# Democratization, Inequality, and Risk Premia*

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**Abstract**

Risk premia are significantly elevated during periods of democratization in a cross-country panel of equity data covering 85 countries over 200 years, despite little evidence of a negative effect on either realized or expected GDP and dividends. This result is explained in an asset pricing model in which wealthy asset market participants face higher taxes when democratizations succeed. Finally, using a shift in Catholic church doctrine in support of democracy, majority Catholic autocracies display significantly higher average excess returns relative to other countries in a difference-in-differences framework. These results shed light on how redistribution risk shapes asset prices.

*Keywords*: Risk Premia, Democratization, Inequality, Redistribution, Catholic Church
*JEL codes*: G10, G15, G18, N40, P16

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# 1 Introduction

How much does the risk of increased redistribution matter for asset prices? In the large literature on the determinants of risk premia, this question has gone largely unanswered. This study fills this gap, finding that democratizations are associated with large increases in risk premia both empirically and theoretically. Democratizations provide a unique laboratory to study redistribution risk, since—when successful—they correspond with the large-scale redistribution of political and economic power within a society (Boix, 2003, Acemoglu et al., 2015). Further, examining asset prices provides a different angle through which democratizations can be analyzed, as asset prices provide a unique vantage point to observe how relatively wealthy asset market participants viewed these episodes in real time.

The analysis yields three main results. The first result is that proxies for risk premia are significantly elevated—on the order of 2 to 5 percentage points—during two different indicators for democratizations in a cross-country panel of equity data consisting of 85 countries and spanning more than 200 years, suggesting that these periods are associated with increased systematic risk. The results are not driven solely by an increase in general political risk; other periods where political risk is also elevated, such as autocratizations—transitions from democracy to autocracy—and political crises do not exhibit increases in risk premia of the same magnitude.

In spite of the large increase in measured risk premia, periods of democratization do not have a significant negative impact on GDP or dividend growth. Average GDP growth is actually higher from the start of a democratization up to 5-years after the democratization ends, and there is no visible increase in the volatility of GDP growth or other higher moments in the distribution. This presents a challenge for asset pricing models that rely on increases in the risk to aggregate consumption in order to match increases in risk premia.

The second result reconciles this apparent puzzle, noting that high risk premia during democratizations are explained by an increase in redistribution risk. The model embeds

a game theoretic political economy model in the style of Acemoglu and Robinson (2006) into a heterogeneous agent asset pricing framework, in which the elites are the only financial market participants, have all the political power, and try to avoid redistributing their income to poor citizens who outnumber the elites and can revolt. The cost the citizens bear from starting a revolution, along with the revolutionary threat the elites face, varies over time. To make sure revolution remains off the equilibrium path, the elites institute temporary income redistribution through transfers to the citizens.

However, when the revolutionary threat is great enough, temporary transfers are no longer enough to stop the citizens. The reason is that the elites face a commitment problem: They cannot credibly commit to future transfers in the state of the world where there is little or no revolutionary threat. In this case, only conceding democracy will stay the revolution, as democracy acts as a mechanism for the elites to credibly commit to future redistribution. But, the redistribution that democracy brings is costly, making it a deleterious state for the elites. Since the elites price assets, uncertainty over whether a democratization will succeed—ushering democracy—or fail—keeping society in autocracy—increases the risk to the future consumption of the elites, causing risk premia to rise. In this way, the consolidation of democracy and the redistribution of income and political power it brings, acts as a rare and disastrous outcome for the elites, explaining the increased risk premia observed during democratizations in the data (Rietz, 1988, Barro, 2006, Gabaix, 2012, Wachter, 2013).

Indeed, the large-scale redistribution the model requires to match elevated risk premia during democratizations is observed in the data. Government revenues rise by 3.6% faster than GDP growth annually for 10-years following a successful democratization, but not after a failed democratization. Similarly, the Gini coefficient declines by 10% in the 20-years following a successful democratization, which represents 100% of the unconditional difference in the Gini coefficient between autocracies and democracies. Conversely, the Gini coefficient rises by 5% in the 20-years after a failed democratization. These results are consistent with previous findings by Acemoglu et al. (2015) who find that tax revenues-to-GDP ratios rise

by as much as 20 percentage points on average after democratizations.

While democratizations in the model cause risk premia to increase, the results in the data I've described thus far only show that periods of democratization are associated with higher risk premia. The third result, therefore, provides evidence of a causal relationship between democratizations and elevated risk premia using exogenous movement in the probability that a successful democratization occurs coming from a shift in Catholic church doctrine in favor of democracy during the papacy of John XXIII from 1959 to 1963. This shift particularly impacted majority Catholic, autocratic countries, so much so that the seminal book Huntington (1991) labels the shift as one of five reasons the third wave of democratization of the 1970s, 1980s, and early 1990s occurred. Consistent with this narrative, indices denoting the size and frequency of democratic protests and the threat to the governing regime posed by civil society organizations rose dramatically in majority Catholic autocracies, but remained constant in non-Catholic autocracies. This indicates that the doctrinal shift materially changed political realities on the ground in majority Catholic autocracies.

Using a difference-in-differences approach, this quasi-natural experiment was associated with a 6 to 8 percentage point increase in average excess returns for majority Catholic, autocratic countries, establishing a link between an increase in risk premia and an increase in the probability that a society transitions to democracy. The results display no pre-trends, are robust to alternative specifications and various sample windows.

Taken together, these results provide a new mechanism for why risk premia vary over time: politically motivated redistribution shocks that primarily affect wealthy asset market participants. Spikes in risk premia coming through this channel give insight into the barriers that countries face during the democratization process, particularly true for developing and autocratic societies where economic and political inequalities are far greater. Better understanding these frictions is important for the nearly 45%[1] of countries still living under

[1] In 2018, according to the Varieties of Democracy (V-Dem) database.

autocratic political institutions.

These results are also relevant for the remaining 55% of democratic countries. Over the last four decades, the developed world has experienced a sharp rise in pre-tax income and financial wealth inequality (Auten and Splinter, 2019, Smith et al., 2020). The evidence from democratizations suggests that in curtailing wealth and income inequality through redistribution, countries may face elevated risk in the short run.

**Related Literature** This paper contributes to several strands of the literature in different fields. It advances the political economy and development literature, making two primary contributions. The first is theoretical: By adding asset prices to the seminal model in Acemoglu and Robinson (2006), this paper shows that increases in risk premia are consistent with increases in the redistribution risk faced by autocratic elites during periods of democratization. The implications from asset prices provide another testable set of hypotheses for models that highlight the redistributive nature of democracy (Boix, 2003, Acemoglu and Robinson, 2006).

The second is empirical: By showing that several proxies for risk premia are elevated during periods of democratization, this paper clears a significant hurdle in this literature, namely, the lack of a robust evidence of a reduction in inequality after democratizations despite large increases in the size and scope of the government. As discussed in detail by Acemoglu, Naidu, Restrepo and Robinson (2015), there are several reasons why large reductions in inequality will be difficult to systematically discover after democratizations. Democracy may be captured by the interests of the former autocratic elites,[2] or represent the interests of the relatively well-off middle class, both of which will reduce the transfers that would prevail if the interests of the poor were better represented. Further, democracy may create opportu-

[2]This argument is made by Acemoglu and Robinson (2008), who theorize that losses in de jure political power can be made up for by investments in de facto power like trying to obtain control of local law enforcement, lobbying, or taking control of the party system.

nities for burgeoning capitalists such that inequality naturally increases due to a change in the structure of the economy. On these issues, asset markets provide a unique vantage point, as they capture the expectations of the *ex ante* wealthy stock market participants at the time of the democratization. As such, while looking at realized democratizations provide a significantly attenuated estimate of redistribution post democracy, asset prices capture the risk of such redistribution as it was viewed at the time of the democratization.

Next, this paper contributes to the theoretical asset pricing literature by showing that in economies where the wealthy participate in financial markets, increased uncertainty over future taxes and transfers can cause large increases in risk premia. This differs from the workhorse consumption-based asset pricing models of Campbell and Cochrane (1999), Bansal and Yaron (2004), and Wachter (2013) and their variants that rely on aggregate dynamics to generate increases in risk premia. In breaking with these models, this paper relates to a large literature with limited stock market participation[3] and a more recent literature exploring the role of heterogeneity in asset pricing. Most of the heterogeneous agent asset pricing literature has focused on time-varying risk to the labor income process and solvency constraints to explain the variation in risk premia over time (Chien and Lustig, 2010, Krueger and Lustig, 2010, Paron, 2021). Further, Parker and Vissing-Jorgensen (2010) show that when top income shares rise, the wealthy are more exposed to aggregate shocks, which has implications for the relationship between inequality and asset prices. This paper distinguishes itself from these papers by focusing instead on time-varying redistribution risk.[4]

This paper also builds on a literature examining the role of policy uncertainty in asset pricing by noting that democratizations are accompanied by large increases in risk premia. Theoretical research on policy shocks and uncertainty was pioneered by Pástor and Veronesi

[3]See for example, Basak and Cuoco (1998), Gomes and Michaelides (2008), and Guvenen (2009) for a general discussion of the effects of limited stock market participation on asset prices.

[4]Gârleanu and Panageas (2015) also focus on the role of redistribution for time-varying risk premia, but instead focus on the role of time-varying consumption shares for more and less risk averse agents.

(2012, 2013) who propose a theoretical model in which there is a time-varying risk premium associated with policy uncertainty and governed by the state of the economy.[5] Empirical research on policy shocks and uncertainty has focused mostly on quantifying the affects of policy shocks in developed democracies. For example, Baker, Bloom and Davis (2016) develop an index of economic policy uncertainty and find that increases in this index are associated with greater stock price volatility and reduced investment and employment. Further, Baker, Bloom, Davis and Kost (2019) build on this by creating a newspaper based policy uncertainty index, which allows them to decompose the relative importance of policy shocks in different policy areas. My paper differs from these by studying uncertainty over political institutions rather than over particular policy decisions. As such my work complements this body of research, showing that uncertainty over the institutions is also priced in financial markets.

Finally, this paper builds on a literature looking at the impact of politics and political uncertainty on asset prices in developed economies. Kelly, Pástor and Veronesi (2016) provide empirical support that political uncertainty is priced in the equity options market. Pástor and Veronesi (2016) model the effect of redistributive taxation on inequality jointly with the effect on aggregate productivity and asset prices. Grotteria (2019) shows that firms with greater lobbying expenditures have higher excess returns and rationalizes this result in a model of incumbents and entrepreneurs where lobbying acts a device to slow the progress of new entrants. Pástor and Veronesi (2020) shows that the "presidential puzzle" can be solved in a model where agents have time varying risk aversion, finding that, when the risk aversion of voters is elevated, they vote for the party that advocates for redistribution—in their model, the Democrats. Cassidy (2020) also addresses the presidential puzzle, but proposes a different solution which is similar to the mechanism I propose for democratizations: that Democrats will increase the tax burden of equity holders, leading to greater uncertainty

[5] Bloom (2009) also relates to this literature by building a general framework to analyze the impact of uncertainty shocks.

in Democratic regimes. Delis, Hasan and Ongena (2020) examines corporate credit spreads around democratizations, finding, seemingly counter to the results I have described, that corporate credit spreads fall during periods of democratization from 1984 to 2014. However, I too find evidence that, after 1984, corporate credit spreads fall during periods of democratization, but rise slightly in the pre-1984 sample.

# 2 Data

The empirical analyses performed below rely on several databases. Here, I describe the data employed in this project and the construction of all the variables of interest.

**Asset market data** Equity data come from Global Financial Data[6] (GFD) and the Jorda-Schularik-Taylor Macrohistory Database (JST) used in Jorda, Knoll, Kuvshinov, Schularick and Taylor (2019). GFD provides two main historical stock return indices for each country: the first is the aggregate return on stock exchanges within the country, and the second is the aggregate return of all companies headquartered in the country and listed on the London Stock Exchange. The JST data covers 17 developed countries from 1870 to 2016. All together, the returns data covers 85 countries over 200 years. To aggregate the data, I fill in the GFD home stock market series first with the JST data and then with the GFD data coming from the London Stock Exchange. This is done for all equity rate variables, such as rates of return or dividend growth, or changes in level variables like changes in dividend yields.

By combining these data sources, I obtain the most detailed unbalanced panel data set possible of ex- and cum-dividend returns, dividend yields, and dividend growth. The cum-dividend returns data, for example, spans 203 years across 85 countries, with an average of 88.4 years of data per country. However, due to different coverage for each series, the

[6] A list of papers using Global Financial Data is available here.

observation counts differ throughout the paper. For more information on the asset market data, see Appendix Section A.[7]

**Political institutions data** Data on political institutions come from the Varieties of Democracy (V-Dem) database. V-Dem uses a team of researchers to quantify levels of and trends in historical political institutions for every country around the globe over the last two centuries, providing the most detailed dataset possible to analyze changes in political institutions. Of particular interest for this project, V-Dem constructs indices ranking the level of democratic institutions in every country on five overarching principles of democracy: electoral, deliberative, liberal, participatory, and egalitarian. Such a decomposition is important for mapping data to theory, as changes in electoral institutions map most closely to the changes in institutions that occur in the model presented in Section 4.

V-Dem also provides measures on various political outcomes not immediately related to democratic political institutions, but nonetheless useful for understanding the democratization process, such as the level and frequency of democratic protests, political violence, political polarization, and civil society activity.[8]

**Macroeconomic and inequality data** Data on consumption and real GDP come from Maddison Historical Statistics, who use and expand upon data from Barro and Ursua (2008) and provide the most comprehensive data available on these variables. Data on income inequality come from two sources: the Standardized World Income Inequality Database (SWIID) and the World Income Inequality Database (WIID). In particular, data on the amount of absolute redistribution in a society, calculated as the difference between the pre-tax and post-tax Gini coefficient, is taken from SWIID, while data on the Gini coefficient

[7]Further, the Supplemental Appendix provides the series mnemonics and sources for all of the data used for each country in this paper.

[8]For more information on the construction of these measures see Coppedge et al. (2020).

comes from the WIID, which has greater data availability.[9] Finally, data on government revenues come from GFD and the JST Macrohistory Database.

**Events data** I collect data on a variety of events, primarily used as controls in the regressions below, to assure that any variation in my proxies for risk premia observed in democratizations is not driven by adverse macroeconomic, political, or financial events. Data on financial crises come from JST and Reinhart and Rogoff (2009) and are combined into a single financial crisis variable. Each of these datasets use a narrative approach in constructing historical financial crises, often looking at large-scale bank runs or asset market failures, and are used extensively by other scholars. I also obtain data on sovereign defaults from Reinhart and Rogoff (2009).

Data on recessions come from the GFD Dates database, which compiles events throughout history on various topics. Data on wars come from the Correlates of War (CoW) data from the University of Michigan and Pennsylvania State University, which contains data on interstate, intrastate, and extra-state wars in addition to all non-war military conflicts from 1816–2007. From the CoW dataset, I also obtain country-level data on religious demographics from 1945–2010.

Data on political crises come from the International Crisis Behavior (ICB) database used in Berkman, Jacobsen and Lee (2011). Data on head of government and head of state deaths come from V-Dem and are supplemented with data from Wikipedia. Data on head of government and head of state attempted and successful assassination attempts come from Jones and Olken (2009).

[9]The WIID data is used as presented in Version 8 of the V-Dem data.

## 2.1 Democratizations

Indicators for democratizations are taken from two sources: the first are constructed using the democratic indices supplied by the V-Dem database, and the second are taken from Lindberg et al. (2018).

The first set of democratization dates are constructed as an indicator variable equal to one when the growth rate in the V-Dem electoral democracy index is in the top fifth percentile of all electoral index growth rates, as changes in electoral institutions map most closely to the modeling framework outlined below. However, other types of democratizations not picked up by changes in the electoral index may also be valid. As such, I take an equally weighted average of the other four democracy indices and define years in the top fifth percentile of growth rates of this index as periods of democratization as well. Gap years between democratization years that are 2-years apart are then filled in—for example, if 1910 and 1912 are democratization years for a country, 1911 is also defined as a democratization year. Finally, all democratizations associated financial crises, wars, recessions, or sovereign default episodes are removed to better measure the effects of democratizations without picking up the effects of adverse macroeconomic events. This procedure yields 170 unique democratizations, on average lasting 1.4 years, for which there is also asset pricing data. Since these democratizations unfold over a short period of time, they are referred to as *fast democratizations* for the remainder of the paper.

The process of democratizations, however, oftentimes unfolds slowly. The second measure, taken from Lindberg et al. (2018), allows for the analysis of the long-term effects of democratizations on asset prices. The Lindberg et al. measure, spanning the years 1900–2017, yields 108 unique democratizations, lasting an average of 8.6 years each. Lindberg et al. further decompose these democratizations into either "successful" or "failed" depending on how long the new democratic institutions stay in place. For example, 52% of democratizations, for which there is asset pricing data, fail, showing that democracy is not predestined

outcome of democratization. Indeed, there is tremendous uncertainty over which political institutions will result. Since these democratizations unfold over a long period of time, they are referred to as *slow democratizations* for the remainder of the paper.

Finally, I construct a similar measure for jumps from democracy to autocracy, which are called "autocratizations." These episodes are defined as growth rates in top fifth percentile in one minus the electoral index and the equal weighted average of all indices other than the electoral index, the same methodology used to construct democratizations.

# 3 Stylized facts

Changes in risk premia (expected returns in excess of the riskfree rate) are fundamentally unobservable and, therefore, must be proxied for. To this end, I employ 2 proxies to measure changes in risk premia: first, changes in the log dividend yield, and second, average excess returns after the event start. Appendix Section B presents additional evidences in the form of vector-autoregression (VAR) decomposed discount rate shocks and changes in corporate bond yields. The results for each of these proxies is presented separately.

**Changes in log dividend yields** Following Muir (2017), I use the 5-year change in the log dividend yield as a proxy for the change in the equity premium. The change in the dividend yield roughly corresponds to the percent change in the discount rate (risk premium plus the riskfree rate), provided that the future cash flows expected by investors do not change.

The magnitude of the shift in dividend yields is nicely summarized by Figure 1, which shows the coefficients of a regression of the 5-year change in the log dividend yield around fast democratizations and financial crises. The headline result is clear: the change in the dividend yield observed during democratizations is large and economically significant, of the same order of magnitude as what is observed in financial crises.

**Figure 1: Change in log dividend yield — democratizations vs. financial crises**

This figure presents the coefficients of the 5-year change in log dividend yields on indicator variables for the time to/from a democratization start and a financial crisis. The regressions estimated take the form

$$\text{5-year Change in Dividend Yield}_{c,t} = \alpha + \sum_{s=-3}^{3} \beta_s \mathbb{1}_{c,t}\{s \times \text{Event Start}\} + \epsilon_{c,t}.$$

Standard errors are heteroskedasticity robust, and a 90% confidence interval is plotted.

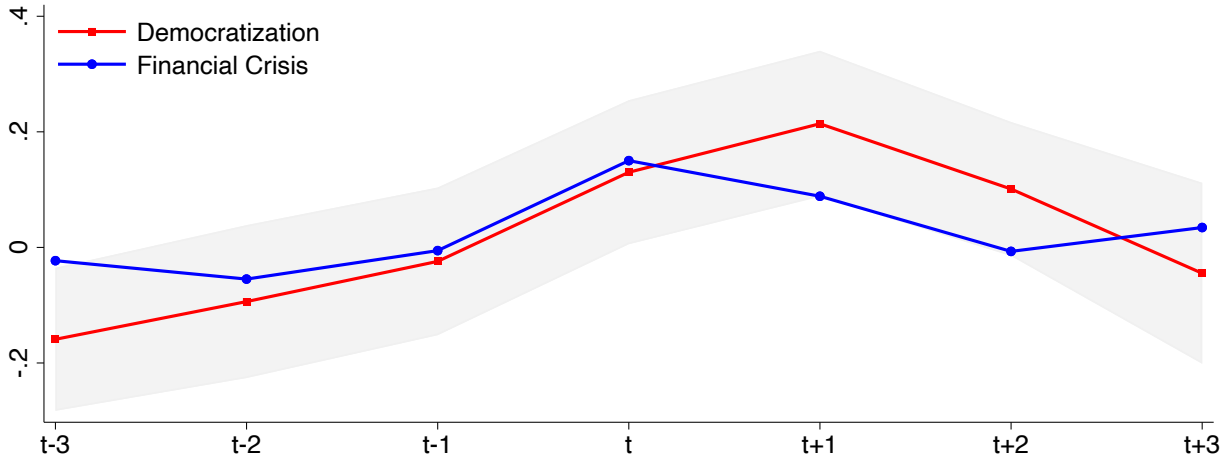



Table 1 breaks the result down further, showing that dividend yields rise during both fast and slow democratizations. Dividend yields are substantially elevated in fast democratizations, in particular, corresponding to an average rise in risk premia of 24.0% over five years as shown in Column (1). However, countries that experience democratizations may have volatile dividend yields in general, and democratizations may occur in years in which many countries experience large changes in dividend yields. Further, democratizations may co-occur with adverse political events such as the escalation of military activity or the death of the head of government. For this reason, country and year fixed effects and numerous event controls are included in Column (2). The result is unchanged: the point estimate implies an average increase in risk premia of 22.6% over five years and remains significant at the 5% level. The results are weaker for the slow democratizations, where, after adding event controls and fixed effects, dividend yields rise by 10.3% on average over five years.

