$\begin{aligned} \text{Market Return} = & \alpha_i + \beta_1(\text{EQx Score})_i + \beta_2(\text{Inflation})_i \\ & + \beta_3(\text{Real Exchange Rate})_i + \beta_4(\text{Monetary Base Growth})_i \\ & + \beta_5(\text{Lending Interest Rate})_i + e_i \end{aligned} \quad (4.1)$$

Since some variables had more observations than others, we performed four different regressions with different combinations of variables being used, to include more countries in the regression. These combinations will be explicit further ahead in the Results section of this dissertation. The EQx score, inflation (CPI) and the real exchange rate were the only variables that were present in every regression.

Also, it was decided to include a second study, with data from 2005 to 2020 and a dummy that distinguished countries with high quality elites from the rest, to enrich our study. The dummy was created having as inspiration the definitions for high quality elites present in the EQx2021 and it was assumed that this criterion was constant from 2005 to 2020:

$$\begin{aligned} \text{Market Return} = & \alpha_i + \beta_1(\text{Dummy EQx Score})_i + \beta_2(\text{Inflation})_i \\ & + \beta_3(\text{Real Exchange Rate})_i + \beta_4(\text{Monetary Base Growth})_i \\ & + \beta_5(\text{Lending Interest Rate})_i + e_i \end{aligned} \quad (4.2)$$

Regression 4.1 was estimated using fixed effects on our panel data model while regression 4.2 was estimated using pooled OLS. Both regressions presented above were estimated using the EViews software package.

4.1 Variables

The following section of this study will focus on introducing the relevant macroeconomic variables to be included in the regression and explain their measurement.

Dependent Variable:

(i) *Stock Market Indexes*

Following Dodig (2020), the dependent variable of our study will be the stock market indexes¹ yearly return of the analyzed countries. These will serve to represent a country's market performance since they are composites of a respective country's biggest public companies by market capitalization. The theory behind this premise is that a country with quality elites will provide better frameworks for the growth of its companies and this will be reflected in their stock price performance. Also, regarding the other macroeconomic indicators, stable inflation, stable exchange rates and stable interest rates usually provide better conditions for market performance and should be included as independent variables.

Independent Variables:

(i) *EQx score*

As explained before, the EQx score is a political economy index that measures the overall Elite Quality of nations in terms of the ability of elite business models to create value, rather than rent seeking, as evidenced by aggregated datasets (Casas & Cozzi, 2021). The score itself is a normalized value, transformed in a way that a value close to 100 represents a high level

¹ Argentina – Merval; Australia - S&P/ASX 200; Botswana - BSE DCI; Brazil - BVSP; Canada - S&P/TSX Composite Index; China - Shanghai Composite Index; Egypt - EGX 30; France - CAC 40; Germany – DAX; India - Nifty 50; Indonesia - IDX Composite; Israel - TA 100; Italy - FTSE MIB; Japan - Nikkei 225; Kazakhstan – KASE; Korea – KOSPI; Mexico – IPC; Nigeria - NSE All Share Index; Norway – OBX; Pakistan - KSE 100; Poland - WIG 20; Portugal - PSI 20; Russian Federation – RTSI; Saudi Arabia – TASI; Singapore – STI; South Africa – JTOPI; Spain - IBEX 35; Sweden - OMX S30; Switzerland – SMI; Turkey – BIST; United Kingdom - FTSE 100; United States - S&P500

of elite quality, while a value close to 0 represents a low level of elite quality. After the weighting of different pillars, Index areas and Sub-Indexes, the EQx develops a score for each country's elites, from 0 to 100. According to the new EQx report for 2021, elites with a score above or equal to 57.8 were considered to be of high quality, corresponding to the 25 countries with the highest scores (Casas & Cozzi, 2021).

We used the scores from 0 to 100 available for the two years in regression 4.1 and we used the criteria mentioned above that defines elites of high quality – a score above or equal to 57.8 – to create a dummy distinguishing high quality elites from the remaining, in regression 4.2. It is important to denote that the dummy was constant throughout all the years analyzed, having as base the criteria used in the EQx2021.

(ii) *Inflation (CPI)*

High rates of inflation tend to increase the cost of living and shift resources from stock market instruments to consumables. This leads to a reduction in the demand for market instruments which tends to reduce the volume of trading and thus the value of traded stocks with no price increase. Market capital may therefore fall as the demand for shares falls due to the substitution process. Inflation, therefore, is expected to have a negative impact on the market index and the performance of the exchange (Kyereboah-Coleman & Agyire-Tettey, 2008). To measure inflation, this study used the Consumer Price Index, with 2010 as the base year, obtained from the IMF database. Stock prices commonly respond negatively to the actual unexpected inflation rate (Dodig, 2020). Furthermore, all the reviewed empirical studies found a relation between stock market returns and inflation.

(iii) *Real Exchange rate*

To measure the impact of the exchange rate on market performance, we used the Real Effective Exchange Rate based on Consumer Price Index. Nominal effective exchange rate indices are calculated by comparing, for each country, the change in its own exchange rate against the US dollar to a weighted average of changes in its competitors' exchange rates,

also against the US dollar. Changes in the competitor exchange rates are weighted using a matrix measuring the importance of bilateral trade flows in the current year.

The variable should be interpreted as a rise in the index representing a deterioration in that country's competitiveness (OECD, 2012). Consequently, it is expected that a rise in this variable should lead to a worse stock market performance.

Developed economies are highly dependent on their relations with other countries since bilateral trades promote economic growth. Hence, it is expected that the real exchange rate will impact considerably the market performance of a given country's market performance.

(iv) *Monetary Base Growth*

Following the studies by Mukherjee and Naka (1995), Flannery and Protopadakis (2002), and Mysami *et al* (2005); we use money supply as an independent macroeconomic variable. To measure it, we used the monetary base growth obtained from the Central Bank Survey. Even though this measurement of the money supply is not often used in the literature, since it excludes other forms of money that are, nowadays, prevalent in our economy, this variable was used for the simple fact that it had more data available than other forms of money supply and, as mentioned before, data was extremely limited for 2019-2020.

The indicator is represented by the percentage change of monetary base correspondent to the same period in the previous year. So, a 10% value for 2019 indicates that from the end of 2018 to the end of 2019, the monetary base of a given country increased by 10%. Usually, an increase in money supply leads to an increase in stock market performance.

This variable has become more relevant since the beginning of the COVID-19 pandemic with several central banks all over the world increasing their monetary bases by over 100% to cope with the financial constraints of a stagnated economy. For example, Canada did not have a monetary base increase higher than 8.3% from 2005 to 2019, however, in 2020 their monetary base growth was 384.86%.

(v) *Lending Interest Rate*

Following most of the studies reviewed in the Empirical Studies section of our Literature Review, we use the interest rate as a macroeconomic variable that influences stock market returns. More specifically, we use the lending interest rate as Kyereboah-Coleman & Agyire-Tettey (2008) instead of the treasury bill rate. Once again, unfortunately, this was due to data limitations for 2019-2020.

High lending interest rates usually discourage companies to finance projects through loans. Instead, this motivates them to resort to equity financing and consequently leads to an increase in stock market listings. Therefore, the expected relationship between lending rates and stock prices is positive (Kyereboah-Coleman & Agyire-Tettey, 2008).

Table 3 presents a review of the variables used in our models.

Table 3. Review of the variables used

Variable	Description	Source
Stock Market Indexes	Yearly returns of the stock market indexes of our analysed countries.	Thomson Reuters Eikon
EQx Score	Index that measures the overall Elite Quality of nations	EQx Report 2020 and 2021
Inflation	Consumer Price Index, with 2010 as the base year, obtained from the IMF database.	IMF
Real Exchange Rate	Real Effective Exchange Rate based on the Consumer Price Index.	IMF
Monetary Base Growth	Percentage change of monetary base correspondent to the same period in the previous year.	IMF
Lending Interest Rate	Bank rate that usually meets the short- and medium-term financing needs of the private sector.	World Bank

4.2 Data and Sample

Being the EQx such a recent study, this dissertation suffers the limitation of possessing the EQx scores for only two years, 2019 and 2020. Therefore, the first model covers two years, from the 1st of January 2019 to the 31st of December 2020.