The weaker results during slow democratizations are to be expected, however, since these are longer episodes where in some years dividend yields move quite a bit, but in other years do not move at all.

**Table 1: Periods of democratization and the change in log dividend yields**

This table presents regressions of the 5-year change in log dividend yields on indicator variables for periods of democratization. The regressions estimated take the form

$$\text{5-year Change in Dividend Yield}_{c,t} = \alpha + \beta \mathbb{1}_{c,t}\{\text{Democratization}\} + \epsilon_{c,t}.$$

When there are no fixed effects added, standard errors are heteroskedasticity robust. When fixed effects are added, standard errors are clustered by country and year. All coefficients have been multiplied by 100 for presentation, and $t$ statistics are in parentheses.

| | Five-year change in log dividend yield | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Fast Democratization | 23.99*** | 22.63** | | |
| | (3.61) | (2.26) | | |
| Slow Democratization | | | 3.405 | 10.25* |
| | | | (0.94) | (1.88) |
| Autocratization | 1.058 | 1.228 | | |
| | (0.28) | (0.25) | | |
| ICB Political Crisis | 8.725 | 9.585 | 8.988 | 10.71 |
| | (1.59) | (1.12) | (1.63) | (1.24) |
| Year FE | ✗ | ✓ | ✗ | ✓ |
| Country FE | ✗ | ✓ | ✗ | ✓ |
| Event Controls | ✗ | ✓ | ✗ | ✓ |
| N | 5281 | 5281 | 4314 | 4314 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

How can we be sure the results are driven by democratization and not just a rise in general political uncertainty? If this were the case, then similar movements in dividend yields should be observed in other events where political uncertainty is also high. To test this, indicator variables for autocratizations are included in the regressions on fast democratizations, and indicator variables for ICB political crises are included in all regressions.[10] Both of

[10] Lindberg et al. (2018) does not provide data on the autocratization counterpart to the slow democrati-

these events plausibly display similarly high levels of political uncertainty when compared to democratizations, but do not have the same potential for a transition to democratic political institutions. As such, they serve as something of a reasonable "control" group. Autocratizations and ICB political crises display dividend yield changes in the same direction as in fast democratizations, but of roughly one-twentieth and one-third the magnitude.

**Table 2: Change in electoral index and changes in prices**

This table presents regressions of the change in log dividend yields and log equity prices on the change in the electoral democracy index multiplied by an indicator that is equal to 1 if a country is autocratic or democratic. The regressions estimated take the form

$$\text{Outcome}_{c,t} = \alpha + \beta_1 \Delta\text{Electoral Index}_{c,t} \mathbb{1}_{c,t}\{\text{Autocracy}\} + \beta_2 \Delta\text{Electoral Index}_{c,t} \mathbb{1}_{c,t}\{\text{Democracy}\} + \epsilon_{c,t}.$$

When there are no fixed effects added, standard errors are heteroskedasticity robust. When fixed effects are added, standard errors are clustered by country and year. $t$ statistics are in parentheses.

| | Change in log dividend yield | | Change in log price | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Δ Electoral Index (Autocracy) | 0.614*** | 0.466* | -0.559** | -0.442* |
| | (2.76) | (1.73) | (-2.04) | (-1.87) |
| Δ Electoral Index (Democracy) | -0.234 | -0.310 | -0.121 | 0.0536 |
| | (-0.58) | (-0.99) | (-0.95) | (0.49) |
| Year FE | ✗ | ✓ | ✗ | ✓ |
| Country FE | ✗ | ✓ | ✗ | ✓ |
| Event Controls | ✗ | ✓ | ✗ | ✓ |
| N | 5570 | 5570 | 5570 | 5570 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Further, the link between changes in democratic electoral institutions and asset prices is strongest in autocratic countries. Table 2 regresses the year-over-year change in the electoral democracy index from V-Dem on the year-over-year change in the log dividend yield and log equity price in both autocracies and democracies. In autocracies, a 1 percentage point change in the electoral democracy index is associated with a 0.47 to 0.61 percent statistically significant increase in the dividend yield, as shown in Columns (1) and (2), and a 0.44 to 0.56

zation variable, and so there is no autocratization variable in that regression.

statistically significant decrease in log prices, as shown in Columns (3) and (4).[11] Changes in the electoral democracy index in democracies, conversely, have no statistically significant impact on either quantity. This provides evidence that the results are driven by autocratic countries becoming more democratic.

**Table 3: Periods of democratization and cash flows**

This table presents regressions of log consumption and dividend growth on indicator variables denoting if the year is during or 5-years after a democratization. The regressions estimated take the form

$$\text{Cash Flow Growth}_{c,t} = \alpha + \beta_1 \mathbb{1}_{c,t}\{\text{Democratization or Five-years after Democratization}\} + \epsilon_{c,t}.$$

When there are no fixed effects added, standard errors are heteroskedasticity robust. When fixed effects are added, standard errors are clustered by country and year. All coefficients have been multiplied by 100 for presentation, and $t$ statistics are in parentheses.

| | Log consumption growth | | | | Log dividend growth | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Fast Democratization | 1.062*** | 0.169 | | | -1.688 | -2.192 | | |
| | (4.93) | (0.58) | | | (-0.83) | (-1.45) | | |
| Slow Democratization | | | 1.208*** | 0.571** | | | 0.719 | 0.610 |
| | | | (6.83) | (2.04) | | | (0.42) | (0.34) |
| Autocratization | -0.0645 | -0.304** | | | 2.458* | 0.322 | | |
| | (-0.43) | (-2.53) | | | (1.83) | (0.22) | | |
| ICB Political Crisis | 0.302 | -0.269 | 0.0558 | -0.115 | -1.841 | -1.740 | -1.834 | -1.988 |
| | (1.38) | (-0.77) | (0.25) | (-0.46) | (-1.04) | (-0.83) | (-1.03) | (-0.98) |
| Year FE | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Country FE | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Event Controls | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| N | 6196 | 6196 | 5186 | 5186 | 5392 | 5391 | 4449 | 4448 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

As mentioned above, the change in the log dividend yield is a valid proxy for the change in the risk premium if expected growth remains relatively constant. Evidence in support of the stability of cashflows is presented in Table 3. Columns (1)–(4) show that log consumption

[11] The autocracy designation is also constructed from V-Dem data and includes all closed or electoral autocracies.

growth is either increasing or flat during and after fast democratizations and significantly increasing during and after slow democratizations. Conversely, it is negative during and after autocratizations and flat during and after ICB political crises. Realized dividend growth, on the other hand, is negative (and insignificant) during and after fast democratizations and ICB political crises and flat during and after autocratizations and slow democratizations.

Overall, the results in Table 3 show that the change in the log dividend yield is a valid proxy for the change in the risk premium in this case. However, while the shocks to dividend growth are not statistically significant, they may partially contribute to the rise in dividend yields during democratizations, biasing the coefficients in Table 1 upward. It is, however, worth noting that low dividend growth needs to correspond with democratizations some of the time, or else equity would not command a higher risk premium: low cashflows need to correspond with high marginal utility states for the marginal investor to demand an increased risk premium. Conversely, the slightly positive dividend growth during slow democratizations, and significantly positive consumption growth during all democratizations, biases the coefficients downward, meaning the results may be understated.

**Average excess returns** I also examine average cum-dividend stock returns in excess of a global riskfree asset in a 10-year window 3-years after the start of fast and slow democratizations. Average excess stock returns are high when expected returns are high and fall when there are positive shocks to discount rates or negative shocks to expected dividend growth. If there are persistent discount rate shocks early in democratizations and no significantly positive innovations to expected future dividends, then changes in average excess returns after the realization of the discount rate shocks early in democratizations are a proxy for changes in risk premia. Note that this is the opposite condition needed for dividend yields to be a valid proxy, where negative innovations to expected growth cause bias. Pairing these two proxies, therefore, allows for a clear picture of how risk premia change in times of democratization.

Table 4 presents the results. Columns (1) and (2) show that average excess returns are elevated 2.4 and 0.8 percentage points after fast democratizations, in-line with the 25% increase in risk premia observed using the dividend yield. Other periods of political uncertainty, however, show either slight increases or reductions according to this measure and are statistically insignificant. Slow democratizations display stronger results, with average excess returns elevated by 3.3 to 4.8 percentage points. Again, this makes sense, as the long duration of slow democratizations makes the estimation of expected returns more precise as there are 871 democratization years in the sample.

**Table 4: Periods of democratization and average excess returns**

This table presents regressions of cum-dividend stock returns in excess of a global riskfree asset on indicator variables for periods of democratization. The regressions estimated take the form

$$\text{Excess Returns}_{c,t} = \alpha + \beta \mathbb{1}_{c,t}\{\text{10-Years After Democratization Start}\} + \epsilon_{c,t}.$$

Excess returns are computed as the total return of the aggregate country equity portfolio less the total return on the global riskfree asset. All 10-year windows begins 3-years after the event start. In Columns (1) and (3), year fixed effects are added to account for inflation, as all returns are in US dollars. In Columns (1) and (3) standard errors are heteroskedasticity robust. In Columns (2) and (4) standard errors are clustered by country and year. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.

| | Excess returns | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Fast Democratization | 2.402** | 0.761 | | |
| | (2.12) | (0.73) | | |
| Slow Democratization | | | 4.755*** | 3.277* |
| | | | (2.77) | (1.76) |
| Autocratization | 0.301 | 0.0302 | | |
| | (0.28) | (0.02) | | |
| ICB Crisis | -1.121 | -1.167 | -1.119 | -1.982 |
| | (-0.75) | (-0.77) | (-0.76) | (-1.19) |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✗ | ✓ | ✗ | ✓ |
| Event Controls | ✗ | ✓ | ✗ | ✓ |
| N | 7512 | 7512 | 5908 | 5908 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Why use a global riskfree rate of return as opposed to a country-specific riskfree rate? There are two answers to the question. The first answer is practical: by including year fixed effects, I am implicitly differencing out the global riskfree rate, and, using this procedure, no observations are lost due to incomplete government bond return data. The second answer is theoretical: the local riskfree rate is not observable for most, if not all, of the countries I examine. Normally, one would use the return or yield on sovereign debt less expected (or realized) inflation as a proxy for the riskfree rate. However, this proxy misses the risk premium term on nominal sovereign debt, namely risk coming from unexpected inflation or default as pointed out by Miller, Paron and Wachter (2020). Indeed, Appendix Section B.1 shows that government bond yields are slightly elevated in slow democratizations—by around 26 basis points—despite the theoretical prediction that riskfree rates should fall. However, the likelihood of surprise inflation is also higher in these episodes, as shown in Table B.1. As such, nominal government debt ceases to be riskfree during these periods, and subtracting the government bond returns or yields from average returns would understate the true increase in risk premia.

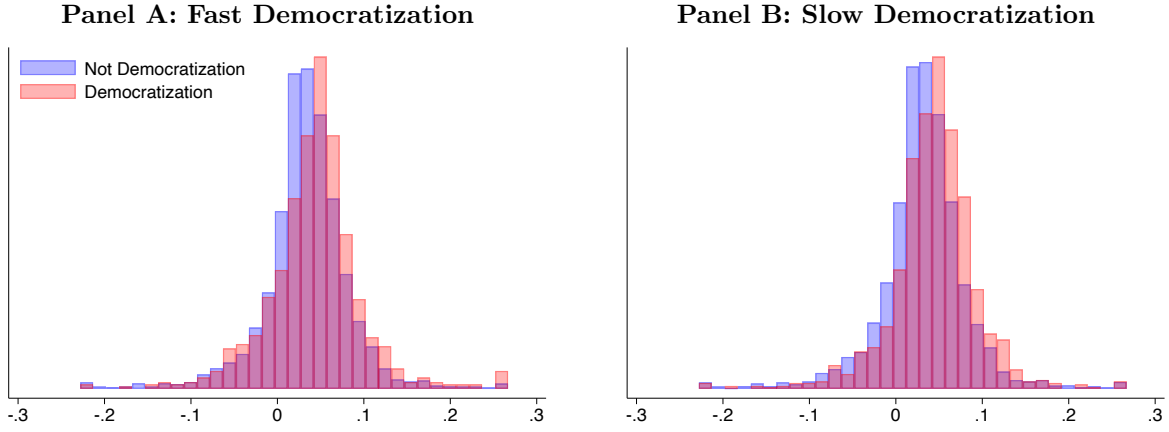
**Additional evidence** Additional evidence that risk premia are elevated are presented in Appendix Section B. First, vector-autoregression decomposed discount rate shocks, using methods from Campbell (1991), indicate that discount rate shocks are focused in the year of and year prior to the start of a democratization, with a cumulative shock of around 2–3 percentage points in both fast and slow democratizations, as shown in Appendix Section B.2. Second, prior to 1984, corporate bond yields were elevated between 31 to 47 basis points during periods of democratization, as shown in Appendix Section B.3. In the sample after 1984, however, corporate bond yields seem to fall or remained flat, in line with the findings of Delis et al. (2020) on a sample of corporate bonds from 1984–2014.

**Interpretation** A preponderance of the evidence suggests that risk premia are elevated during periods of democratization. Each proxy for risk premia shown above, shows economically large increases, and, while none of the proxies employed is perfect, together they speak volumes. Further, the increase in risk does not solely come from an increase in political uncertainty, as it is unique to democratizations. Periods of autocratization, show no such increase in risk premia, and ICB political crises see only a fraction of the increase in risk premia observed in periods of democratization.

A question remains: What can explain the large increase in risk premia observed in democratizations? Theories based on declines in aggregate consumption face difficulty explaining this fact since, as shown in Table 3, average consumption growth is not lower during democratizations; if anything it increases. The same is true for the volatility of consumption. In fact, the entire distribution of log consumption growth is shifted toward higher growth during and after democratizations, as shown in Figure 2.

**Figure 2: Distribution of consumption in fast and slow democratizations**

Log consumption growth is winsorized at the 0.5% and 99.5% level. Consumption data come from the Maddison Historical Statistics database.




If not consumption, then what? Approaches based on aggregate consumption mask het-

erogeneity within a society, papering over political fault lines: There is no class-based conflict in a standard representative agent model. In the political economy and economic development literatures, democratizations are often modeled as a struggle for resources between the rich and the poor. Such an approach is a promising avenue to explain the aforementioned stylized facts, an approach I turn to next.

# 4 Model

The model presents an explanation for why risk premia are elevated during democratizations, building on work by Acemoglu and Robinson (2006). A consortium of political elites in an autocracy attempt to maintain control of the state from a larger group of citizens. If democracy is implemented, the citizens redistribute income toward themselves by way of tax and transfer schemes. For the elites, the consolidation of democracy, therefore, acts as a "rare disaster," and an increase in the probability with which it occurs leads to higher risk premia.

**Macroeconomic environment** A closed economy is populated by a mass $\delta < \frac{1}{2}$ identical Elites and a mass $1 - \delta$ identical Citizens that share coconuts ($Y$) from a Lucas tree. The log growth rate of coconuts from the Lucas tree follows

$$\log \frac{Y_t}{Y_{t-1}} = \bar{y} + \vartheta \varepsilon_t. \tag{4.1}$$

where $\bar{y}$ is the average growth rate, $\vartheta$ is the standard deviation, and $\varepsilon \sim \mathcal{N}(0, 1)$ is an independent and identically distributed shock. The Elites receive a proportion $\theta > \delta$ of the coconuts, meaning the average coconuts for each type of agent is

$$\bar{Y}_t^r = \left(\frac{\theta}{\delta}\right) Y_t \tag{4.2}$$

$$\bar{Y}_t^p = \left(\frac{1-\theta}{1-\delta}\right) Y_t, \tag{4.3}$$

where the superscript $r$ denotes the (rich) Elites and the superscript $p$ denotes the (poor) Citizens. The parameter $\theta$ dictates the level of income inequality in the economy: The higher is $\theta$, the more unequal is the economy.

**Preferences and financial markets** The Citizens have linear utility over coconuts and do not trade in markets, meaning that they are hand-to-mouth consumers, as they have no ability to store consumption over time. The Elites, conversely, have Epstein and Zin (1989) preferences over coconuts and can trade in a zero net supply riskfree bond and a claim to their portion of consumption.

**Taxes and transfers** Coconuts are subject to non-negative taxes ($\tau$) imposed by whoever has political power. Tax revenue is then redistributed as an equal transfer to all agents, meaning that the average coconuts available to members of each group, after taxes, is given by

$$\hat{Y}_t^i(\tau_t) = (1-\tau_t)\bar{Y}_t^i + (\tau_t - \frac{1}{2}\tau_t^2)Y_t \tag{4.4}$$

where $i \in \{r, p\}$ and $\frac{1}{2}\tau_t^2$ is the cost of taxation, which could either be from distortions or administrative costs arising from increased tax rates. In essence, this is introducing a Laffer curve into the economy in a reduced form. This has a technical motivation—in the absence of a convex cost to taxes and transfers, the Citizens would choose a tax rate of 100%.

The optimal tax rate for the Elites is $\tau^{r*} = 0$ as any positive tax leads their post-tax income to be less than their pre-tax income since $\bar{Y}^r > Y$. The optimal tax rate for the Citizens, on the other hand, is positive and given by the revenue maximizing tax rate

$$\tau^{p*} = \frac{\theta - \delta}{1 - \delta}, \tag{4.5}$$

which is between 0 and 1 since $1 > \theta > \delta$. When the Citizens preferred tax rate is imple-

mented their average post-tax income is given by

$$\hat{Y}_t^p(\tau^{p*}) = \underbrace{\bar{Y}_t^p}_{\text{Endowed income}} + \underbrace{\frac{1}{2}\left(\frac{\theta-\delta}{1-\delta}\right)^2 Y_t}_{\text{Maximum transfers}}. \tag{4.6}$$

In each period, taxes are decided by majority rule voting, where who has the right to vote depends on the political institutions in place. There are two different types of political institutions in the model: autocracy and democracy.

**Autocracy and revolution** In the autocratic regime, in which the model starts, only the Elites have the right to vote, meaning whatever policy they choose will be enacted. Absent any counteracting force, the Citizens would never receiving voting rights, the Elites would set taxes to be zero in each period, and this would be a very boring model as autocracy chugs along its merry way. We are spared from such boredom, however, as the numerically superior Citizens can indirectly control the the choices of the Elites through the threat of revolution. If the Citizens revolt, they are assumed to be successful and all the Elites are killed. But, this victory comes at a cost; a fraction $\mu$ of the Lucas tree is permanently destroyed. Since the Citizens have linear utility, the expected present value of their utility after the revolution (scaled by the average income at time $t$) is

$$V^p(R, \mu_t) = \frac{1-\mu_t}{(1-\delta)(1-\beta^\star)} \tag{4.7}$$

where $\beta^\star \equiv \beta e^{\bar{y}+\frac{1}{2}\vartheta^2}$, and $\beta$ the rate of time discounting common across agents, which is derived in Appendix C.1.

The decimation of the Lucas tree is the cost the Citizens bare to bring about revolution, and random variation in $\mu$ drives dynamics in the model.[12] When $\mu$ is high, the Citizens

[12]Variation in the cost of revolution $\mu$ is a reduced form way of modeling a complex collective action problem that the Citizens must solve to successfully mount a revolution. A revolution cannot be successful if just one Citizen wakes up one morning and decides to revolt; she must be accompanied by others to pose a true threat. Randomness in $\mu$, therefore, represents that solving this problem is hit-or-miss. Explicitly modeling the collective action problem that the Citizens face, however, is beyond the scope of this paper.

cannot credibly threaten revolution, as the destruction wrought makes them better off under autocracy. When $\mu$ is low, conversely, the Citizens can credibly threaten revolution, which constrains the Elites from setting their optimal tax policy, tilting the equilibrium policy toward the optimal policy of the Citizens.

**Conceding democracy** If the threat of revolution is great enough, then even temporarily granting the optimal policy of the Citizens is not enough to prevent a revolution. In this case, it becomes optimal for the Elites to extend voting rights to the Citizens, ushering in democracy.

What is the role of democracy in this model? It essentially serves as a commitment device for the Elites to credibly promise future redistribution. When the Elites face a credible revolutionary threat from the Citizens, they offer higher taxes and more transfers to avoid an untimely demise. If the revolutionary threat is large enough—meaning $\mu$ is low enough—then even implementing the preferred tax rate of the Citizens $\tau^{p*}$ for one period is not enough to avert a revolution. In this case, the Elites would like to promise high taxes and redistribution in the future, but such promises are not credible; as soon as the revolutionary threat subsides, the Elites have no incentive to follow through with the transfers they promised.[13]

Democracy makes the offer to redistribute in future periods credible, as the more numerous Citizens become the median voter. This effectively grants them power over all future tax policy decisions, since once the economy becomes a democracy, it remains a democracy forever. As such, the present value of the Citizens' utility (once again, scaled by the average income at time $t$) is expressed by

$$V^p(D) = \frac{1-\theta}{(1-\delta)(1-\beta^\star)} + \frac{(\theta-\delta)^2}{2(1-\delta)^2(1-\beta^\star)} \tag{4.8}$$

[13]This is true for any Markovian equilibrium, where strategies must only depend the current state variables. Other path dependent equilibria do exist and could make future promises of redistribution credible, though I do not examine them in this paper. Acemoglu and Robinson (2006) provide an extension of this setup to include path dependency and find that it does not change the overall conclusions of the model.

which is the expected present value of receiving the maximum transfer income from Equation (4.6) in each period under linear utility.

**Political environment as a game** The political environment can be modeled formally as a game. The order of the decisions is as follows (with mathematical notation in parentheses):

1. Nature reveals the cost of revolution ($\mu_t$) to both the Elites and the Citizens.
2. The Elites choose to either concede democracy ($\phi_t = 1$) or keep autocracy ($\phi_t = 0$).
3. Both the Elites and Citizens choose the tax rate ($\tau_t^i$) they want to implement. If the society is an autocratic, then the tax rate chosen by the Elites is implemented; if the society is democratic then the tax rate chosen by the Citizens is implemented.
4. The Citizens, after observing the tax rate, choose to revolt ($\rho_t = 1$) or not revolt ($\rho_t = 0$).

The choice set of the Elites in time $t$ is given by $\sigma_t^r = \{\tau_t^r(\mu_t), \phi_t(\mu_t)\}$ where their chosen tax rate and the choice of whether to concede democracy are functions of the cost of a revolution. Further, if $\phi_t = 1$ then $\phi_{t+s} = 1$ for $s > 0$, meaning that once democracy is conceded, it is conceded forever.

The choice set of the Citizens in time $t$ is given by $\sigma_t^p = \{\tau_t(\phi_t), \rho_t(\mu_t, \phi_t)\}$ where their chosen tax rate and the choice to revolt are functions of the political institutions in place and the cost of a revolution. Further, if $\rho_t = 1$ then $\rho_{t+s} = 1$ for $s > 0$, meaning if the revolution occurs, its effects are permanent.

**The Citizens' problem** There are, in essence, three relevant political institutions for the Citizens: autocracy, democracy, and revolution. The value functions for the Citizens in the revolution and democracy are given by Equations (4.7) and (4.8) above, and the payoff in

autocracy is given by

$$V^p(A, \mu_t; \tau_t) = \max_{\rho_t \in \{0,1\}} \left\{ (1-\rho_t)(1-\phi_t) \left( \frac{\hat{Y}_t^p(\tau_t)}{Y_t} + \beta^\star \mathbb{E}_t[V^p(A, \mu_{t+1}; \tau_{t+1})] \right) \right.$$
$$\left. + (1-\rho_t)\phi_t V^p(D) + \rho_t V^p(R, \mu_t) \right\} \quad (4.9)$$

where I add the tax rate—even though it is not a state variable—after the semi-colon for the purpose of exposition.

**The revolution constraint** Since the Elites die if a revolution occurs (to them, a highly undesirable fate), they are always willing to transfer coconuts to the Citizens to avoid a revolution (a less undesirable fate). The Citizens, in essence, impose a *revolution constraint* on the tax rate the Elites can choose in autocracy in that the present value of coconuts the Citizens receive in autocracy must be greater than or equal to the present value of coconuts they receive in revolution:

$$V^p(A, \mu_t; \tau_t) \geq V^p(R, \mu_t). \quad (4.10)$$

The revolution constraint introduces two critical values of $\mu$: the first is where Equation (4.10) holds with equality when the preferred tax rate of the Elites is in place,

$$V^p(A, \underline{\mu}; \tau_t = 0) = V^p(R, \underline{\mu}), \quad (4.11)$$

and the second is where Equation (4.10) holds with equality when the preferred tax rate of the Citizens is in place,

$$V^p(A, \mu^*; \tau_t = \tau^{p*}) = V^p(R, \mu^*). \quad (4.12)$$

When $\mu \in [\underline{\mu}, 1]$ then the revolution constraint does not bind; the Elites need not make any transfers to avert a revolution, as the Citizens are, at least, weakly better off under autocracy. As the cost of revolution falls such that $\mu \in [\mu^*, \underline{\mu})$, the Elites must raise taxes

and transfers to prevent the Citizens from revolting. I define the tax rate that prevents a revolution as $\hat{\tau}(\mu_t)$, which satisfies

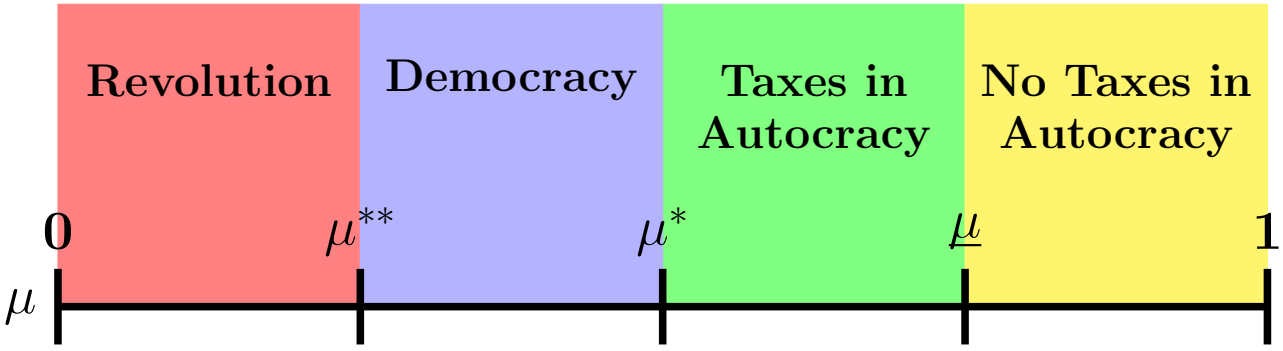
$$V^p(A, \mu_t; \tau_t = \hat{\tau}(\mu_t)) = V^p(R, \mu_t). \tag{4.13}$$

What happens if $\mu$ falls below $\mu^*$? It is no longer sufficient for the Elites to raise taxes for just one period, and the commitment problem they face makes promises of future redistribution incredible. As a result, the Elites must concede democracy to prevent a revolution. Conceding democracy prevents a revolution provided that $\mu \in [\mu^{**}, \mu^*)$ where $\mu^{**}$ equates Equation (4.7) and Equation (4.8) and is given by

$$\mu^{**} = \theta - \frac{(\theta - \delta)^2}{2(1 - \delta)}. \tag{4.14}$$

Finally, if $\mu \in [0, \mu^{**})$, the Elites can do nothing to prevent a revolution, as the Citizens are better off in the revolutionary state than in democracy. In the special case of this economy I solve, however, I only examine cases where $\mu \in [\mu^{**}, 1]$. The action regions and their associated thresholds are shown in Figure 3.

**Figure 3: Equilibrium Outcome for Regions of $\mu$**



**Stochastic process for $\mu$** The cost of revolution $\mu$ evolves according to a three-state, Markov process with the transition matrix

$$P(\mu) = \begin{pmatrix} 1-q & q & 0 \\ p & 1-2p & p \\ 0 & q & 1-q \end{pmatrix} \tag{4.15}$$

and $\mu^1 = \mu^2 = 1$ and $\mu^3 = \mu$. In the first state, the *stable autocracy state*, the Elites do not face a revolutionary threat in this period or the next. This changes when $\mu$ transitions to the second state, the *democratization state*, as the Elites do not face a current revolutionary threat, but may need to concede large transfers or democracy in the next period. In the third state, either democracy is consolidated, provided that $\mu \in [\mu^{**}, \mu^*)$, or society remains an autocracy, with transfers if $\mu \in [\mu^*, \underline{\mu})$ and without transfers if $[\underline{\mu}, 1]$.

**Equilibrium** I consider Markov perfect equilibria, meaning that all strategies must be a best response and can only depend on the current state, not the history of past states. A Markov perfect equilibrium consists of a choice set for the Elites and the Citizens for each combination of state variables (namely, the current value of $\mu$ and political institutions from the previous period). But, all of the consequential choices take place in autocracy: If the revolution occurs, taxes are always zero, as the Elites have been killed, and the Citizens have equal income, and, therefore, no desire for taxes and transfers; in democracy, the Citizens preferred tax rate is always chosen.[14]

In autocracy, there will be no transfers in the first two states of $\mu$, as the Citizens cannot credibly threaten revolution. In the third state, however, there may be transfers, or even the concession of democracy, depending on the value of $\mu$. We can, therefore, solve for the three thresholds, $\underline{\mu}$, $\mu^*$, and $\mu^{**}$, under Equation (4.15), which will determine the equilibrium actions.

[14]The Citizens do possess the ability to revolt in this state, but, for simplicity, I assume that this is never a best response for them.

To obtain the first threshold, $\underline{\mu}$, notice that the present value of coconuts when the Citizens receive no transfers in any period is

$$V^p(A, \mu_t; \tau_t = 0 \ \forall t) = \frac{1-\theta}{(1-\delta)(1-\beta^\star)}. \tag{4.16}$$

Equating Equation (4.7) with Equation (4.16) shows that

$$\underline{\mu} = \theta. \tag{4.17}$$

The second threshold, $\mu^*$, is given by

$$\mu^* = \theta - \frac{\varpi(\theta-\delta)^2}{2(1-\delta)}, \tag{4.18}$$

where

$$\varpi = \left( \frac{(1-\beta^\star(1-q))(1-\beta^\star(1-2p-q)) + \beta^\star q(1-\beta^\star(1-p-q))}{(1-\beta^\star(1-q))(1-\beta^\star(1-2p-q))} \right) \tag{4.19}$$

which is shown in Appendix C.2. In addition, when $\mu$ is in the range $\mu \in [\mu^*, \underline{\mu})$, the minimum tax the Elites can offer to avoid revolution is given by

$$\hat{\tau}(\mu) = \frac{\theta-\delta}{1-\delta} - \frac{\sqrt{(\theta-\delta)^2 - 2\left(\frac{\theta-\mu}{\varpi}\right)(1-\delta)}}{1-\delta}. \tag{4.20}$$

The final threshold, $\mu^{**}$ is described above in Equation (4.14).

**Proposition 1.** *If the transition matrix for $\mu$ follows Equation (4.15) and $\mu^1 = \mu^2 = 1$ and $\mu^3 = \mu$, and the regularity conditions $\beta^\star < 1$ and $\theta > \delta$ hold, then:*

- *For $\mu \in [\underline{\mu}, 1]$, the economy is an autocracy and taxes are set to 0 in all periods;*
- *For $\mu \in [\mu^*, \underline{\mu})$, the economy is an autocracy in all periods and taxes are set to 0 in the stable autocracy state and the democratization state, and to $\hat{\tau}(\mu)$, as specified in Equation (4.20), in the third state;*

- *For $\mu \in [\mu^{**}, \mu^{*})$, the economy is an autocracy and taxes are set to 0 in the stable autocracy state and the democratization state, and the economy becomes a democracy in the third state and taxes are set to $\tau^{p*}$. Once the third state is reached, the economy remains a democracy forever;*

- *For $\mu \in [0, \mu^{**})$, the economy is an autocracy and taxes are set to 0 in the stable autocracy state and the democratization state, and the Citizens revolt in the third state;*

*is a Markov perfect equilibrium with the threshold points $\underline{\mu}$, $\mu^{*}$, and $\mu^{**}$ described by Equations (4.17), (4.18), and (4.14).*

## 4.1 Asset pricing implications

Assets are priced by the consumption of the Elites, as they are the only agents who participate in financial markets. For simplicity, for the remainder of this section, I assume that $\mu^3 = \mu^{**}$ which means that the Elites must concede democracy when the third state of the Markov chain is first reached. For this reason, I now call the third state the *stable democracy state*.

**The Elites' problem** The Elites have Epstein and Zin utility and trade in the consumption claim and a zero-net supply riskfree bond. The recursive formulation of their utility is given by

$$V(W_t, \mu_t) = \max \left[ (1-\beta) C_t^{1-1/\psi} + \beta \left( \mathbb{E}_t \left[ V(W_{t+1}, \mu_{t+1})^{1-\gamma} \right] \right)^{\frac{1-1/\psi}{1-\gamma}} \right]^{\frac{1}{1-1/\psi}}, \tag{4.21}$$

with the budget constraint

$$W_{t+1} = (W_t - C_t) R_{W,t+1} \tag{4.22}$$

and a market clearing condition $Y_t^r = C_t$, where $C_t$ is consumption, $W_t$ wealth, $\gamma$ risk aversion, $\psi$ the elasticity of intertemporal substitution (EIS), and $R_{W,t+1} \equiv \frac{W_{t+1}}{W_t - C_t}$ the return on the wealth portfolio. In most periods, the growth rate of coconuts for the Elites is equal

to the growth rate of the Lucas tree, Equation (4.1). This is not the case when $\mu$ transitions from the democratization state to the stable democracy state for the first time, as the Elites must concede democracy. Therefore, the endowment process for the Elites is given by

$$\Delta y_t^r(\phi_t, \phi_{t-1}) = \bar{y} + \vartheta\varepsilon_t + \log(1 - b(\phi_t, \phi_{t-1})) \tag{4.23}$$

with

$$b(\phi_t, \phi_{t-1}) = \begin{cases} Z & \text{if } \phi_t = 1 \text{ and } \phi_{t-1} = 0 \\ 0 & \text{otherwise} \end{cases} \tag{4.24}$$

where $Z \equiv \frac{(\theta-\delta)^2(1-\frac{1}{2}\delta)}{\theta(1-\delta)^2}$ which is decreasing in the level of inequality, meaning the the redistribution required to avert a revolution is higher the more unequal is the economy.

**Consumption-wealth ratio and asset returns** Under Epstein-Zin utility, the stochastic discount factor of the Elites is

$$M_{t+1} = \beta^\alpha \left(\frac{C_{t+1}}{C_t}\right)^{-\frac{\alpha}{\psi}} R_{W,t+1}^{(\alpha-1)}$$

where $\alpha \equiv \frac{1-\gamma}{1-\frac{1}{\psi}}$. This means that the wealth-consumption ratio, $\kappa$, is implicitly given by

$$\kappa(\mu_t) - 1 = \mathbb{E}\left[\beta^\alpha \left(\frac{C_{t+1}}{C_t}\right)^{1-\gamma} \kappa(\mu_{t+1})^\alpha\right]^{\frac{1}{\alpha}} \tag{4.25}$$

and (effectively) only varies based on the state of $\mu$. In the stable democracy state, this allows for an explicit solution

$$\kappa(\mu^3) = \frac{1}{1 - \beta e^{(1-\frac{1}{\psi})\bar{y} + \frac{1}{2}(1-\gamma)(1-\frac{1}{\psi})\vartheta^2}},$$

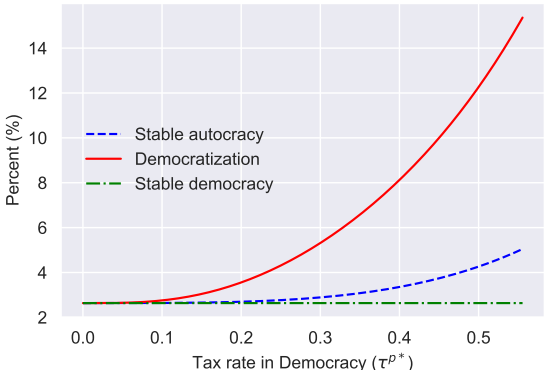
and in the stable autocracy and democratization states, gives a system of two equations in two unknowns which can be solved numerically.[15]

[15]Note, that I am not including the dependency on political institutions. The full notation should be $\kappa(\mu^i, \phi_t, \phi_{t-1})$ where $\kappa(\mu^1, 0, 0) \equiv \kappa(\mu^1)$, $\kappa(\mu^2, 0, 0) \equiv \kappa(\mu^2)$, and $\kappa(\mu^i, 1, \phi_{t-1}) \equiv \kappa(\mu^3)$ in the notation above, a convention I keep for the remainder of the section.

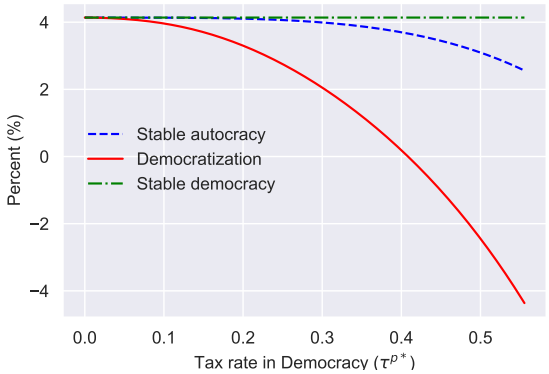
**Figure 4: Comparative statics on inequality for dividend yields, riskfree rates, and risk premia**

The parameter calibration used here sets risk aversion $\gamma = 10$, the EIS $\psi = 5$, the patience parameter $\beta = .95$, the growth rate of the endowment $\bar{y} = 0.02$, the volatility of the endowment $\vartheta = 0.05$, the probability of transition in states 1 and 3 $q = 0.02$, the probability of transition in state 2 $p = 0.10$, and the proportion of the population that are Elites $\delta = 0.10$.

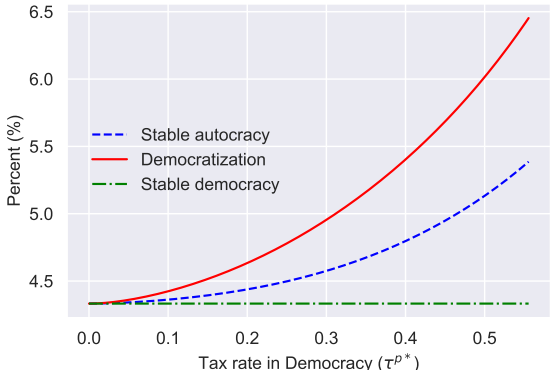
**Panel A: Risk premium**




**Panel B: Riskfree rate**




**Panel C: Dividend yields**




The riskfree rate, similar to the wealth-consumption ratio, varies only with the state of

$\mu$ and is

$$
\begin{aligned}
R_f(\mu^1) =& \beta^{-\alpha} e^{\gamma\bar{y} - \frac{1}{2}\gamma^2\vartheta^2} \left(\kappa(\mu^1) - 1\right)^{\alpha-1} \left[(1-q)\kappa(\mu^1)^{\alpha-1} + q\kappa(\mu^2)^{\alpha-1}\right]^{-1} \\
R_f(\mu^2) =& \beta^{-\alpha} e^{\gamma\bar{y} - \frac{1}{2}\gamma^2\vartheta^2} \left(\kappa(\mu^2) - 1\right)^{\alpha-1} \\
& \times \left[p\kappa(\mu^1)^{\alpha-1} + (1-2p)\kappa(\mu^2)^{\alpha-1} + p(1-Z)^{-\gamma}\kappa(\mu^3)^{\alpha-1}\right]^{-1} \\
R_f(\mu^3) =& \beta^{-1} e^{\frac{1}{\psi}\bar{y} - \frac{1}{2}(\gamma - \frac{1}{\psi}(1-\gamma))\vartheta^2}.
\end{aligned}
$$

Moreover, since consumption growth, the wealth-consumption ratio, and the riskfree rate only vary with the state of $\mu$, so too does the excess return on the consumption claim, given by $R^e(\mu^i) \equiv \mathbb{E}\left[\frac{R_W(\mu^i)}{R_f(\mu^i)}\right]$.