The Elite Quality Index 2020 is composed of the following 32 countries: Argentina, Australia, Botswana, Brazil, Canada, China, Egypt, France, Germany, India, Indonesia, Israel, Italy, Japan, Kazakhstan, Korea, Mexico, Nigeria, Norway, Pakistan, Poland, Portugal, Russian Federation, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

To avoid unnecessary complications, we use a balanced panel, hence, all entities have measurements in all periods. However, due to data limitations, mainly for the year 2020, some of the explanatory variables were not available for all countries. Therefore, the following countries were not analysed at all since they did not possess data for the two macroeconomic variables that were most represented, inflation and real exchange rate: Argentina, Botswana, Egypt, India, Indonesia, Kazakhstan, Korea, Nigeria and Turkey.

As a result, the first base model is comprised of between 23 to 7 countries, depending on the combinations of variables used in the regressions. Similarly, the second base model suffered the same data limitations for the year 2020. Hence, it is comprised of between 23 to 6 countries, also depending on the combinations of variables used. However, it has the advantage of having much more observations due to more years being analysed. It was expected that the increase in the data sample would provide more statistically significant results.

EQx scores were retrieved from the Elite Quality Index Reports. All macroeconomic data was retrieved from the WorldBank Development Indicators and the IMF database. Stock indexes prices were retrieved from the *Thomson Reuters Eikon* database and market yearly returns were calculated using the following equation:

$$\text{Market Return} = \frac{\text{Closing Price Year}_i - \text{Closing Price Year}_{i-1}}{\text{Closing Price Year}_{i-1}} \quad (4.3)$$

The next section is a review of the descriptive statistics for both our models, with the intention to show how atypical data for these last two years was when compared to the larger period between 2005-2020.

4.3 Analysis of the Descriptive Statistics

This section will focus on analysing the samples used in both our models. It is important to denote that our variables are represented with all available observations, even though, in some cases, they were not represented in the regression due to lack of compatibility with other variables.

Table 4 presents the descriptive statistics for the variables of our first model.

Table 4 - Summary of Descriptive Statistics for Model 1

	Variable	Mean	Median	Max.	Min.	Std. Dev.	Obs
Dependent Variable	Market Return	9.1889%	8.0800%	44.9300%	-15.4500%	13.7197%	46
	EQx Score	57.2261	58.3000	68.5000	38.0000	7.5729	46
Explanatory Variables	CPI	126.2297	117.4193	200.0790	98.8243	25.4362	46
	Real ER	93.5193	94.8208	123.9194	55.2733	14.5920	46
	Mon Base Growth	32.2852	7.9152	384.8622	-6.1861	79.5482	28
	Lending IR	7.7533	5.2500	37.4750	2.3283	8.2497	24

These statistics represent data for six different variables across 23 countries, with the exception of the monetary base growth and the lending interest rate, which only had data representative of 14 and 12 countries, respectively.

Table 5 in the next page presents the correlation matrix between the independent variables used in Model 1.

Table 5. Correlation matrix for Model 1

Variable	EQx Score	CPI	Mon Base Growth	Real ER	Lending IR
EQx Score	1	-0.8014	0.2287	0.3306	-0.5675
CPI	-0.8014	1	-0.1976	-0.3837	0.5779
Mon Base Growth	0.2287	-0.1976	1	-0.0363	-0.1687
Real ER	0.3306	-0.3837	-0.0363	1	-0.5828
Lending IR	-0.5675	0.5779	-0.1687	-0.5828	1

It is hard to draw conclusions from both this matrix and the one that will be presented next for model 2 since the evolution of these variables and their impact on one another is not simple. What is meant, is that the fact that a variable is growing a lot is not necessarily good/bad for the economy. For example, low positive stable inflation is good for the economy, however, high inflation is not. Nonetheless, some correlations due make sense, including growing inflation and lending interest rates having a negative impact on elite quality. Unfortunately, despite that, not much can be concluded from this matrix.

Table 6 on the next page presents the descriptive statistics for the variables of our second model.

Table 6 - Summary of Descriptive Statistics for Model 2

	Variable	Mean	Median	Max.	Min.	Std. Dev.	Obs
Dependent Variable	Market Return	7.8852%	7.2650%	130.4300%	-72.4127%	25.9415%	368
	EQx Dummy	0.5217	1.0000	1.0000	0.0000	0.5002	368
Explanatory Variables	CPI	107.1192	105.2373	200.0790	55.7785	18.8301	368
	Real ER	97.5743	98.7916	129.9689	55.3079	10.7845	368
	Mon Base Growth	14.2665	8.0241	384.8622	-60.7762	35.3298	259
	Lending IR	8.3656	5.3220	55.3833	0.5000	10.0476	226

These statistics also represent data for six different variables across 23 countries. In this scenario, some variables had gaps in observations. When a country did not have data for all years, it was removed from the regression. Nonetheless, the descriptive statistics have observations for such countries, in order to enrich the sample characterization.

Even though the last two years were marked by restrictive measures that lead to significant impacts in the markets, by limiting economic activities and by arising mass unemployment and business failures (Zhang et al., 2020), the average and median market returns stayed positive and near the 10% mark. Of course, inevitably, some countries had large negative market returns with the IBEX 30 presenting the lowest return: -15.45% in 2020. In fact, when compared to the second sample, we denoted that the average and median market returns were higher in the last two years than they were in the last sixteen. Notwithstanding, the amplitude of returns was obviously higher in the largest sample.

The EQx score was a relatively stable indicator in his first two years and did not present considerable variations between the two years studied², comprising values between 38 and

² It is necessary to consider that the EQx 2020 represents data for 2019 and the EQx 2021 for 2020.

68.5. Also, the dummy used in the second study had a mean close to 0.5, meaning that our sample of countries is approximately equally divided between countries with high quality elites and countries with elites of lower quality.

Since inflation here is measured by the Consumer Price Index, it is irrelevant to say that the first sample had a higher average and median than the second one, taking into consideration that our base year is 2010.

Additionally, the monetary base growth has been at a peak for the past year, considering that governments from all over the world are increasing money printing to avoid economic complications derived from the Covid-19 crisis. It is expected that sooner or later this will be reflected in higher levels of inflation. Hence, the Consumer Price Index should present higher variations in the upcoming years.

The real exchange rate has more information when its evolution per country is analysed since the main conclusion is that growth in its value represents a deterioration of a countries competitiveness. Therefore, there is not much that can be commented on the statistics represented above.

To conclude, the lending interest rates were lower these past couple of years than they were for the second sample. This is expected to have a negative effect on stock market performance, for the reasons mentioned earlier on this dissertation.

Table 7 presents the correlation matrix between the independent variables used in Model 2.

Table 7. Correlation Matrix for Model 2

Variable	EQx Dummy	CPI	Real ER	Mon Base Growth	Lending IR
EQx Dummy	1	-0.2000	0.0560	0.0204	-0.4515
CPI	-0.2000	1	-0.2319	-0.0206	0.1534
Real ER	0.0560	-0.2319	1	-0.0454	-0.3478
Mon Base Growth	0.0204	-0.0206	-0.0454	1	-0.0254
Lending IR	-0.4515	0.1534	-0.3478	-0.0254	1

The correlations between variables presented in the previous table are very similar to the ones concluded in the previous model. They are, however, lower in magnitude, probably because of the more extensive dataset used in model 2, that shows less dependence of the variables on one another. As said before, few conclusions can be retrieved from this matrix except for the ones already made on model 1.

5. Results and Discussion

The following chapter includes the results from the empirical application of the tests presented in the previous section, as well as the respective analysis. Two sequential sections are presented, where the first tests the model that included the EQx score as an independent variable and the latter studies the model that includes a dummy distinguishing countries with elites of high quality from the remaining.

5.1 Model with EQx Score

We start our empirical analysis by estimating the first model, from equation 4.1, through four different regressions, that vary according to the macroeconomic variables present.