I use the excess return on the consumption claim as a proxy for the risk premium and the consumption-wealth ratio as a proxy for the dividend yield. The comparative statics of the equity premium, the riskfree rate, and the dividend yield with respect to changes in the tax rate that will be implemented if democracy consolidates, $\tau^{p*}$, are shown in Figure 4. The equity premium rises and riskfree rate falls when there is a chance that the Elites will concede democracy in the next period. The intuition is that of a standard disaster model; the Elites face increased risk that drives up their demand for the riskfree asset, pushing down the riskfree rate. Likewise, the equity premium must rise to incentivize the Elites to hold it. The dividend yield increases because the equity premium and consumption growth effects dominate the riskfree rate effect which is due to the Elites having Epstein and Zin preferences with $\psi > 1$.

## 4.2 Interpretation

The model provides a compelling mechanism for why risk premia rise during periods of democratization: the Elites fear their income will be redistributed to the Citizens. Moving from the stable autocracy state to the democratization state increases the probability that

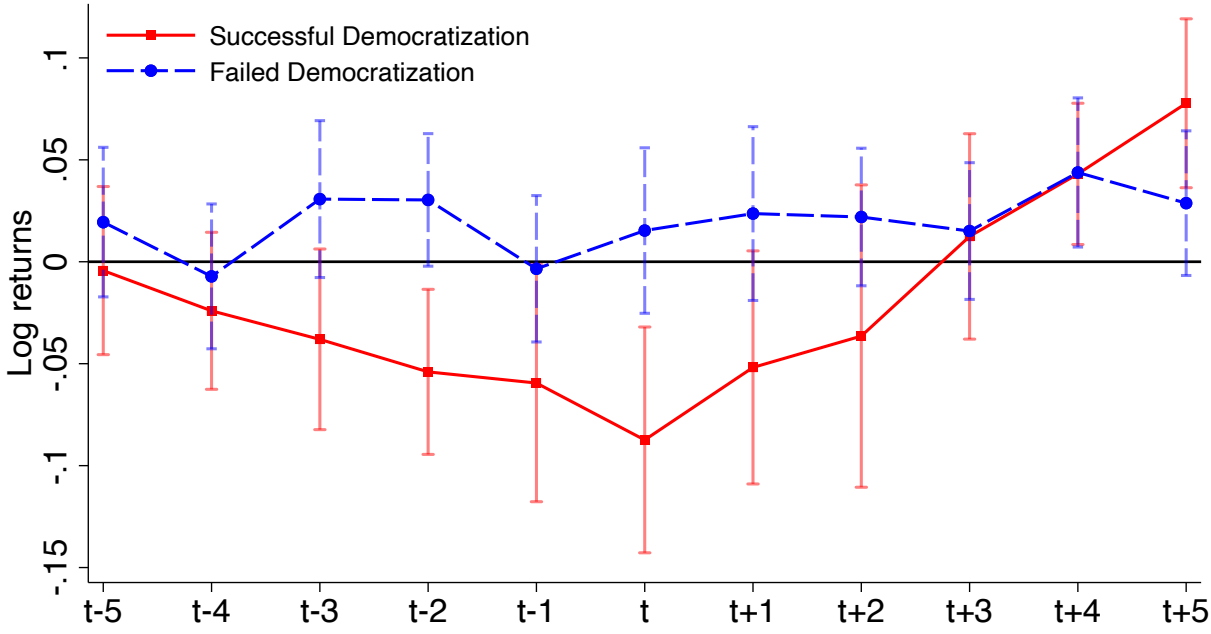
the society will permanently transition to democracy, bringing about the same effects as in Wachter (2013) associated with an increase in the disaster probability, thus providing a rationale for the increase in risk premia observed in Section 3.

**Figure 5: Returns around successful and failed democratization ends**

This figure presents the coefficients of the a 5-year moving average of log cum-dividend returns on indicator variables for the time to/from a successful or failed democratization end year. The regressions estimated take the form

$$\text{5-year average log cum-dividend returns}_{c,t} = \alpha + \sum_{s=-5}^{5} \beta_s \mathbb{1}_{c,t}\{s \times \text{Democratization End}\} + \epsilon_{c,t}.$$

Standard errors are heteroskedasticity robust and a 90% confidence interval is plotted.




However, for an "Elite disaster" interpretation of democratizations to be reasonable, realized returns must be low upon the successful consolidation of democracy. Is this the case in the data? Figure 5 shows a 5-year moving average of log cum-dividend returns around successful and failed democratization end years, where the success or failure of the democratization, as well as its end year, is defined as in Lindberg et al. (2018). Returns are significantly lower around the end of successful democratizations than failed democratizations

by around 10 percentage points. To put this in perspective, investors in the market of a country undergoing a successful democratization earn a cumulative return of -15 percentage points (after subtracting the intercept) over 5-years. This estimate is also likely a lower bound on the effect, as there is attenuation bias: some successful democratizations in the data may not be accompanied by redistribution, in which case we would, theoretically, expect no effect. These results are consistent with the Elite disaster interpretation of successful democratizations presented in the model.

Redistribution shocks also provide an additional mechanism for models in the rare disaster literature: limited financial market participation in models with redistribution shocks. The rare disasters literature in asset pricing has primarily examined aggregate consumption, yet, in the model above, there is no need for aggregate consumption to decline to achieve the skewness required by these models to match asset pricing moments like the risk premium. This means that the probability of a consumption disaster implied by Barro and Ursua (2008)—around 4% annually—may be an understatement once limited financial market participation is taken into account. Accounting for this may explain the disappointing empirical correspondence between asset returns and aggregate consumption disasters.

Further, a sudden increase in taxes and transfers is not the only mechanism by which the threat of redistribution in democracy can increase risk premia. For example, an alternative model where the consolidation of democracy challenges the control the Elites have over state-sanctioned monopolies may generate similar results without a large increase in taxes. Additionally, the Elites in a society may gain non-pecuniary benefits from their elite status that is lost in democracy, leading to higher marginal utility in the stable democracy state and, therefore, higher risk premia during democratizations provided that Elite consumption is correlated with the loss of status. My goal is not to take a strong stance on the exact mechanism of redistribution in democracy; certainly, each democracy redistributes in its own way. Instead the taxes and transfers in the model are meant as a stand in for any and all means of redistribution in democracy.

## 4.3 Democracy and redistribution

One question remains: How much do democratizations redistribute? One natural place to turn is to examine the whether there are differences in what happens after the successful and failed slow democratizations from Lindberg et al. (2018). Table 5 provides support for the model's primary mechanism, showing that government revenues rise by 3.6% annually for 10-years following a successful slow democratization after controlling for country and year fixed effects and GDP growth. Government revenues, however, are flat after a failed democratization. Further, the Gini coefficient declines 0.5% per year, meaning that it is reduced, in total, by 10% 20-years after a successful democratization ends, representing just over 100% of the average difference in the Gini coefficient between autocracies and democracies. The same cannot be said after failed slow democratizations, where the Gini coefficient *rises* by 5% over 20-years.[16]

It is important to note, however, that the political economy literature is mixed on exactly how redistribution occurs after democratizations. A comprehensive review of this literature comes from Acemoglu, Naidu, Restrepo and Robinson (2015), where the authors show that, while tax revenues-to-GDP rise between 10 to 20 percentage points after democratizations, there is no robust effect on inequality. [17] They then offer reasons why inequality may not fall after democratizations, yet the risk to the political elites may still be high. For example, if the political elites lose political power, markets may democratize, leading to opportunities for entrepreneurs that were previously shut out of financial markets. These entrepreneurs

[16] I present only data for slow democratizations, as I do not have a measure for the success of fast democratizations. I rely on the findings of Lindberg et al. (2018) to determine the success or failure of a democratization.

[17] This stands in contrast to Table 5, which finds larger effects on government revenue and inequality. It is important to note, however, that Acemoglu, Naidu, Restrepo and Robinson do not show separate results for successful and failed democratizations; when I pool successful and failed democratizations, I find similar results.

may become wealthy at the expense of the elites, which will lead to a reduction in the wealth of the previous autocratic elites, but no change in standard inequality measures. Here, the *ex ante* political elites are not the same as the *ex post* economic elites.[18] Regardless, the primary mechanism in the model—redistribution away from the elites in autocracy—requires no reduction in structural inequality, but does require an increase in size of the government, for which there is ample evidence.

**Table 5: Democratizations, inequality, and government revenue**

This table presents regressions of the log change in government revenue and the log change in the Gini coefficient on indicator variables representing 10- and 20-years, respectively, after a democratization ends. Successful democratizations and failed democratizations are separated. The regressions estimated take the form

$$\text{Outcome}_{c,t} = \alpha_c + \alpha_t + \beta \mathbb{1}_{c,t}\{\text{10-years or 20-years after a Democratization End}\} + \epsilon_{c,t}.$$

Standard errors are clustered by country and year. All coefficients have been multiplied by 100 for presentation, and $t$ statistics are in parentheses. Log GDP growth is included as a control in both regressions in addition to the event controls.

| | Log change in government revenue | Log change in Gini coefficient |
|---|---|---|
| | (1) | (2) |
| Post Successful Slow Democratization | 3.610* | -0.493*** |
| | (1.93) | (-2.88) |
| Post Failed Slow Democratization | 0.0765 | 0.241* |
| | (0.04) | (1.80) |
| Year FE | ✓ | ✓ |
| Country FE | ✓ | ✓ |
| Controls | ✓ | ✓ |
| N | 5687 | 6851 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Finally, there is also a slight disconnect between democratizations in the model and in the data. In the data, democratizations are measured by the growth rates in indices of democratic institutions whereas in the model, they represent an increase in the probability that the Elites must concede democracy. Democratizations in the model, while less complex

[18] Further, elites may unexpectedly capture political institutions post-democratization, especially in high inequality countries. As such, there may be substantial heterogeneity in the effect that successful democratizations have on inequality (Glaeser, Scheinkman and Shleifer, 2003).

than their data counterpart, do account for the essential ingredient for the rise in risk premia: the possibility that democratizations may fail. The uncertainty over whether the Elites will conceded democracy or will return to their happy—at least, for them—existence in autocracy is what causes risk premia to rise. That uncertainty, and not redistribution *per se*, is key is exemplified by the low risk premia in the stable democracy state despite higher redistributive taxation. The reason for this is that all uncertainty over whether redistribution will occur has resolved.

Such uncertainty over the success or failure of a democratizations is present in the data, too. Just over 52% of democratizations for which I have asset pricing data fail, meaning that the society reverts to autocracy only a short time after the initial jump in measures of democratic institutions. In sum, the primary mechanism for the rise in risk premia in the model enjoys resounding support in the data.

## 4.4 Robustness

One potential concern is that the model does not account for counteracting mechanisms, such as higher growth and better risk sharing in countries with democratic institutions. Three points are important to note with regard to this potential critique. First, the empirical results from Section 3 support that, whatever counteracting effects may theoretically be present, the increase in risk seems to dominate. Second, while democracy and growth are strongly correlated, the development literature is not settled on whether democratic institutions indeed cause higher growth or better risk sharing (Glaeser, La Porta, Lopez-De-Silanes and Shleifer, 2004, Acemoglu, Naidu, Restrepo and Robinson, 2019). Third, higher growth or better risk sharing are unlikely to theoretically affect the results from the model. To see why, examine the modified income process for the Elites, which allows for higher growth in

democratic regimes[19]

$$\Delta y_t^r(\phi_t, \phi_{t-1}) = \bar{y} + \varphi \mathbb{1}\{\phi = 1\} + \vartheta \varepsilon_t + \log(1 - b(\phi_t, \phi_{t-1})). \tag{4.26}$$

Say that the increase in government revenue in the data is on average 30% over 10 years, similar to the findings of Acemoglu et al. (2015), implying $b \approx 0.26$. The observed differences in growth between autocratic and democratic countries, conversely, is around 54 basis points, or $\varphi \approx 0.0054$. The change in growth is, therefore, much smaller than the increase in redistribution, meaning the asset pricing effects would be negligible. A similar argument applies for risk sharing; the benefits would need to be tremendous to offset the increase in redistribution risk.

# 5 John XXIII and the Second Vatican Council

In the model, periods of democratization cause elevated risk premia, but the empirical evidence presented thus far is correlative—democratizations correspond with higher risk premia. The stylized facts presented in Section 3 do not have a causal interpretation as many things change in democratizations: A missing or unobserved variable may be causing both democratizations and higher risk premia. For example, periods of democratization tend to arrive after adverse events or periods of low growth, which in turn may raise risk premia regardless of whether the democratization occurred (Acemoglu, Johnson, Robinson and Yared, 2008, Bruckner and Ciccone, 2011, Acemoglu, Naidu, Restrepo and Robinson, 2019).[20] Alternatively, the results in Section 3 may be understated since democratizations are at least

[19] Just changing the equilibrium income process of the Elites, however, excludes potential effects on the threshold points $\mu^*$ and $\mu^{**}$ which would be changed by the prospect of higher growth or better risk sharing in democracy. In the model where $\mu$ follows a three-state Markov process, this is not likely to have an effect, but as the state space for $\mu$ becomes more fine, the effects on the cut-off points will matter for the probability that the economy becomes democratic.

[20] However, it is important to note that after democratizations begin, growth is, on average, higher and there is no change in volatility, as shown in Section 3. This means that any change in the expectations of

partially endogenous, meaning that democratizations which correspond with the smallest increases in risk premia could be more likely to realize in sample.

This section addresses these challenges by using a quasi-natural experiment of a doctrinal shift in favor of democracy by the Catholic church in the early 1960s as an exogenous shock to the probability that democracy consolidates for majority Catholic, autocratic countries, and which only affects risk premia through this channel.

**Historical context** Prior to 1963, the Catholic church was widely considered as a barrier to the consolidation of democracy. For example, Hook (1940) writes of the Catholic church, "Catholicism is the oldest and greatest totalitarian movement in history." Similarly, Blanshard (1949) writes "You cannot find in the entire literature of Catholicism a single unequivocal endorsement by any Pope of democracy as a superior form of government." This arrangement changed in October 1958 with the election of Cardinal Angelo Giuseppe Roncalli to the papacy. Donning the name John XXIII—history recalls him as *il Papa buono*, Italian for "the Good Pope"—not much was expected of the old Pope, who was nearing 77 years old when he began his pontificate. He shocked the world, however, when he called for a major review of Catholic church doctrine in January 1959, just four months into his papacy. This review became the Second Vatican Council (Vatican-II), which began in 1962 and lasted into 1965, outlasting John XXIII, who died in June 1963 of stomach cancer.[21]

Before he passed, John XXIII made the doctrinal shift official with his publication of *Pacem in Terris*, the first text in the history of the Catholic church to explicitly endorse democracy.[22] Sigmund (1987) marks *Pacem in Terris* as the beginning of the decisive shift

future consumption growth or volatility do not materialize in sample once the democratization is underway.

[21]Vatican-II was a fitting follow-up to the First Vatican Council in which the Catholic church condemned liberal democracy.

[22]In particular, *Pacem in Terris* says "[...] the dignity of the human person involves the right to take an active part in public affairs and to contribute one's part to the common good of the citizens. [...] The human person is also entitled to the juridical protection of his rights." This support is followed up with support for

in Catholic church policy in support of liberal democracy, and, according to Huntington (1991), the publication of *Pacem in Terris*, and Vatican-II which succeeded it, is one of five main reasons the third wave of democratization—which took place from the mid-1970s to the 1990s—occurred. After 1963, the Catholic church played an active role in opposing authoritarian regimes in places like Argentina, Brazil, Chile, the Philippines, Poland, and many Central American countries, actively working as an advocate of democracy (Huntington, 1991).

The announcement of Vatican-II and the doctrinal shift it brought about was likely not foreseen by investors and constitutes a plausibly exogenous shock to the probability that democracy consolidates in majority Catholic and autocratic countries that is unrelated to risk premia other than through this channel. What evidence is there that majority Catholic and autocratic countries were primarily affected by this shock? First, most of the countries that underwent successful democratizations (according to the Lindberg et al. data) from 1964 to 1983 were majority Catholic: In 1963, 25% of autocracies were majority Catholic, yet these countries made up 55% of all successful democratizations over the next 20 years.[23]

Second, democratic mobilizations—small and large scale mobilizations in favor of democracy—became significantly more prevalent in majority Catholic autocracies compared to non-Catholic autocracies, as shown in the first column of Figure 6. From 1925–1963, the democratic demonstrations were sparse in all autocratic countries, indicating a secure grip on power for the governing regime. After 1963 and *Pacem in Terris*, the tight grip of autocracy began to loosen in the majority Catholic countries and by 1989, large-scale democratic mobilizations were commonplace. The same such treatment is not present in non-Catholic

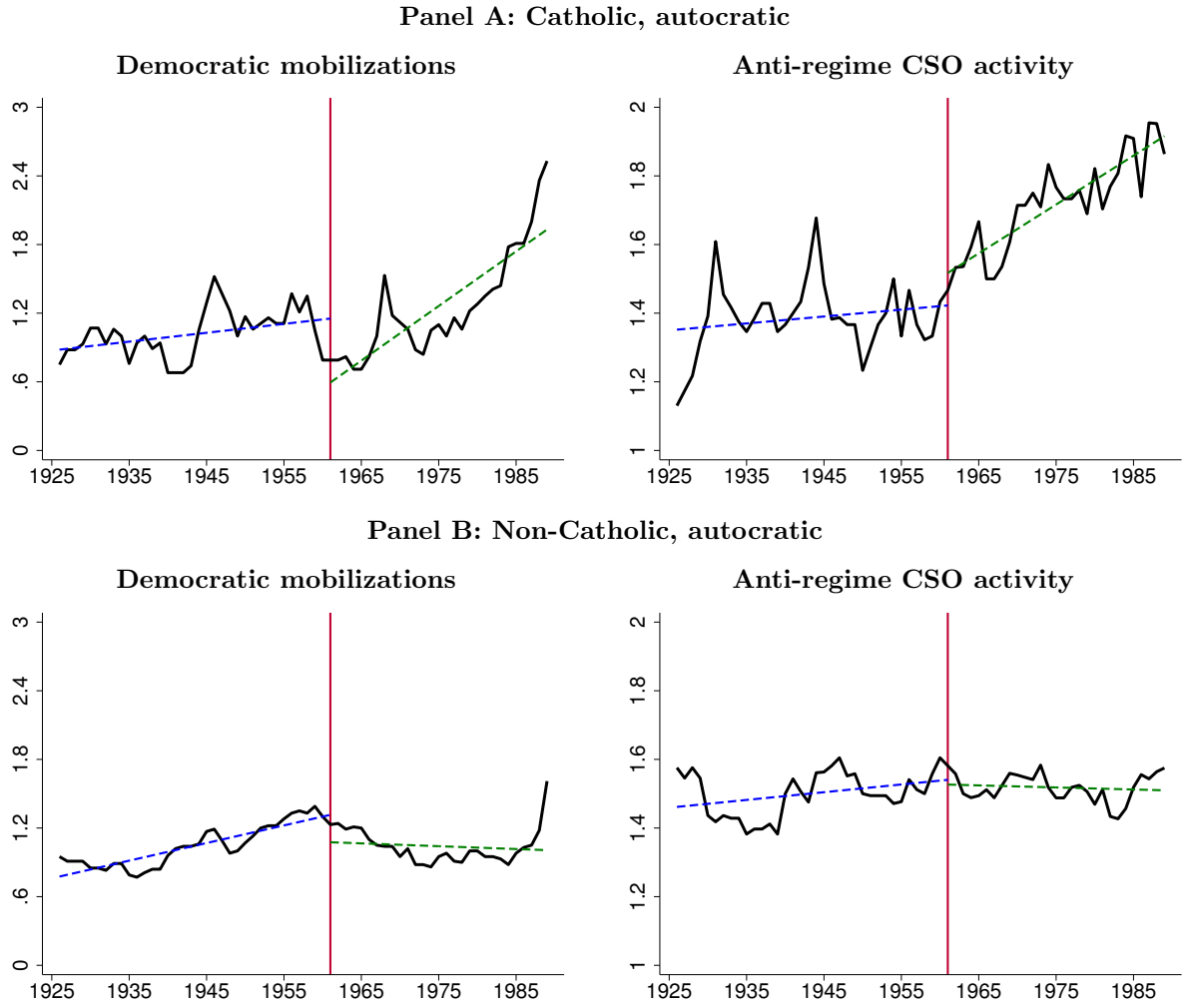
democracy explicitly in Point 52: "The fact that authority comes from God does not mean that men have no power to choose those who are to rule the State, or to decide upon the type of government they want, and determine the procedure and limitations of rulers in the exercise of their authority. Hence the above teaching is consonant with any genuinely democratic form of government."