According to Greene (2012), the Fixed Effects Model has the shortcoming of costing degrees of freedom due to the dummy variable approach, but, on the other hand, has the advantage of treating the individual effects as being correlated with the remaining regressors. Fixed effects are always consistent but, if random effects do not suffer from inconsistency, they have the advantage of not costing degrees of freedom. Hence, we apply the Hausman Test as it allows us to test for the consistency of random effects in the model. Under the null hypothesis of no correlation, OLS, LSDV, and FGLS estimators are consistent (but OLS estimators are inefficient) while, under the alternative, LSDV estimators are consistent, but FGLS ones are not (Greene, 2012). Therefore, if the null hypothesis is rejected, fixed effects should be used and, if not, random effects are appropriate. For regressions I-IV the null hypothesis was rejected, and the Fixed Effects Model was used.

Table 8 on the next page represents the results for our first model using fixed effects.

Table 8 – Elite Quality impact on Country Market Index Performance (2019-2020)

Independent Variables	I	II	III	IV
Intercept	4.9498* (0.0807)	3.6103 (0.3735)	0.9600 (0.8547)	-4.5722 (0.7421)
EQx_Score	-0.0374** (0.0438)	-0.0274 (0.2987)	-0.0133 (0.7233)	0.0260 (0.7991)
CPI	-0.0222* (0.0563)	-0.0124 (0.4562)	-0.0108 (0.5161)	0.0020 (0.9604)
Real_ER	0.0009 (0.9377)	-0.0059 (0.7984)	0.0158 (0.3412)	0.0381 (0.5175)
Mon_Base_Growth			-0.005 (0.3509)	-0.0042 (0.5821)
Lending_IR		0.0349 (0.5192)		-0.0259 (0.8028)
R-Squared	0.5267	0.5227	0.6925	0.6995
Adjusted R-squared	-0.0648	-0.3721	0.1161	-0.9530
F-statistic	0.8904	0.5841	1.2013	0.4233
Prob (F-statistic)	0.6129	0.8241	0.4117	0.8599
Observations	46	24	24	14
Cross-sections Included	23	12	12	7
Period Included	2	2	2	2

Note: Significance level at 0.01 (***), 0.05 (**) and 0.1 (*).

This table presents the estimation output of the first model (equation 4.1). All regressions have the EQx Score as a dependent variable. Macroeconomic variables vary through each column.

The results for the first model are, as previously mentioned, not very informative nor reliable. This is mainly due to a lack of data for the Elite Quality Index, which limited the study for the relationship between market performance and the evolution of the EQx Score, to only two years and 23-7 countries.

Inflation generates lower stock market returns (all else constant), as predicted by Chen et al (1986) and the remaining empirical studies. The results for regression I proved this with a

negative coefficient, statistically significant at the 10% level. However, the other three regressions did not prove to have any statistical significance for the impact of inflation.

The other three macroeconomic variables included - real exchange rate, monetary base growth and lending interest rate – did not present any statistically significant results for any of the regression in which they integrate.

The coefficient of the EQx Score is statistically insignificant for all four regressions except for the first, which is the one with more countries included – 23. In this scenario, the coefficient was negative, statistically significant at the 5% level, suggesting that during the period for 2019-2020, countries with higher scores of Elite Quality had a worse market performance than countries with lower EQx scores. This scenario proved the opposite of our hypothesis.

Once again, it is important to refer the impact of data restriction in these results. From now on, the Elite Quality Index will be available for 150 countries and in some years, it will provide researchers with an extensive dataset. These reasons should motivate researchers to study further ahead, the relationship between the EQx score and stock market performance, in the hope that a larger amount of data provides significant results.

However, not satisfied with the lack of data and validity of the studied regressions, we decided that a more extensive study might lead to better conclusions for the relation between the quality of elites and market performance. Also, it provides the scientific community with some fresh proof of the relationship between stock market indexes and the macroeconomic variables studied. None of the studies analyzed in our empirical studies section was as broad in the number of countries included, nor it was as recent in terms of years included.

Therefore, it was expected that the second model (equation 4.2), could contribute positively to this dissertation and the scientific community.

5.2 Model with EQx Dummy

Firstly, we considered of importance to explain how we created our dummy and distinguished countries with high quality elites from the remaining. Our approach was based on the Elite Quality Index 2021, where Casas and Cozzi (2021) construct a list, labelling countries according to their EQx Scores. It is important to denote that the authors defined the labelling on the column “Elite Quality” on the EQx2021 report.

Table 9 provides the classification for the 32 countries on the Elite Quality Index 2020 - our sample.

Table 9 – Classification of Countries by Level of Elite Quality

Country	Elite Quality	EQx Score 2021	Dummy Value
Argentina	Middle Quality Elite	43.20	0.00
Australia	Very High Quality Elite	63.50	1.00
Botswana	Quality Elite	50.20	0.00
Brazil	Middle Quality Elite	46.10	0.00
Canada	High Quality Elite	63.20	1.00
China	Quality Elite	57.60	0.00
Egypt	Middle Quality Elite	42.30	0.00
France	High Quality Elite	58.30	1.00
Germany	High Quality Elite	62.40	1.00
India	Middle Quality Elite	42.90	0.00
Indonesia	Quality Elite	52.70	0.00
Israel	Very High Quality Elite	63.60	1.00
Italy	Quality Elite	54.30	0.00
Japan	High Quality Elite	61.80	1.00
Kazakhstan	Quality Elite	52.20	0.00

Korea	High Quality Elite	62.30	1.00
Mexico	Quality Elite	50.30	0.00
Nigeria	Middle Quality Elite	43.80	0.00
Norway	Very High Quality Elite	63.50	1.00
Pakistan	Lagging Elite	38.00	0.00
Poland	Quality Elite	55.20	0.00
Portugal	Quality Elite	57.30	0.00
Russia	Quality Elite	48.90	0.00
Saudia Arabia	Quality Elite	49.00	0.00
Singapore	Very High Quality Elite	68.10	1.00
South Africa	Middle Quality Elite	44.90	0.00
Spain	Quality Elite	57.30	0.00
Sweden	Very High Quality Elite	63.70	1.00
Switzerland	Very High Quality Elite	67.60	1.00
Turkey	Middle Quality Elite	46.00	0.00
United Kingdom	Very High Quality Elite	64.70	1.00
United States	Very High Quality Elite	64.10	1.00

Based on the above table, our dummy has a value of 1 for the countries that are classified as High Quality Elites or Very High Quality Elites and a value of 0 for the remaining. It is important to denote that, although these are only 13 out of the 32 countries, there is a positive correlation between available data and the quality of elites. Hence, all of the 13 countries with High Quality Elites or higher have a considerable amount of data to be analyzed and are all represented considerably in our regressions.

Table 10 on the next page represents the results for our second model, based on equation 4.2.

Table 10 – Do countries with high quality elites have had a higher Country Market Index Performance? (2005-2020)

Independent Variables	V	VI	VII	VIII
Intercept	0.6071*** (0.0003)	0.6254*** (0.0015)	0.6057** (0.0348)	0.6745* (0.0734)
Dummy_EQx_Score	-0.0279 (0.3074)	-0.0602 (0.1056)	-0.0429 (0.5180)	-0.0728 (0.3460)
CPI	-0.0021*** (0.0048)	-0.0020** (0.0152)	-0.0022** (0.0310)	-0.0021* (0.0642)
Real_ER	-0.0029** (0.0218)	-0.0028* (0.0764)	-0.0026 (0.2594)	-0.0030 (0.3295)
Mon_Base_Growth		-0.0007* (0.0974)		0.0002 (0.9108)
Lending_IR			0.0010 (0.7084)	-0.0003 (0.9196)
R-Squared	0.0302	0.0551	0.0454	0.0563
Adjusted R-squared	0.0222	0.0364	0.0179	0.0039
F-statistic	3.7739	2.9534	1.6513	1.0748
Prob (F-statistic)	0.0109	0.0211	0.1648	0.3797
Observations	368	208	144	96
Cross-sections Included	23	13	9	6
Period Included	16	16	16	16

Note: Significance level at 0.01 (***), 0.05 (**) and 0.1 (*).

To search for more conclusive results regarding the impact of elite quality on market performance, we decided to extend our regressions to the period 2005-2020 and include a dummy separating countries with high quality elites from the remaining.