[23]This is based on successful democratization *starts* meaning that the democratizations that were initiated during this time were were more likely to be successful.

autocracies.

**Figure 6: Democratic mobilizations and anti-regime civil society organization activity**

This figure plots the cross-country mean for majority Catholic and non-Catholic autocracies of democratic mobilizations and anti-regime civil society organization (CSO) activity from the V-Dem database. The democratic mobilization index assesses the number of small- and large-scale demonstrations in favor of democracy in a given year with a maximum value of 4. The anti-regime CSO activity index ranks the threat posed by anti-regime civil society organizations on a scale of 0 to 4, where 0 is no anti-regime civil society organization activity, and 4 is a major present threat from anti-regime civil society organizations. The autocracy designation is also constructed from V-Dem data, and includes all closed or electoral autocracies. Data on the percentage of the population that is Catholic comes from the Correlates of War database. The vertical line shows 1961, the mid-point in the papacy of John XXIII.




Third, anti-regime civil society organizations became a much larger threat to autocratic regimes in majority Catholic countries after 1963, as shown in the second column of Figure 6.

The same threat, however, did not materialize in non-Catholic autocracies, which saw, if anything, a lower threat level from anti-regime civil society organizations after 1963. Moreover, prior to 1963, the trend in the threat posed by anti-regime civil society organizations was identical in the two groups of countries.

**Identifying the treatment window** First, it is important to specify the treatment window, which I take to be the period from 1959 to 1963, from the unexpected announcement of Vatican-II to the official announcement of the doctrinal shift with the publication of *Pacem in Terris*, as the years of treatment. The first reason for choosing a range of years, instead of a single event year, is that in this window there are many events which signaled the doctrinal shift. Since financial markets are forward looking, information about the doctrinal shift was likely incorporated into asset prices prior to the official announcement in 1963.

The earliest candidate for a treatment year is 1959 when Pope John XXIII unexpectedly called Vatican-II to update Church doctrine on a variety of topics. Vatican-II convened from late 1962 to 1965, but the direct announcements regarding democracy were focused in 1963 and toward the end of Vatican-II in 1965. However, the interim period after the announcement of Vatican-II but before it convened was filled with announcements that signaled change. For example, John XXIII's 1961 writing, *Mater et Magistra*, singles out economic and political inequalities on a number of occasions.[24] Further, a structural break

[24]In particular "Among citizens of the same political community there is often a marked degree of economic and social inequality. [...] Where this situation obtains, justice and equity demand that public authority try to eliminate or reduce such imbalances. It should ensure that the less developed areas receive such essential public services as their circumstances require, in order to bring the standard of living in these areas into line with the national average. Furthermore, a suitable economic and social policy must be devised which will take into account the supply of labor, the drift of population, wages, taxes, credit, and the investing of money, especially in expanding industries. In short, it should be a policy designed to promote useful employment, enterprising initiative, and the exploitation of local resources."

test[25] on the democratic mobilizations and anti-regime civil society organizations series, presented in Figure 6, indicates a change in trend around 1959 or 1962 in the majority Catholic autocracies, indicating that the political reality on the ground began to change before 1963. In short, while 1963 is the earliest year where I can be sure investors were aware of the doctrinal shift, there are many other potential events that signaled treatment.[26]

The second reason for choosing a range of years as the treatment window comes from the nature of shocks to expected returns—positive discount rate shocks correspond with *negative* contemporaneous returns. As such, if the treatment window starts too late, the estimated treatment effect on risk premia will be biased upward, as the contemporaneous negative returns associated with discount rate shocks will be located in the pre-period, inflating the estimated treatment effect. Similarly, if the treatment window starts too early, the treatment effect will be biased downward.

To discern the negative realized returns accompanying an increase in risk premia from the subsequent realization of higher returns due to increased risk premia, Figure 7 presents a three-year moving average of abnormal returns from a two-factor model, which controls for global and regional risk, described in greater detail below. From 1946 to 1958, the returns of majority Catholic autocracies closely correspond with the returns in the other countries in the sample. From 1959 to 1963, however, the series diverge, with majority Catholic autocracies earning much lower returns than their counterparts around the globe. This is reversed in the last part of the sample, the twenty year period from 1964 to 1983, where majority Catholic autocracies earn higher abnormal returns than other countries. As such, the negative returns are focused in the treatment years, giving good evidence that the results

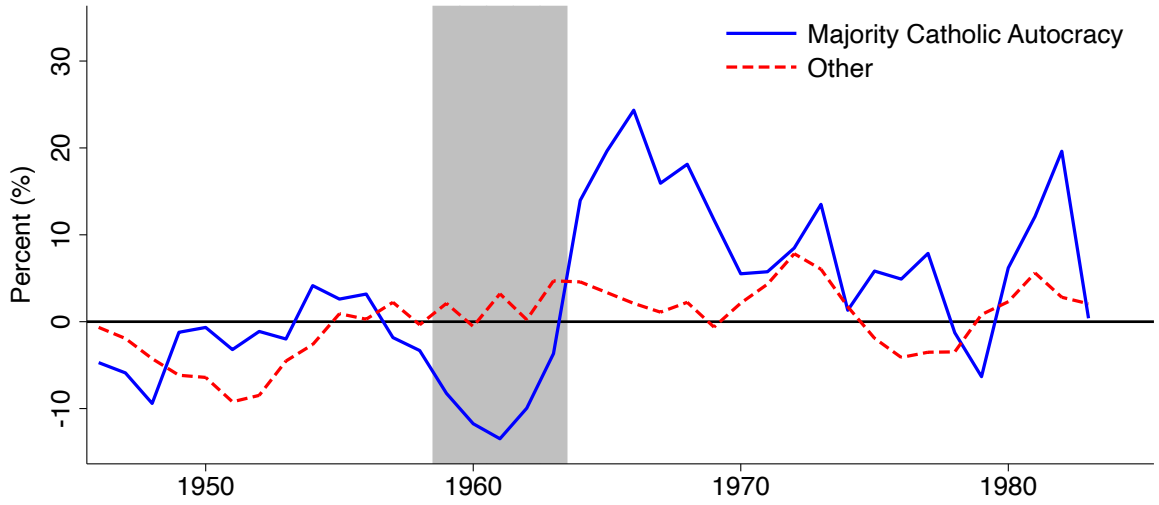
[25]To obtain a single time series to test, the majority Catholic autocracy average is subtracted from the non-Catholic autocracy average for each variable to obtain a difference. Then, two structural break tests are run on each series on the period 1940–1989, a supremum Wald test and a supremum likelihood-ratio test. Each test indicates the same break date on each series: 1959 for democratic mobilizations and 1962 for anti-system CSO activity. The test statistics represent a high degree of statistical significance ($p < 0.001$).

[26]Appendix Section D.3 tests other potential treatment windows and shows that the results are unchanged.

are not biased by low returns in either the pre- or post-periods.

**Figure 7: Three-year moving average of abnormal returns**

This figure presents a three-year moving average of abnormal returns estimated from the factor model given by Equation (5.4). The shaded bars represent the treatment period, 1959–1963.




**Identifying assumptions** Political institutions and religion are not randomly assigned; they are the result of myriad historical, economic, social, and cultural processes that mold society over centuries. The identifying assumption underlying this exercise, therefore, does *not* rely on random assignment of religious demographics or political institutions. Instead, it relies on the assumption that absent the doctrinal shift, the treated (majority Catholic and autocratic countries) and control (all other countries) groups would have experienced similar returns, conditional on the relevant controls and fixed effects. In essence, the parallel trends assumption must hold. Evidence in favor of parallel trends is provided in Figure 7, where average abnormal returns for majority Catholic autocracies follow the average abnormal returns in other countries quite closely in the pre-period, but then diverge after treatment in post-period.

**Table 6: Balance of characteristics, 1946–1958**

This table shows various characteristics of each of the different types countries used in the difference-in-differences framework. In the first 4 columns, means are reported. The "Diff." column reports the point estimates on the regression

$$\text{Outcome}_{c,t} = \alpha + \beta \mathbb{1}_{c,t}\{\text{Majority Catholic Autocracy}\} + \epsilon_{c,t}.$$

Standard errors are clustered by country and year. The coefficients on rate variables have been multiplied by 100. The risk adjustment procedure for returns uses a two-factor model shown in Equation (5.4).

| | **Maj. Cath. Autocracy** | **Non-Cath. Autocracy** | **Maj. Cath. Democracy** | **Non-Cath. Democracy** | **Diff.** | **S.E.** |
|---|---|---|---|---|---|---|
| Excess Returns (%) | 11.0 | 6.3 | 6.2 | 12.0 | 2.5 | 1.7 |
| Risk-adjusted Returns (%) | -0.8 | -6.7 | -0.6 | 0.9 | 1.1 | 2.8 |
| GDP Per Capita | 4,346.6 | 2,453 | 7,564.8 | 9,904.9 | -2,471.5** | 1,049.2 |
| Inflation (%) | 18.5 | 7.1 | 7 | 4.8 | 12.5** | 5.7 |
| Annual GDP Growth | 6.0 | 4.8 | 4.7 | 4.7 | 1.2 | 1.1 |
| Debt/GDP | 29.3 | 34.9 | 46.4 | 63.8 | -22.5* | 12.5 |
| Gini Coeficient | 46.5 | 50.9 | 42.8 | 41.0 | 3.5 | 2.7 |
| Resource Inequality Index | 0.75 | 0.77 | 0.25 | 0.23 | 0.28*** | 0.08 |
| Dividend Growth (%) | 10.7 | 9.5 | 14.4 | 7.3 | 2.7 | 7.8 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Additionally, to asses the dimensions along which the groups of countries differ, Table 6 shows the balance of characteristics in the pre-period (1946–1958). Majority Catholic autocracies tend to be poorer, have higher inflation, higher resource inequality, and lower debt-to-GDP ratios than the average country in the sample. To address this, I directly control for GDP per capita, resource inequality, and inflation[27] in all regressions and add country fixed effects, which capture differences in persistent variables like the debt-GDP ratio.

Further, I treat the doctrinal shift in favor of democracy as exogenous, implicitly assuming away any reverse causality—in essence, identification by God. This essentially assumes that John XXIII did not take asset prices or the asset portfolio of the Catholic church into account when making decisions on religious doctrine. In reality, however, things are more complex. While the sources in the Catholic theology literature do not point to economic

[27]When controlling for inflation, three observations are lost. However, the results are basically identical with or without inflation as a control.

reasons as the basis for the doctrinal shift in favor of democracy, the change may, in part, be due to the relatively high growth rates of protestant democracies compared to majority Catholic autocracies. The timing of the decision to start changing church doctrine, however, does seem random, as does the date which the information was made public, meaning that a partially economic basis for the doctrinal shift would not affect the validity of the identification strategy.

Finally, I also assume that investors have access to the same riskfree investment, meaning that cum-dividend returns are equal to excess returns when time fixed effects are added, which serves two purposes in the analysis. The first is practical; stock prices have a greater availability in the data than government bond returns. A substantial portion of the sample would be lost by constructing excess returns in this way. The second is theoretical; as shown in Section 3, the observed government bond rate in many of the countries in the sample is not riskfree. Constructing excess returns using government bonds may, therefore, erase part of the risk premium I seek to measure.

**Specification** To assess the treatment effect of the doctrinal shift on majority Catholic autocracies, I employ a difference-in-differences framework of the form

$$\text{Excess Returns}_{c,t} = \alpha_c + \alpha_t + \beta \mathbb{1}_{c,t}\{\text{Post} \times \text{Catholic} \times \text{Autocracy}\} + \omega \text{Controls}_{c,t} + \epsilon_{c,t} \tag{5.1}$$

where $c$ represents each country and $t$ each year, and I exclude the years of treatment, 1959 to 1963, from the regression. This compares the pre- and post-period change in average excess returns for treated majority Catholic autocracies to what was experienced by the other countries in sample, where $\beta$ provides the treatment effect of interest

In addition, I also estimate two triple difference-in-differences specifications. One reason to use a triple difference-in-differences framework, as opposed to a single difference-in-differences framework, is that non-Catholic autocracies and majority Catholic democracies

are also potentially treated by the doctrinal shift, though to a lesser degree than majority Catholic autocracies. Democratizations tend to happen in waves, meaning that when democratic pressure builds in one part of the world, it is likely to build in other parts, as well. Non-Catholic autocracies could, therefore, be affected by this pressure, leading to increased risk and higher risk premia. The triple difference-in-differences framework addresses this by explicitly controlling for the post-treatment effect on all autocratic countries. On the other hand, the doctrinal shift may also lead to less political instability in majority Catholic democracies, leading risk premia to fall after the shock. The triple difference-in-differences framework addresses this by controlling for the post-treatment effect on majority Catholic countries, too.

The triple difference-in-differences specification helps to address other potential channels that may explain the results, aside from the doctrinal shift. For example, it is possible that other events, such as the assassination of JFK, the rise to power of Fidel Castro in Cuba, or general anxiety during the Cold War (for example, the Bay of Pigs Invasion in 1961 or the Cuban Missile Crisis in 1962) could be relevant, but would also require some explanation as to why majority Catholic autocracies were more affected by these events. Using a triple difference-in-differences methodology means that any other stories for the results must describe why the risk premia of majority Catholic autocracies are particularly affected, and not just risk premia for autocratic or majority Catholic countries, in general.

To this end, I use two different triple difference-in-differences specifications. The first is a standard discrete triple difference-in-differences specification, using three indicator variables—one if a country is majority Catholic, one if a country is an autocracy, and one if the year is after treatment—and their interactions. The triple difference-in-differences framework is,

therefore, given by

$$\begin{aligned}\text{Excess Returns}_{c,t} =&\alpha_c + \alpha_t + \beta_1 \mathbb{1}_{c,t}\{\text{Autocracy}\} + \beta_2 \mathbb{1}_{c,t}\{\text{Catholic}\} \\ &+ \beta_3 \mathbb{1}_{c,t}\{\text{Catholic} \times \text{Autocracy}\} + \beta_4 \mathbb{1}_{c,t}\{\text{Post} \times \text{Catholic}\} \\ &+ \beta_5 \mathbb{1}_{c,t}\{\text{Post} \times \text{Autocracy}\} + \beta_6 \mathbb{1}_{c,t}\{\text{Post} \times \text{Catholic} \times \text{Autocracy}\} \\ &+ \omega \text{Controls}_{c,t} + \epsilon_{c,t}.\end{aligned} \tag{5.2}$$

Coefficients $\beta_1$, $\beta_2$, and $\beta_3$ control for the pre-treatment differences in returns for autocracies, majority Catholic countries, and the interaction of the two. Coefficients $\beta_4$ and $\beta_5$ control for the post-treatment effects on returns for autocracies and majority Catholic countries. Finally, $\beta_6$ is the treatment effect of interest. A significant $\beta_6$ coefficient implies that majority Catholic autocracies were differentially effected by the doctrinal shift.

In addition to the discrete approach in Equation (5.2), I also employ a continuous specification that uses the full autocratic institutions index (constructed as 1 minus the V-Dem democratic institutions index) and fraction of the population that is Catholic, which is available every 5 years from 1945 from the Correlates of War Database, which I fill in using linear imputation.[28] The specification is given by

$$\begin{aligned}\text{Excess Returns}_{c,t} =&\alpha_c + \alpha_t + \beta_1 \text{Autocracy Index}_{c,t} + \beta_2 \%\ \text{Catholic}_{c,t} \\ &+ \beta_3 \text{Autocracy Index}_{c,t} \times \%\ \text{Catholic}_{c,t} \\ &+ \beta_4 \mathbb{1}_{c,t}\{\text{Post}\} \times \%\ \text{Catholic}_{c,t} + \beta_5 \mathbb{1}_{c,t}\{\text{Post}\} \times \text{Autocracy Index}_{c,t} \\ &+ \beta_6 \mathbb{1}_{c,t}\{\text{Post}\} \times \%\ \text{Catholic}_{c,t} \times \text{Autocracy Index}_{c,t} \\ &+ \omega \text{Controls}_{c,t} + \epsilon_{c,t}\end{aligned} \tag{5.3}$$

where $\beta_6$ is, once again, the treatment effect of interest, and the other coefficients have a similar interpretation to what I described in the previous paragraph.

[28] The particular way of filling in the missing data doesn't not matter much. The percentage of the population that is Catholic in each country is fairly stable, declining slowly over the sample in most countries.

**Controls and risk-adjustment** Each regression also includes a matrix of binary controls for macroeconomic and political events and continuous controls to better identify variation in risk premia due to democratization risk from realized returns. In particular, binary event controls for head of government deaths, financial crises, ICB political crises, wars, sovereign defaults, and recessions are included. Additional political controls are also added that account for the threat to the existing regime from civil society organizations, the level of political violence, and the frequency and size of democratic mobilizations in each country-year. Controls for the macroeconomic environment are also added, and include log-GDP growth, the level of log-GDP per capita, the level of resource inequality, and inflation. Each of these controls allow for a less attenuated estimate of the change in risk premia due to the doctrinal shift, as they absorb potential shocks unrelated to democratization risk that affect realized returns.

In addition to the above controls, I also include financial controls that adjust for systematic risk that is not associated with risk coming from an increased probability of democratization. In particular, estimated $\beta$'s multiplied by factor returns from a two factor risk model on the time series of returns for each country are included. This is done by estimating the time series model

$$R^e_{c,j,t} = \alpha_{c,t} + \beta_{1,t} R^{e,global}_t + \beta_{2,t,j} R^{e,continent}_{j,t} + \varepsilon_{c,j,t} \tag{5.4}$$

where $R^{e,global}_t$ denotes the total return in excess of the return on U.S. treasury bills on a GDP-weighted global market portfolio, $R^{e,continent}_t$ denotes the total return in excess of the return on U.S. treasury bills on a GDP-weighted region-specific market portfolio, and $c$ denotes the country, $j$ denotes the region,[29] and $t$ denotes the year. The $\beta$'s are estimated on a rolling

[29]The regions used include: 1) South and Central America, 2) North America, 3) Europe, 4) Asia (less the Middle East), 5) The Middle East, and 6) Oceania. Note, I do not include the continent market portfolio in the time series regressions for North America, the Middle East, and Oceania. This is because in the sample from 1946–1983, North America has only two countries (the U.S. and Canada), the Middle East has

basis over 10-years, and require a minimum of 5-years to be estimated.[30] The two-factor risk model has good explanatory power for returns in the cross-section of countries, with an average (median) coefficient of determination, or $R^2$, of 0.47 (0.47), and the unexpected returns for all groups of countries (i.e. non-Catholic autocracy, Catholic democracy, etc.) from 1946–1958 are insignificantly different than zero when standard errors are clustered at the country and year level.

**Measuring risk premia** The estimation window begins in 1946 to make it such that the pre-period does not contain the Second World War in the sample. This means that the pre-period estimate for expected returns is based on a 13-year sample. However, as pointed out by Merton (1980), a long time horizon is needed to estimate expected returns on the stock market from a single time series, raising a potential issue. This issue, however, is mitigated by two different methodological choices.

First, there are 43 countries in the sample, 10 of which are majority Catholic autocracies. This means that expected returns are averaged across a large group of countries, instead of just looking at individual time series. This provides a more reliable estimate of excess returns.

Second, the two-factor model described above removes two risk factors—global and regional risk—that would make the estimation of expected returns more difficult, due to their volatility. By removing these risk factors and adding characteristics that influence local cashflows and risk, I am able to better identify the increase in risk premia coming from the higher probability of democratization. For these reasons, the methods I am employing are likely to pick up differences in risk premia due to democratization risk despite the somewhat short sample.

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one country (Egypt), and Oceania has 3 countries. In these cases, the continent specific market portfolio mechanically has too much explanatory power due to the lack of countries and is, therefore, excluded.

[30] The 5-year minimum requirement causes 12 observations to be lost.

**Results** The results for the single difference-in-differences and two triple difference-in-differences regressions are shown in Table 7. Columns (1) and (2) show the results for the single difference-in-differences specification over two samples: the first, a symmetric 26 year sample from 1946 to 1976, and the second, from 1946 to 1983 which gives a 20-year sample for the post-treatment period. Both specifications exclude the treatment years, 1959 to 1963. The single difference-in-differences specification displays a 9.5 to 15.0 percentage point rise in average excess returns after the doctrinal shift in favor of democracy.

**Table 7: Difference-in-differences, 1959–1963 treatment window**

This table shows the regression coefficients for the single difference-in-differences specification in Equation (5.1) and the triple difference-in-differences regressions given by Equations (5.2) and (5.3). In each regression, 1959 to 1963 are the years of treatment and are excluded. Excess returns are computed as the total return of the aggregate country equity portfolio less the total return on the global riskfree asset. Standard errors are heteroskedasticity robust and clustered by country and year. Included countries must have at least 20 observations from 1946–1983. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.The controls used are a series of "event controls" meaning indicator variables for whether there is a war, financial crisis, recession, sovereign default, a head of government death, and ICB political crisis. In addition to the event controls, I also employ a series of additional controls: log GDP growth, log GDP per capita, inflation, the level of political violence, the level of anti-system regime activity, the level of democratic mobilization, the level of resource inequality, and estimated $\beta$'s multiplied by factor returns from a two factor risk model shown in Equation (5.4).

| | Single Diff. | | Discrete Specification | | Continuous Specification | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 14.97*** | 9.501*** | 15.29*** | 9.113 | 41.91*** | 33.39** |
| | (3.70) | (3.01) | (2.86) | (1.57) | (3.70) | (2.43) |
| Post × Catholic | | | -1.642 | -0.0355 | -22.72** | -20.53** |
| | | | (-0.47) | (-0.01) | (-2.35) | (-2.06) |
| Post × Autocracy | | | 0.774 | 0.903 | -7.070 | -5.163 |
| | | | (0.18) | (0.19) | (-0.81) | (-0.63) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 995 | 1230 | 995 | 1230 | 995 | 1230 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The two triple difference-in-differences specification tell a similar story: The treatment effect on average excess returns in the discrete specification, shown in Columns (3) and (4),

is between 9.1 and 15.3 percentage points. Further, there is no significant effect on either the Post × Catholic nor the Post × Autocracy terms, indicating that all treatment effects are focused in the majority Catholic autocracies. The continuous specification, shown in Columns (5) and (6), support the findings from the discrete specification, implying that at country with a 50 percentage point larger Catholic population and 50 percentage point more autocratic institutions saw a 8.3 to 10.4 percentage point increase in risk premia after the doctrinal shift.[31]

**Unexpected cash flow growth** The results above provide strong evidence that an increase in the probability that democracy consolidates causes an increase in risk premia. In particular, the doctrinal shift in the Catholic church in favor of democracy was associated with an approximately 9 to 15 percentage point increase in risk premia depending on the specification, larger than the estimates presented in Section 3. One potential explanation for these findings is that expected cash flow growth rose unexpectedly for majority Catholic autocracies in the second half of the sample. Indeed, there is evidence for this; VAR decomposed cash flow shocks using the methodology of Campbell (1991) indicate that expected cash flow growth rose by 4.6 percentage points annually in the period from 1964–1976 in majority Catholic autocracies. Even though the estimate is statistically insignificant, the magnitude of the coefficient is large and likely leads the results from the baseline specification to be overstated.

To control for this, Table 8 includes VAR decomposed cash flow shocks in the regressions.

[31] Somewhat concerning are the significant negative coefficients after treatment for majority Catholic countries in the continuous specification. This means that the significant positive treatment effect on majority Catholic autocracies may be driven by lower average excess returns in majority Catholic democracies rather than higher average excess returns in majority Catholic autocracies. To address this concern, Appendix Section D.2 runs the single difference-in-differences specification on the autocratic, majority Catholic, and non-Catholic democratic subsamples. Consistent with the results above, I find that majority Catholic autocracies displayed significantly higher average excess returns than each of the groups used.

As suspected, the cash flow shocks were responsible for roughly half of the increase in excess returns in the baseline specification. After controlling for them, the treatment effect is a statistically significant 5.9 to 8.3 percentage points in the second half of the sample with a triple difference-in-differences effect of 5.3 to 8.0 percentage points. Finally, the continuous specification suggests a treatment effect of 3.0 to 4.5 percentage points for a country with a 50 percentage point larger Catholic population, and 50 percentage point more autocratic institutions. These estimates are in line with the results in Section 3.

**Table 8: Difference-in-differences, controlling for cash flows**

This table repeats the exercise from Table 7, but adding VAR decomposed cash flow shocks from the methodology described in Section B.2 as a control. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.

| | Single Diff. | | Discrete Specification | | Continuous Specification | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 8.257*** | 5.901** | 8.025*** | 5.252*** | 16.98** | 11.90** |
| | (3.52) | (2.69) | (3.88) | (3.32) | (2.11) | (2.57) |
| Post × Catholic | | | -1.498 | -0.339 | -8.170 | -5.939 |
| | | | (-0.77) | (-0.16) | (-1.48) | (-1.46) |
| Post × Autocracy | | | 2.781 | 2.510 | 1.701 | 2.677 |
| | | | (1.27) | (0.96) | (0.38) | (0.73) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 945 | 1172 | 945 | 1172 | 945 | 1172 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

**Additional Robustness** Appendix Section D provides additional robustness checks. Appendix Section D.1 provides a falsification test for the results, estimating a difference-in-differences specification and a double difference-in-differences specification using the First Vatican Council (Vatican-I) from 1864–1870 as treatment. Vatican-I provides an interesting test, as this doctrinal meeting centered around a rejection of liberalism and democratic

principals, and likely strengthened the hold on power of for autocrats in majority Catholic countries. Consistent with this, I find significantly *lower* average excess returns–around 6 to 7 percentage points—for majority Catholic autocracies in the 20 years after 1870. However, these results should be treated with caution, as I have far fewer observations in the estimating sample.

Appendix Section D.2 assesses which subsamples the results in the triple difference-in-differences estimation are coming from using single difference-in-differences regressions on the autocratic, majority Catholic, and non-Catholic democratic subsamples. Consistent with the results above, I find that majority Catholic autocracies displayed significantly higher average excess returns than each of the groups used.

Appendix Section D.3 shows that the results are robust to different treatment dates. In particular, I estimate all specifications using 1960 and 1961 (the years chosen by the structural break tests on the democratic mobilization and anti-CSO threat variables) as the treatment years instead of 1963. The results corroborate those reported above. I do the same exercise taking 1959–1965 (the papacy of John XXIII and Vatican-II) and 1962–1965 (all the years of Vatican-II) as the treatment years, and the results are also nearly identical.

Appendix Section D.4 reports the results for difference-in-differences specification and the triple difference-in-differences specifications using different end dates for the estimation windows, which also does not materially effect the results. The results are large and significant regardless of the particular end date chosen from 1970–1985, but the point estimates get smaller as the end date moves further in the future.

The results are also robust to excluding every pair of countries from the estimation, which is shown in Appendix Section D.5. Further, the results are not driven by outliers. Appendix Section D.6 winsorizes the excess returns variable at the 5% and 10% levels and shows that results are still large and statistically significant.

# 6 Conclusion

Risk premia are significantly elevated during periods of democratization, a fact that can be verified across multiple proxies in 85 countries over 200 years. Puzzlingly, consumption risk and risk to cashflows are not particularly elevated during democratizations. Combining a standard political economy model in the style of Acemoglu and Robinson (2006) into a consumption-based asset pricing model with limited asset market participation can reconcile this puzzle, showing that the risk of redistribution from rich to poor increases during periods of democratizations, leading to high risk premia. Finally, exogenous variation in the probability that democracy consolidates causes marked increases in average returns for treated countries using a difference-in-differences framework.

While the results in this paper go a long way to describing how the consolidation of democracy can lead to redistribution shocks from rich to poor which in turn affect asset markets, the exact mechanism through which redistribution occurs is still left somewhat ambiguous. The model I provide suggests one culprit—increased income redistribution through tax and transfer schemes—of which I find support in the data and is supported by prior research (Boix, 2003, Acemoglu, Naidu, Restrepo and Robinson, 2015). However, future research into the exact mechanisms through which this mechanism operates is necessary to understand not just periods of democratization, but how policy and political risk affect individual, firm, and government decision making more broadly. Further, understanding how the increased globalization of asset markets influence the results would be a fruitful road to explore as well.

Finally, this paper provides new avenues of study in consumption-based asset pricing by focusing on political institutions and how they interact with the distribution (and redistribution) of resources. In particular, I show that neither an increase in the probability of a large drop in aggregate consumption nor an increase in the volatility of aggregate consumption is necessary for an increase in risk premia, but rather that the consumption risk faced by rela-

tively wealthy equity market participants need be affected. This paves a new road through which heterogeneity and the risk of redistribution can lead to variation in risk premia.

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# INTERNET APPENDIX

## A Data appendix

This section provides information on how each data series used in the paper is constructed. Additional information on the specific data used for each country can be found in Section F.

**Equity returns and dividend yields** I construct the longest possible equity return series by combining data from three main sources: the Global Financial Data (GFD) Main Dataset, the Jorda-Schularik-Taylor Macrohistory Database (JST), and the GFD London Stock Exchange (GFD-LSE) Dataset. From both the main GFD dataset and the GFD-LSE dataset, I obtain the dividend yield, total return index, and price index for each country. Cum-dividend returns are therefore given by

$$R_{c,t}^{tot} = \frac{\text{Total Return Index}_{c,t}}{\text{Total Return Index}_{c,t-1}}$$

and ex-dividend returns (capital gains) by

$$R_{c,t}^{cap.\ gains} = \frac{\text{Price Index}_{c,t}}{\text{Price Index}_{c,t-1}}.$$

The GFD return series are in downloaded in U.S. dollars and then adjusted for expected U.S. inflation, which is calculated by fitting an AR(1) process to realized inflation, to put them in real terms. The JST returns data must be converted to U.S. dollars, which is done using the `xusd` variable they provide. Using the dividend yield and capital gains, I also construct a dividend growth series, which is given by

$$\frac{D_{c,t}}{D_{c,t-1}} = \frac{\text{Dividend Yield}_{c,t}}{\text{Dividend Yield}_{c,t-1}}(R_{c,t}^{cap.\ gains})^{-1}.$$

Using these data, I construct the longest possible cum-dividend returns series possible. To do this, I create an all cum-dividend returns variable and populate it with returns from GFD's Main Dataset and then fill in missing observations with the JST data. The JST data only covers 17 countries compared to the 64 countries the main GFD dataset covers. However, the two datasets are highly correlated, with a correlation coefficient of .73 for their overlapping observations. Next, I fill in any remaining missing observations with cum-dividend returns from the GFD-LSE data. The GFD-LSE data covers a different universe of companies

than the other two datasets, usually large, global firms, and therefore have a less strong correlation (.44) with the main GFD data. The combined cum-dividend returns variable covers a sample of 85 countries that spans 200 years.

I use the same procedure to combine the ex-dividend returns data and dividend growth data and to combine the *changes* in the dividend yield, rather than the levels. Indeed, the levels vary somewhat across data sources, so combining them would lead to arbitrary jumps in the series. Using the changes, on the other hand, does not have this issue. The change in the log dividend yield series covers 73 countries.

**Fixed income and inflation** Results for fixed income are reported in Appendix Section B. The government bond yields come from the GFD main dataset and the JST data. For most every series, these represent the yield on the 10-year government bond. Corporate bond yields data only come from one data source, the GFD main dataset. This series covers 21 countries over 164 years, respectively.

Inflation data come from the GFD main dataset, the JST data, and the Varieties of Democracy (V-Dem) database. The aggregate series is created by taking an equal weighted average over all these series.

# B Additional stylized facts

This section presents additional evidence that risk premia are elevated during periods of democratization.

## B.1 Government bond yields and inflation

Table B.1 reports the results for government bond yields and inflation during democratizations. In each of these regressions, I include lag terms to account for the high degree of persistence in government bond yields where the lag structure is determined by the specification that minimizes the Akaike and Schwarz information criteria. Fast democratizations display a small and insignificant decrease in government bond rates, while slow democratizations display a significant increase (after adding controls and country fixed effects) of 26 basis points. These results are puzzling, as theory would predict that increased risk should lead to a greater precautionary savings motive, and thus a decline in the riskfree rate.

**Table B.1: Periods of democratization and government bond yields and inflation**

This table presents regressions of government bond yields and inflation on indicator variables for democratizations. The regressions estimated take the form

$$\text{Outcome}_{c,t} = \alpha + \beta \mathbb{1}_{c,t}\{\text{Democratization}\} + \epsilon_{c,t}.$$

When there are no fixed effects added, standard errors are heteroskedasticity robust. When fixed effects are added, standard errors are clustered by country and year. Due to the high levels of persistence in government bond yields and inflation, lag terms are added based on which gives the best model fit according to the Akaike and Schwarz information criteria. All coefficients have been multiplied by 100 for presentation, and $t$ statistics are in parentheses.

| | Government bond yields | | | | Inflation | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Fast Democratization | -0.0979 | -0.120 | | | 17.97 | 23.36 | | |
| | (-0.49) | (-1.04) | | | (1.15) | (1.41) | | |
| Slow Democratization | | | 0.135 | 0.263** | | | 16.57** | 19.93* |
| | | | (1.11) | (2.34) | | | (2.11) | (1.86) |
| Autocratization | -0.194 | -0.167 | | | -11.84*** | -2.416 | | |
| | (-1.36) | (-1.44) | | | (-5.48) | (-0.76) | | |
| ICB Political Crisis | -0.0276 | -0.0575 | -0.0122 | 0.0176 | 33.04 | 13.04 | 27.27 | 6.037 |
| | (-0.18) | (-0.38) | (-0.08) | (0.12) | (1.39) | (0.42) | (1.15) | (0.21) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Country FE | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Event Controls | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| # of lags | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
| N | 4864 | 4864 | 3594 | 3594 | 14610 | 14610 | 11975 | 11975 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The puzzle is resolved upon examining inflation, presented in Columns (5)–(8). Both fast and slow democratizations display large increases in inflation, on average, ranging from 16.6 to 23.4 percentage points. The result mainly comes from several episodes which display very large increases in inflation (in particular, 99 slow democratization years, out of 2,308 in the inflation sample, display inflation rates in excess of 100%), but the risk of large increases in inflation seems to be higher in democratization episodes.

## B.2 VAR decomposed discount rate shocks

Realized returns can be decomposed into expected returns and innovations to future expected cash flows and discount rates using the decomposition:

$$r_{t+1} = \mathbb{E}_t r_{t+1} + v^r_{t+1} \tag{B.1}$$

$$v^r_{t+1} = \eta^d_{t+1} - \eta^r_{t+1} \tag{B.2}$$

where

$$\eta^r_{t+1} \equiv (\mathbb{E}_{t+1} - \mathbb{E}_t) \sum_{j=1}^{\infty} \rho^j r_{t+1+j} \tag{B.3}$$

are discount rate shocks,

$$\eta^d_{t+1} \equiv (\mathbb{E}_{t+1} - \mathbb{E}_t) \sum_{j=1}^{\infty} \rho^{j-1} \Delta d_{t+j} \tag{B.4}$$

are cash flow shocks and $\rho \equiv \frac{\overline{pd}}{1+\exp\{\overline{pd}\}}$ as in Campbell and Shiller (1988) where $\overline{pd}$ is the average log price-dividend ratio. The discount rate and cash flow shocks given in Equations (B.3) and (B.4) can be estimated directly using the procedure from Campbell (1991). To do this, I assume a first-order vector autoregressive (VAR) structure for log cum-dividend returns, dividend growth, consumption growth, government bond yields, and capital gains given by

$$\tilde{\mathbf{X}}_{t+1} = \mathbf{\Phi} \tilde{\mathbf{X}}_t + \mathbf{w}_{t+1} \tag{B.5}$$

where $\tilde{\mathbf{X}}_t = \mathbf{X}_t - \bar{\mathbf{X}}$ and $\mathbf{X}_t$ is the data vector with cum-dividend returns, $r_t$, in the first position.[32] Now, define $\mathbf{e}_1$ as an elementary column vector with a 1 in the first position and 0s elsewhere, meaning that Equation (B.2) can be written as $v^r_{t+1} = \mathbf{e}_1' \mathbf{w}_{t+1}$. Under the assumed VAR structure, Equation (B.3) becomes

$$\eta^r_{t+1} = \lambda' \mathbf{w}_{t+1}. \tag{B.6}$$

where $\lambda' \equiv \mathbf{e}_1' \rho \mathbf{\Phi} (\mathbf{I} - \rho \mathbf{\Phi})^{-1}$. Combining Equations (B.2) and (B.6) gives the cashflow shock as

$$\eta^d_{t+1} = (\mathbf{e}_1' + \lambda') \mathbf{w}_{t+1}. \tag{B.7}$$

The cashflow and discount rate shocks are, therefore, immediately given after estimating the VAR coefficients and residuals.

[32] To estimate the vector autoregression, I use the combination of control variables that give the largest sample. For example, if I have 100 cum-dividend returns observations, 100 dividend growth observations, and 80 riskfree rate observations, I will estimate the VAR using only cum-dividend returns and dividend growth.

## Table B.2: Periods of democratization and discount rate shocks

This table presents regressions of discount rate shocks estimated from a vector autoregression on indicator variables for democratization starts. The regressions estimated take the form

$$\eta^r_{c,t} = \alpha + \beta \mathbb{1}_{c,t}\{\text{Democratization Start}\} + \epsilon_{c,t}.$$

The discount rate shock variable is winsorized at the 1% and 99% levels. In Columns (1) and (3), year fixed effects are added to account for inflation, as all returns are in US dollars. In Columns (1) and (3) standard errors are heteroskedasticity robust. In Columns (2) and (4) standard errors are clustered by country and year. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.

| | Discount rate shocks | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Year Before Fast Democratization Start | 1.623** | 1.535* | | |
| | (2.02) | (1.93) | | |
| Fast Democratization Start | 1.461** | 1.293 | | |
| | (2.02) | (1.46) | | |
| Year Before Slow Democratization Start | | | 2.078* | 1.709* |
| | | | (1.77) | (1.81) |
| Slow Democratization | | | 0.125 | -0.0623 |
| | | | (0.35) | (-0.15) |
| Year Before Autocratization Start | -0.490 | -0.215 | | |
| | (-0.80) | (-0.37) | | |
| Autocratization Start | -0.177 | -0.0585 | | |
| | (-0.28) | (-0.08) | | |
| Year Before ICB Political Crisis Start | 0.764 | 0.268 | 0.734 | 0.290 |
| | (0.79) | (0.21) | (0.75) | (0.22) |
| ICB Political Crisis Start | 0.978 | 0.786 | 0.912 | 0.824 |
| | (1.03) | (0.71) | (0.95) | (0.74) |
| Year FE | ✗ | ✓ | ✗ | ✓ |
| Country FE | ✗ | ✓ | ✗ | ✓ |
| Event Controls | ✗ | ✓ | ✗ | ✓ |
| N | 6573 | 6573 | 5158 | 5158 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.2 shows that large discount rate shocks are concentrated around democratization starts. Columns (1) shows that the combined discount rate shock around a fast democratization start is 3.1 percentage points, in line with the findings from dividend yields and cum-dividend returns. Adding year and country fixed effects

reduces the rise in discount rates to 2.9 percentage points. Slow democratizations display similar discount rate shocks in the year before the democratization start, between 1.7 and 2.1 percentage points cumulatively and then on average no discount rate shocks over the rest of the democratization. Discount rate rates shocks during autocratizations are essentially zero, while ICB political crises see insignificant discount rate shocks which are smaller in magnitude than both democratizations.