Results for inflation were as expected and conclusive. The coefficient is negative and statistically significant at the 1% level (V), 5% level (VI, VII) and the 10% level (VIII) indicating a negative relationship between inflation and market returns. These results fall in

order with what was found by Chen, Roll and Ross (1986), Dodig (2020), Flannery & Protopapadakis (2002), Pal & Mittal (2011) and many others.

Concerning the real exchange rate, results presented statistical significance for regressions V and VI, at the 5% and 10% levels, respectively. The signal was, as expected, negative since a higher exchange rate represents a deterioration of a countries' competitiveness. However, there were no statistically significant results for this variable in regressions VII and VIII.

Monetary base growth has a statistically significant result for regression VI at the 10% level, presenting a negative coefficient. It was expected that the relation between this variable and the market indexes returns would be positive. Nonetheless, the results show that the coefficient is close to 0, suggesting that the impact of the Monetary Base Growth on market performance might be close to none. Perhaps more illiquid forms of money might be more impactful on market returns.

The lending interest rate had no statistically significant results for any of the regressions. This variable suffered from not having data for more than 9 countries, limiting the cross-sections studied and possibly impacting the significance of the results.

Lastly, the most relevant results were the ones for the EQx dummy. Unfortunately, this second study not only did not present statistical significance for this variable but also did not even present the expected behavior/sign, showing, that there are no conclusions that can be retrieved from the impact of elite quality on country market indexes performance. The theory behind the premise that elites of higher quality should have a better market performance is, therefore, not corroborated by the empirical results. Notwithstanding, the EQx is a recent study and further ahead it will provide researchers with more data, allowing for more complete studies and possibly stronger results.

Consequently, neither H1 nor H2 are supported.

6. Conclusions

In the current economic environment, elites are an empirical inevitability, dominating all political economies. They provide the necessary coordination capacity for an economy's resources, whether human, financial or knowledge-based (Casas & Cozzi, 2021). Consequently, the frameworks provided by quality elites are expected to propel the financial markets through stable growth. At least, that is the hypothesis that is defended throughout this dissertation. The gap in the literature was found firstly by Casas and Cozzi (2020) and is now being deepened by several researchers, including us.

In this study, we seek to ascertain the impact of Elite Quality, and, at the same time, the impact of inflation, real exchange rate, monetary base growth, and lending interest rate on market performance, measured by countries' Stock Market Indexes.

Our results for the impact of inflation (negative) and real exchange rate (negative) are statistically significant and in agreement with most of the available literature. Conversely, the effects of monetary base growth, lending interest rate and mainly elite quality are mostly not statistically significant.

Therefore, these results show that this method was not useful to demonstrate the relationship between elite quality and market performance since no significant results were obtained.

We argue that the lack of yearly data for the EQx Score, demonstrating the evolution of a countries' elites, and the absence of other non-macroeconomic factors, like financial constraints and the set of investment opportunities, might be potential explanations for these results. Also, the fact that this study uses yearly data to evaluate market performance has the limitation of "hiding" the high volatility of returns. A country with high quality elites should be able to prevent volatile markets and promote stability in its stock market.

Also, this dissertation provided the academic literature with an update on the impact of macroeconomic variables on market performance. The second model, falling between 2005-2020 showed that inflation and the real exchange rate are still relevant for stock market indexes performances. Moreover, it showed that in order for future researchers to find a relation between elite quality and market performance they should either try the usage of a different methodology or wait until the EQx score is released for more years.

6.1 Main Limitation and Recommendations

Some limitations of the present study are worth mentioning. Firstly, as referred throughout this dissertation, the lack of data was a fundamental issue. Not only because of the lack of yearly data regarding the EQx, but also because of the lack of recent data regarding important macroeconomic factors that would have been optimal to include. Unfortunately, this study had to leave behind as independent variables the treasury-bill rate, the money market interest rate, the Producer Price Index (PPI) and many other important macroeconomic variables that were used in some of our reference studies. All were left behind due to lack of available recent data.

Future research on the impact of elite quality on market performance is highly encouraged. In case researchers do not feel like waiting several years for the development of future Elite Quality Reports, they could instead consider other methodological approaches. It would be interesting to understand whether elite quality affects market volatility or investors reactions to political news.

This field of study is promising and presents several interesting possibilities for future research.

7. Bibliography

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