## B.3 Corporate bond yields

The final proxy for changes in discount rates I employ is corporate bond yields, which is also used by Muir (2017). When risk premia rise, so do corporate bond yields, making them a valid proxy for risk premia. However, corporate bond yields also rise with the expected probability of default; as such, I provide evidence that the probability of default does not rise in democratizations.

Table B.3 shows that, prior to 1984, corporate bond yields were elevated between 31 to 47 basis points during periods of democratization. In the sample after 1984, however, corporate bond yields seem to fall or remain flat, in line with the findings of Delis et al. (2020) on a sample of corporate bonds from 1984–2016. Slow democratizations, conversely, display the opposite pattern, declining in democratizations before 1984 and rising by roughly 54 basis points in democratizations after 1984. The number of companies, my proxy for the default probability, seems not to change, a positive sign that corporate bond yields are a reasonable proxy for risk premia.

## Table B.3: Periods of democratization and corporate bond yields

This table presents regressions of corporate bond yields and the log growth rate of the number of publicly traded companies on indicator variables for democratization starts. The regressions estimated take the form

$$\text{Outcome}_{c,t} = \alpha + \beta_1 \mathbb{1}_{c,t}\{\text{Democratization (Pre-1984)}\} + \beta_2 \mathbb{1}_{c,t}\{\text{Democratization (Post-1984)}\} + \epsilon_{c,t}.$$

When there are no fixed effects added, standard errors are heteroskedasticity robust. When fixed effects are added, standard errors are heteroskedasticity robust and clustered by country. Due to the high levels of persistence in corporate bond yields, one lag term is added., which gives the best model fit according to the Akaike and Schwarz information criteria. All coefficients have been multiplied by 100 for presentation, and $t$ statistics are in parentheses.

| | Corporate bond yields | | | | Log growth in number of companies | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Fast Democratization Start (Pre-1984) | 0.314** | 0.472* | | | 5.285 | 7.692* | | |
| | (2.39) | (2.04) | | | (1.24) | (1.67) | | |
| Fast Democratization Start (Post-1984) | 0.0820 | 0.120 | | | 5.491 | 3.988 | | |
| | (0.30) | (0.67) | | | (0.71) | (0.52) | | |
| Slow Democratization (Pre-1984) | | | -0.00984 | 0.0706 | | | -0.178 | 0.344 |
| | | | (-0.07) | (0.28) | | | (-0.16) | (0.31) |
| Slow Democratization (Post-1984) | | | -0.298 | 0.541*** | | | 3.650** | 0.229 |
| | | | (-0.76) | (2.85) | | | (2.44) | (0.14) |
| Autocratization | 0.164 | 0.195 | | | -3.367*** | -0.904 | | |
| | (0.85) | (0.96) | | | (-3.78) | (-0.70) | | |
| ICB Political Crisis | 0.366 | 0.358* | 0.349 | 0.363* | -0.375 | -1.660 | -0.0348 | -1.649 |
| | (1.17) | (1.79) | (1.10) | (1.81) | (-0.24) | (-0.72) | (-0.02) | (-0.71) |
| Year FE | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Country FE | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Event Controls | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ |
| # of lags | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| N | 1517 | 1503 | 1363 | 1363 | 3691 | 3679 | 3626 | 3626 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

# C Model calculations and proofs

## C.1 Deriving the Bellman equation for the Citizens

The Citizens have linear utility over coconuts. The problem they solve can be represented as a standard dynamic program, where the Bellman equation is given by

$$\begin{aligned} V^p(\mu_t, Y_t, \rho_{t-1}, \phi_{t-1}) = \max_{\rho_t \in \{0,1\}} \Big\{ & (1-\rho_t)(1-\phi_t)\left(\hat{Y}_t^p(\tau_t) + \beta \mathbb{E}_t[V^p(\mu_{t+1}, Y_{t+1}, 0, 0)]\right) \\ & + (1-\rho_t)\phi_t\left(\hat{Y}_t^p(\tau^{p*}) + \beta \mathbb{E}_t[V^p(Y_{t+1}, 0, 1)]\right) \\ & + \rho_t\left(\frac{1-\mu_t}{1-\delta} Y_t + \beta \mathbb{E}_t[V^p(\mu_t, Y_{t+1}, 1, 0)]\right)\Big\}. \end{aligned}$$

where the second expression, the continuation value of the democratic economy, no longer relies on $\mu$ as the Citizens are assumed to have no desire to revolt once democracy is conceded, and the third expression, the continuation value of the economy after revolution, depends on $\mu_t$ as this value is "locked in" at the time the revolution occurs. Since the Citizens have linear utility, the value function is homogeneous of degree one in coconuts. This means that the value function can be rewritten as

$$\begin{aligned} V^p(\mu_t, \rho_{t-1}, \phi_{t-1}) = \max_{\rho_t \in \{0,1\}} \Big\{ & (1-\rho_t)(1-\phi_t)\left((1-\tau_t)\frac{1-\theta}{1-\delta} + (\tau_t - C(\tau_t)) + \beta \mathbb{E}_t[e^{\bar{y}+\vartheta\varepsilon_t} V^p(\mu_{t+1}, 0, 0)]\right) \\ & + (1-\rho_t)\phi_t\left((1-\tau^{p*})\frac{1-\theta}{1-\delta} + (\tau^{p*} - C(\tau^{p*})) + \beta \mathbb{E}_t[e^{\bar{y}+\vartheta\varepsilon_t} V^p(0, 1)]\right) \\ & + \rho_t\left(\frac{1-\mu_t}{1-\delta} + \beta \mathbb{E}_t[e^{\bar{y}+\vartheta\varepsilon_t} V^p(\mu_t, 1, 0)]\right)\Big\}. \end{aligned}$$

Further, if the revolution occurs or democracy is conceded, the economy remains in the same political state for the rest of eternity. This fact gives the following two expressions:

$$\begin{aligned} V^p(\mu_t, 1, 0) &= \frac{1-\mu_t}{1-\delta} + \beta^\star V^p(\mu_t, 1, 0) \\ V^p(0, 1) &= (1-\tau^{p*})\frac{1-\theta}{1-\delta} + (\tau^{p*} - C(\tau^{p*})) + \beta^\star V^p(0, 1) \end{aligned}$$

where $\beta^\star \equiv \beta e^{\bar{y}+\frac{1}{2}\vartheta^2}$. Simplifying yields

$$\begin{aligned} V^p(R, \mu_t) \equiv V^p(\mu_t, 1, 0) &= \frac{(1-\mu_t)}{(1-\delta)(1-\beta^\star)} \\ V^p(D) \equiv V^p(0, 1) &= \frac{(1-\tau^{p*})\frac{1-\theta}{1-\delta} + (\tau^{p*} - C(\tau^{p*}))}{(1-\beta^\star)}. \end{aligned}$$

and are finite under the assumption $\beta^\star < 1$. This means that the value function in the autocracy state can be written as

$$V^p(A,\mu_t) \equiv V^p(\mu_t,0,0) = \max_{\rho_t\in\{0,1\}} \Bigg\{(1-\rho_t)(1-\phi_t)\left(\frac{\hat{Y}_t^p(\tau_t)}{Y_t} + \beta^\star \mathbb{E}_t[V^p(A,\mu_{t+1})]\right) + (1-\rho_t)\phi_t V^p(D) + \rho_t V^p(R,\mu_t)\Bigg\}$$

## C.2 Finding $\mu^*$ and $\hat{\tau}(\mu)$

The second threshold, $\mu^*$ can be found by solving the system of equations

$$V^p(A,\mu^1;\tau_t=0) = \frac{1-\theta}{1-\delta} + \beta^\star[(1-q)V^p(A,\mu^1;\tau_t=0) + qV^p(A,\mu^2;\tau_t=0)] \tag{C.1}$$

$$V^p(A,\mu^2;\tau_t=0) = \frac{1-\theta}{1-\delta} + \beta^\star[pV^p(A,\mu^1;\tau_t=0) + (1-2p)V^p(A,\mu^2;\tau_t=0) + pV^p(A,\mu^3;\tau_t=\tau^{p*})] \tag{C.2}$$

$$V^p(A,\mu^3;\tau_t=\tau^{p*}) = \frac{1-\theta}{1-\delta} + \frac{1}{2}\left(\frac{\theta-\delta}{1-\delta}\right)^2 + \beta^\star[qV^p(A,\mu^2;\tau_t=0) + (1-q)V^p(A,\mu^3;\tau_t=\tau^{p*})]. \tag{C.3}$$

Subtracting Equation (C.1) from Equation (C.3) gives

$$V^p(A,\mu^3;\tau_t=\tau^{p*}) = V^p(A,\mu^1;\tau_t=0) + \frac{1}{2}\left(\frac{\theta-\delta}{1-\delta}\right)^2\left(\frac{1}{1-\beta^\star(1-q)}\right). \tag{C.4}$$

Plugging Equation (C.4) into Equation (C.2) gives

$$V^p(A,\mu^2;\tau_t=0) = \frac{1-\theta}{1-\delta} + \frac{1}{2}\left(\frac{\theta-\delta}{1-\delta}\right)^2\left(\frac{p\beta^\star}{1-\beta^\star(1-q)}\right) + \beta^\star[2pV^p(A,\mu^1;\tau_t=0) + (1-2p)V^p(A,\mu^2;\tau_t=0)]$$

which, after subtracting Equation (C.1), is

$$V^p(A,\mu^2;\tau_t=0) = V^p(A,\mu^1;\tau_t=0) + \frac{1}{2}\left(\frac{\theta-\delta}{1-\delta}\right)^2 \frac{p\beta^\star}{(1-\beta^\star(1-q))(1-\beta^\star(1-2p-q))}. \tag{C.5}$$

Subtracting Equation (C.5) from Equation (C.4) gives

$$V^p(A,\mu^3;\tau_t=\tau^{p*}) = V^p(A,\mu^2;\tau_t=0) + \frac{1}{2}\left(\frac{\theta-\delta}{1-\delta}\right)^2 \frac{1-\beta^\star(1-2p-q)-\beta^\star p}{(1-\beta^\star(1-q))(1-\beta^\star(1-2p-q))},$$

which, plugging into Equation (C.3), yields

$$V^p(A,\mu^3;\tau_t=\tau^{p*}) = \frac{1-\theta}{(1-\delta)(1-\beta^\star)} + \left(\frac{\varpi(\theta-\delta)^2}{2(1-\delta)^2(1-\beta^\star)}\right) \tag{C.6}$$

where

$$\varpi = \left(\frac{(1-\beta^\star(1-q))(1-\beta^\star(1-2p-q)) + \beta^\star q(1-\beta^\star(1-p-q))}{(1-\beta^\star(1-q))(1-\beta^\star(1-2p-q))}\right). \tag{C.7}$$

Note that $\varpi$ is less than 1 provided $q > 0$ and equal to 1 when $q = 0$. The threshold $\mu^*$ is then given by setting Equation (C.6) equal to Equation (4.7) at $\mu^*$, which gives

$$\mu^* = \theta - \frac{\varpi(\theta - \delta)^2}{2(1 - \delta)}.$$

Note that $\mu^* > \mu^{**}$ when $p > 0$ and $\mu^* = \mu^{**}$ when $p = 0$. This makes sense, since when $p = 0$, there is no chance of transitioning out of the third state. Therefore, the payoff is exactly equal under autocracy and democracy, as the Citizens can always credibly threaten revolution if their preferred tax rate is not put in place. If $p > 0$, conversely, than there is some probability the Citizens will transition back to a state where $\mu = 1$ and redistribution will be withdrawn. This raises the threshold $\mu^*$, meaning revolution is attractive to the Citizens in this case.

The same procedure gives the expression for the minimum tax rate the Elites can offer to avoid a revolution, $\hat{\tau}(\mu)$, when $\mu \in [\mu^*, \underline{\mu})$. All that needs to be done is to replace the transfer term $\frac{1}{2}\left(\frac{\theta-\delta}{1-\delta}\right)^2$ in Equation (C.3) with the more general $\frac{\theta-\delta}{1-\delta}\hat{\tau}(\mu) - \frac{1}{2}\hat{\tau}(\mu)^2$, yielding the expression

$$\mu = \theta - \varpi\left((\theta - \delta)\hat{\tau}(\mu) - \frac{1}{2}(1 - \delta)\hat{\tau}(\mu)^2\right).$$

Therefore, $\hat{\tau}(\mu)$ is the solution to the quadratic

$$0 = \frac{\theta - \mu}{\varpi} - (\theta - \delta)\hat{\tau}(\mu) + \frac{1}{2}(1 - \delta)\hat{\tau}(\mu)^2,$$

which is (selecting the economically correct root)

$$\hat{\tau}(\mu) = \frac{\theta - \delta}{1 - \delta} - \frac{\sqrt{(\theta - \delta)^2 - 2\left(\frac{\theta-\mu}{\varpi}\right)(1 - \delta)}}{1 - \delta}$$

which is equal to $\tau^{p*}$ when $\mu = \mu^*$ and 0 when $\mu = \theta$.

# D Quasi-natural experiment appendix

## D.1 The First Vatican Council

It is possible that the results are driven by the change in the Catholic church's doctrine, and have nothing to do with an increases probability of democratization. To assess the validity of this challenge. I estimate the triple and single difference-in-differences specifications on another major change in Catholic church doctrine: the First Vatican Council of 1868–1870 (Vatican-I). Vatican-I is distinct from Vatican-II in that it reaffirmed

the Catholic churches rejection of liberalism and democratic principles. As such, it serves as an excellent test of whether changes in religious doctrine, in general, lead to high risk premia. For the estimation window, I use all years from 1864–1870, as Vatican-I was announced in 1864. The start year for the estimation window is 1850, as to place the Revolutions of 1848 outside the sample, and the end year is 1890.

**Table D.4: Difference-in-Differences — First Vatican Council**

This table shows the regression coefficients of a difference-in-differences regression given by Equation (5.1) and a double difference-in-differences specification that accounts for the possibility that all autocracies are treated. In each regression, 1864–1870 are the years of treatment and are excluded. Standard errors are clustered by country and year. Included countries must have at least 20 observations from 1850–1890. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.

| | Single Diff. | | Double Diff. | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Post × Catholic × Autocracy | -9.832* | -6.907 | -8.932 | -7.279 |
| | (-1.94) | (-1.52) | (-1.52) | (-1.43) |
| Post × Autocracy | | | -0.853 | -1.683 |
| | | | (-0.18) | (-0.35) |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ |
| Sample | 1855–1885 | 1850–1890 | 1855–1885 | 1850–1890 |
| N | 651 | 877 | 651 | 877 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The results, reported in Table D.4, display a negative, statistically significant single point estimate in the shorter sample from 1855–1885, and an insignificant point estimate in the other three specifications. This is consistent with the theory underlying the shock: The Vatican-I likely reduced the probability of democratization, thereby reducing risk premia. However, this reaffirmation was associated with a smaller economic effect, approximately a 6.9 to 9.8 percentage point reduction in risk premia.

## D.2 Single difference-in-differences on subsamples

Which subsample are the results coming from? Table 7 gives some evidence that the results in the triple differences specification may be coming from lower returns post treatment for majority Catholic democracies, as opposed to higher returns for majority Catholic autocracies. Table D.5 dispels this notion by showing the results of single difference-in-differences regressions on the autocratic, majority Catholic, and

non-Catholic democratic subsamples. In the subsample that contains only autocratic countries, majority Catholic autocracies displayed 8.3 to 11.7 percentage point higher excess returns in the post-period, relative to non-Catholic autocracies. Similarly, majority Catholic autocracies had 11.2 to 13.8 percentage point higher returns than majority Catholic democracies. Finally, relative to non-Catholic democracies, the treatment effect on majority Catholic autocracies is from 8.5 to 12.5 percentage points. The results from the single difference-in-differences subsample regressions show that majority Catholic autocracies displayed higher average excess returns than all the groups used in the triple difference-in-differences specification.

**Table D.5: Subsample difference-in-differences, 1959–1963 treatment window**

This table shows the treatment coefficients on single difference-in-differences regressions of returns before and after 1963. The regression is estimated on subsamples of either autocratic or majority Catholic countries, and is given by

$$\text{Returns}_{c,t} = \alpha_c + \alpha_t + \beta \mathbb{1}_{c,t}\{\text{Post}\} \times \mathbb{1}_{c,t}\{\text{Catholic}\} \times \mathbb{1}_{c,t}\{\text{Autocracy}\} + \gamma \text{Controls}_{c,t} + \epsilon_{c,t}.$$

In each regression, the years 1959 to 1963 are excluded. Standard errors are clustered by country and year. Included countries must have at least 20 observations from 1946–1983. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.The controls used are a series of "event controls" meaning indicator variables for whether there is a war, financial crisis, recession, sovereign default, a head of government death, and ICB political crisis. In addition to the event controls, I also employ a series of additional controls: log GDP growth, log GDP per capita, inflation, the level of political violence, the level of anti-system regime activity, the level of democratic mobilization, the level of resource inequality, and estimated $\beta$'s multiplied by factor returns from a two factor risk model shown in Equation (5.4).

| | Non-Catholic Aut. | | Majority Catholic Dem. | | Non-Catholic Dem. | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 11.67* | 8.356 | 13.84* | 11.18* | 12.52** | 8.479* |
| | (2.01) | (1.54) | (2.03) | (2.09) | (2.64) | (1.82) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 487 | 574 | 370 | 450 | 629 | 776 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

## D.3 Alternative windows

Now, I test alternative shock windows than the 1959 to 1963 window. The first alternative window performs the triple difference-in-differences from Table 7 taking 1960 and 1961 as the years of treatment. The years 1960 and 1961 are indicated as the structural break years in the difference in anti-system civil society activity and democratic mobilizations between majority Catholic and non-Catholic autocracies. Further, the year 1961 corresponds to the publication of *Mater et Magistra*, written by Pope John XXIII. *Mater et Magistra*

endorsed many elements of democracy and was strongly in favor of fighting political and economic inequality, but fell short of endorsing democracy.

**Table D.6: Difference-in-Differences, 1960–1961 treatment window**

This table shows the regression coefficients for the single difference-in-differences specification in Equation (5.1) and the triple difference-in-differences regressions given by Equations (5.2) and (5.3). In each regression, 1960 and 1961 are the years of treatment and are excluded. Standard errors are clustered by country and year. Included countries must have at least 20 observations from 1946–1983. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.The controls used are a series of "event controls" meaning indicator variables for whether there is a war, financial crisis, recession, sovereign default, a head of government death, and ICB political crisis. In addition to the event controls, I also employ a series of additional controls: log GDP growth, log GDP per capita, inflation, the level of political violence, the level of anti-system regime activity, the level of democratic mobilization, the level of resource inequality, and estimated $\beta$'s multiplied by factor returns from a two factor risk model shown in Equation (5.4).

| | Single Diff. | | Discrete Specification | | Continuous Specification | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 15.52*** | 11.29*** | 16.35** | 12.09* | 37.37*** | 32.83** |
| | (3.54) | (3.23) | (2.52) | (1.96) | (3.24) | (2.56) |
| Post × Catholic | | | -0.932 | 0.249 | -16.78 | -16.60* |
| | | | (-0.24) | (0.08) | (-1.64) | (-1.72) |
| Post × Autocracy | | | -1.017 | -1.246 | -7.214 | -6.380 |
| | | | (-0.25) | (-0.29) | (-0.96) | (-0.93) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 1122 | 1357 | 1122 | 1357 | 1122 | 1357 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table D.6 reports the results. The single difference-in-differences specifications deliver a treatment effect between 11.3 to 15.5 percentage points, with a discrete triple difference-in-differences treatment effect of 12.1 to 16.4 percentage points. The continuous treatment effect is 8.2 to 9.3 percentage points for a country that is 50 percentage points more autocratic and has a 50 percentage point larger Catholic population. Overall, the results are quite similar to those reported in the main text.

The second alternative window estimates the triple difference-in-differences with the entire papacy of John XXIII (1959–1963) and the entire Second Vatican Council (1962–1965) as the years of treatment. The Second Vatican Council was announced in 1959, meaning it is the first potential year of treatment. However, the the first announcements hinting at a doctrinal shift arrive after this in 1961 and the theological literature (Sigmund, 1987) date the full doctrinal shift to 1963, though it does not mean it could not have

been anticipated. Finally, additional information came during Vatican-II, which may have fully signaled the transition. As such, the 1959–1965 shock window provides a conservative estimate of the treatment effect. Table D.7 shows the results. The single difference-in-differences specifications deliver a treatment effect between 10.3 to 16.5 percentage points, with a discrete triple difference-in-differences treatment effect of 11.5 to 19.2 percentage points. The continuous treatment effect is 8.6 to 11.2 percentage points for a country that is 50 percentage points more autocratic and has a 50 percentage point larger Catholic population, again, quite similar to those reported in the main text.

**Table D.7: Difference-in-Differences, 1959–1965 treatment window**

This table shows the regression coefficients for the single difference-in-differences specification in Equation (5.1) and the triple difference-in-differences regressions given by Equations (5.2) and (5.3). In each regression, 1959–1965 are the years of treatment and are excluded. Standard errors are clustered by country and year. Included countries must have at least 20 observations from 1946–1983. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.The controls used are a series of "event controls" meaning indicator variables for whether there is a war, financial crisis, recession, sovereign default, a head of government death, and ICB political crisis. In addition to the event controls, I also employ a series of additional controls: log GDP growth, log GDP per capita, inflation, the level of political violence, the level of anti-system regime activity, the level of democratic mobilization, the level of resource inequality, and estimated $\beta$'s multiplied by factor returns from a two factor risk model shown in Equation (5.4).

| | Single Diff. | | Discrete Specification | | Continuous Specification | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 16.47*** | 10.33*** | 19.18*** | 11.51* | 44.68*** | 34.32** |
| | (3.48) | (2.80) | (3.50) | (1.94) | (3.67) | (2.38) |
| Post × Catholic | | | -4.007 | -1.536 | -24.52** | -21.32** |
| | | | (-1.14) | (-0.53) | (-2.33) | (-2.09) |
| Post × Autocracy | | | -0.185 | -0.125 | -8.911 | -6.496 |
| | | | (-0.04) | (-0.03) | (-0.96) | (-0.77) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 909 | 1144 | 909 | 1144 | 909 | 1144 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The final alternative window estimates the triple difference-in-differences with the entire Second Vatican Council, 1962–1965, as the years of treatment. This window also does not follow the theology or political science literature, as investors became aware of the doctrinal shift in favor of democracy at least two years earlier. However, if this information was picked up and incorporated slowly, the 1962–1965 window may be appropriate. Table D.8 shows the results. The single difference-in-differences specifications deliver a treat-

ment effect between 12.9 to 18.9 percentage points, with a discrete triple difference-in-differences treatment effect of 16.0 to 23.3 percentage points. The continuous treatment effect is 10.3 to 12.2 percentage points for a country that is 50 percentage points more autocratic and has a 50 percentage point larger Catholic population, again, quite similar to those reported in the main text.

**Table D.8: Difference-in-Differences, 1962–1965 treatment window**

This table shows the regression coefficients for the single difference-in-differences specification in Equation (5.1) and the triple difference-in-differences regressions given by Equations (5.2) and (5.3). In each regression, 1962–1965 are the years of treatment and are excluded. Standard errors are clustered by country and year. Included countries must have at least 20 observations from 1946–1983. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.The controls used are a series of "event controls" meaning indicator variables for whether there is a war, financial crisis, recession, sovereign default, a head of government death, and ICB political crisis. In addition to the event controls, I also employ a series of additional controls: log GDP growth, log GDP per capita, inflation, the level of political violence, the level of anti-system regime activity, the level of democratic mobilization, the level of resource inequality, and estimated $\beta$'s multiplied by factor returns from a two factor risk model shown in Equation (5.4).

| | Single Diff. | | Discrete Specification | | Continuous Specification | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 18.93*** | 12.90*** | 23.24*** | 15.95** | 48.84*** | 41.25*** |
| | (3.55) | (3.12) | (3.89) | (2.60) | (4.29) | (3.13) |
| Post × Catholic | | | -3.312 | -1.143 | -22.86** | -21.88** |
| | | | (-1.08) | (-0.47) | (-2.12) | (-2.37) |
| Post × Autocracy | | | -3.082 | -3.313 | -11.07 | -10.09 |
| | | | (-0.64) | (-0.67) | (-1.32) | (-1.24) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 1033 | 1268 | 1033 | 1268 | 1033 | 1268 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

## D.4 Estimation end date

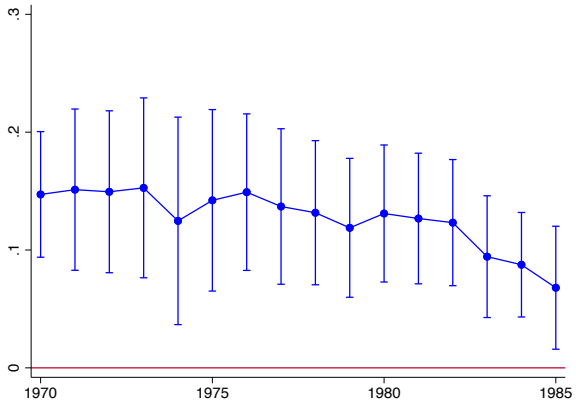
The end year of the estimation window in Section 5 is chosen such that either (1) the sample is symmetric about the treatment window, or (2) so that 20-years are used to estimate the post-treatment period. However, other choices for end years may be reasonable. To show that the results for each specification are robust to different choices, I provide the point estimate and 90% confidence interval for each specification with the estimation window ending in each year from 1970–1985, shown in Figure D.1. For the single difference-

in-difference specification, all of the point estimates are significant at the 90% level, and decline as the post-treatment window moves further in the future, suggesting a gradual resolution of the increased risk premia over time. Similar results hold for each triple difference-in-difference specification.

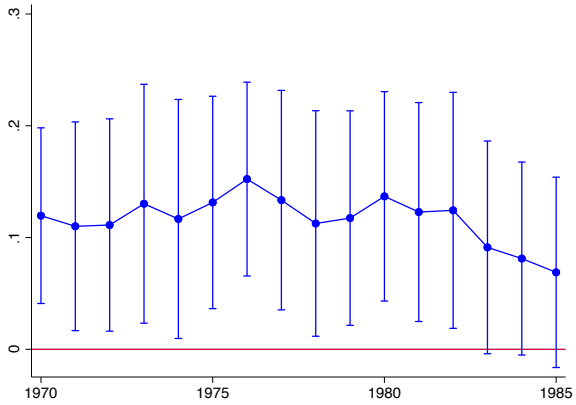
**Figure D.1: Different estimation window end dates**

This figure estimates the specifications from Equations (5.1), (5.2), and (5.3) using different estimation window end dates from 1970–1985. The point estimates for the treatment effect and a 90% confidence interval are plotted.

**Panel A: Single Difference-in-differences**




**Panel B: DDD, Discrete**




**Panel C: DDD, Continuous**

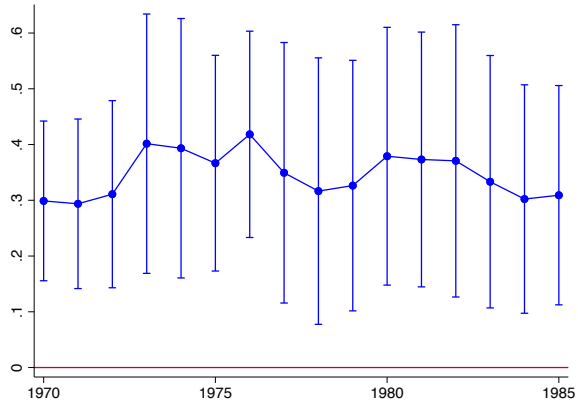
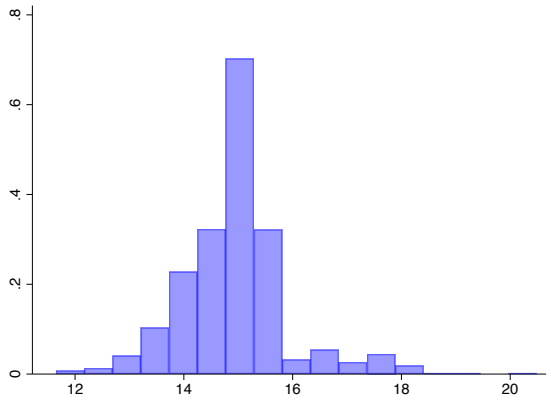


**Figure D.2: Dropping every country pair — point estimates and t-statistics**

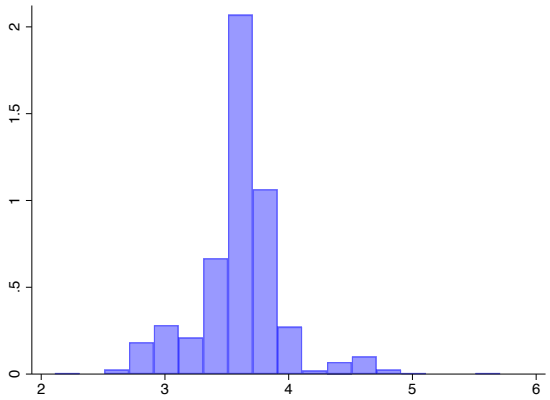
This figure estimates the specification from Equations (5.1) excluding each possible country pair. The point estimate on the $\mathbb{1}_{c,t}\{\text{Post}\} \times \mathbb{1}_{c,t}\{\text{Catholic}\} \times \mathbb{1}_{c,t}\{\text{Autocracy}\}$ are provided in Panel A, and their corresponding t-Statistics in Panel B. Panels C and D report the results from estimating the specification from Equation (5.2). Finally, Panels E and F report the results from estimating the specification from Equation (5.3).

**Single Difference-in-Differences**

**Panel A: Point Estimates**

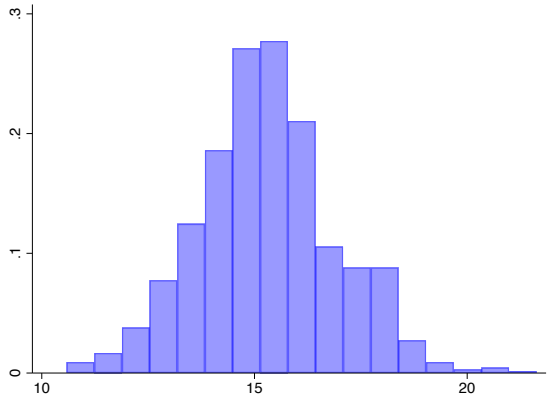



**Panel B: t-Statistics**

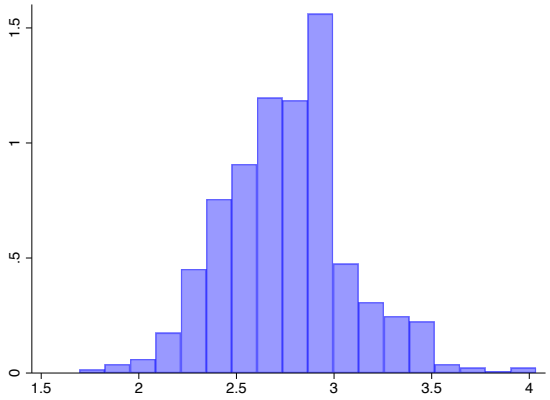



**Discrete Specification**

**Panel C: Point Estimates**

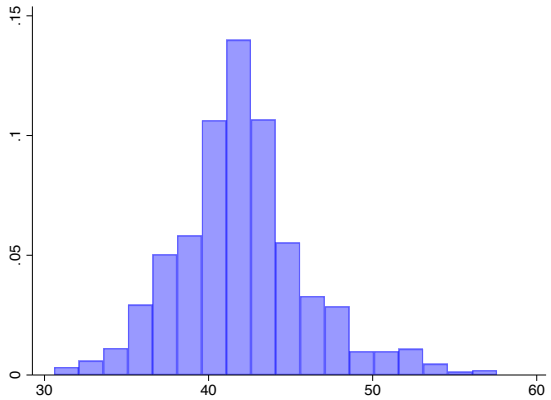



**Panel D: t-Statistics**

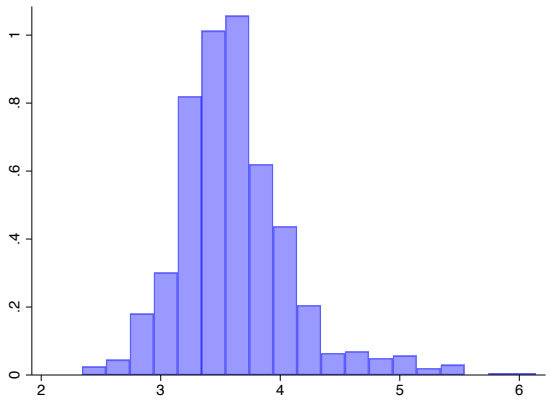



**Continuous Specification**

**Panel E: Point Estimates**




**Panel F: t-Statistics**



## D.5 Dropping every country pair

To assure the results are not driven by any one or two countries, I estimate all specifications excluding every possible combination of countries. This means that each regression is estimated on 39 countries from 1946–1976. Figure D.2 shows the results. No pairs of countries drive the results, which are strongly significant in nearly every specification. For the single difference-in-differences specification, the point estimates range from 12 to 21 percentage points and all are significant at the 5% level. Similar results hold for the triple difference-in-differences specifications.

## D.6 Extreme values driving the results

Another possibility is that extreme observations in returns are driving the results. To show this is not the case, I winsorize the excess returns data at the 5% and 10% levels. This means that excess returns are truncated at the 5th and 95th percentiles and the 10th and 90th percentiles. The results are shown in Table D.9. The results are still highly statistically significant, though the point estimates are slightly lower. When winsorized at the 10% level, the treatment effect is between 6.7 and 9.0 percentage points, indicating that about half of the treatment effect reported in the main text is coming from large realized excess return observations.

## Table D.9: Difference-in-differences — Winsorizing

This table shows the regression coefficients for the single difference-in-differences specification in Equation (5.1) and the triple difference-in-differences regressions given by Equations (5.2) and (5.3) with excess returns winsorized at the 5% level (Panel A) and winsorized at the 10% level (Panel B), meaning that excess returns are truncated at the 5th and 95th percentiles. In each regression, 1959 to 1963 are the years of treatment and are excluded. Standard errors are heteroskedasticity robust and clustered by country and year. Included countries must have at least 20 observations from 1946–1983. All coefficients have been multiplied by 100, and $t$ statistics are in parentheses.The controls used are a series of "event controls" meaning indicator variables for whether there is a war, financial crisis, recession, sovereign default, a head of government death, and ICB political crisis. In addition to the event controls, I also employ a series of additional controls: log GDP growth, log GDP per capita, inflation, the level of political violence, the level of anti-system regime activity, the level of democratic mobilization, the level of resource inequality, and estimated $\beta$'s multiplied by factor returns from a two factor risk model shown in Equation (5.4).

**Panel A: Winsorized at 5%**

| | Single Diff. | | Discrete Specification | | Continuous Specification | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 10.63*** | 8.065*** | 10.28* | 7.483 | 37.37*** | 33.75** |
| | (3.05) | (3.02) | (2.03) | (1.47) | (2.91) | (2.59) |
| Post × Catholic | | | -2.078 | -0.699 | -23.54** | -22.36** |
| | | | (-0.56) | (-0.22) | (-2.27) | (-2.21) |
| Post × Autocracy | | | 2.827 | 2.065 | -3.142 | -3.870 |
| | | | (0.82) | (0.60) | (-0.45) | (-0.60) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 995 | 1230 | 995 | 1230 | 995 | 1230 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

**Panel B: Winsorized at 10%**

| | Single Diff. | | Discrete Specification | | Continuous Specification | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Post × Catholic × Autocracy | 8.952** | 6.679** | 8.093 | 6.046 | 32.61** | 30.09** |
| | (2.56) | (2.31) | (1.62) | (1.24) | (2.62) | (2.42) |
| Post × Catholic | | | -2.415 | -1.555 | -21.83** | -21.25** |
| | | | (-0.66) | (-0.47) | (-2.15) | (-2.11) |
| Post × Autocracy | | | 3.979 | 3.057 | -0.0675 | -1.230 |
| | | | (1.37) | (1.08) | (-0.01) | (-0.22) |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Sample | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 | 1946–1976 | 1946–1983 |
| N | 995 | 1230 | 995 | 1230 | 995 | 1230 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

# E List of democratizations

Table E.10 shows the list of democratizations used in the paper.

**Table E.10: List of fast and slow democratizations**

| Country Name | Fast Democratizations | Slow Democratizations |
|---|---|---|
| Argentina | 1913; 1916–1917; 1932; 1946–1947; 1973–1974 | 1913–1926; 1933–1940; 1947–1948; 1958–1961; 1964; 1974; 1984–2000 |
| Australia | 1856; 1901–1902 | N/A |
| Austria | 1860–1861; 1867 | N/A |
| Bahrain | 2000–2003 | N/A |
| Belgium | 1919–1921; 1945–1949; 1961 | 1920–1922; 1945–1950 |
| Bolivia | 1829; 1953; 1966; 1979; 1985 | 1937–1939; 1953–1960; 1985 |
| Brazil | 1861; 1883; 1895; 1946–1947; 1967 | 1946–1950; 1980–2000 |
| Bulgaria | N/A | 2004–2007 |
| Burma/Myanmar | 1900; 1922–1923; 1945–1947; 1952 | 1946–1961 |
| Canada | N/A | 1921–1938 |
| Chile | 1864; 1888; 1894; 1959; 1991 | 1933–1969; 1990–2002 |
| Colombia | 1905; 1910; 1931; 1959; 1991; 2005 | 1959; 1992 |
| Costa Rica | 1920 | 1920–1921 |
| Cuba | 1845; 1887; 1899–1902; 1909; 1935–1936; 1941; 1955 | 1937–1941 |
| Denmark | 1901–1902; 1916; 1945–1946 | 1946–1948 |
| Ecuador | 1967–1969 | 1939; 1948–1952; 1968–1969 |
| Egypt | 1867; 1923–1924; 1936; 1945; 1957; 2012 | 1937–1950; 2012–2013 |
| El Salvador | N/A | 1983–1986 |
| Estonia | N/A | 1996 |
| Finland | 1906; 1917; 1946 | 1918–1921 |
| France | 1821; 1831 | 1946–1949 |
| Germany | 1861; 1868 | 1920 |

(Continued on next page)

| Country Name | Fast Democratizations | Slow Democratizations |
|---|---|---|
| Ghana | 1947; 1951 | 1970–1971; 2001–2008 |
| Greece | 1900; 1924; 1927 | 1924–1925; 1977–1984 |
| Guatemala | 1924; 1928; 1944–1946; 1958 | 1946–1951 |
| Guyana | 1901 | N/A |
| Hong Kong | 1946; 1990–1992 | N/A |
| India | 1883; 1920; 1935; 1950–1952; 1977–1978 | 1949–1957; 1978–1979 |
| Indonesia | 1906; 1910; 1919; 1945–1946 | 1946–1957; 1972; 1999–2004 |
| Ireland | 1921–1924 | 1922–1936 |
| Israel | N/A | 1966–1985; 1993–2001 |
| Italy | 1913; 1947 | 1945–1953 |
| Ivory Coast | 2001 | 2001–2002; 2008 |
| Jamaica | N/A | 1966–1969; 1988–2008 |
| Japan | 1891; 1953 | 1945–1971 |
| Kenya | 1913; 1920; 1960; 1963–1964; 1990–1991; 1993; 2003 | 1957–1965; 1991–2003 |
| Lebanon | N/A | 2011–2015 |
| Malaysia | 1946; 1950; 1955–1957; 1972; 1975; 2018 | 1947–1962; 1974–1975 |
| Mexico | 1825; 1842–1843 | 1978–2010 |
| Netherlands | 1920; 1947 | 1919–1923; 1946–1980 |
| New Zealand | 1893 | N/A |
| Nigeria | 1923; 1952; 1960; 2011 | 1999–2000; 2012–2016 |
| Norway | 1906; 1945–1946 | 1946–1998 |
| Pakistan | 1989; 2002–2003 | 1988–1989; 2003–2017 |
| Paraguay | 1961–1962 | N/A |
| Peru | 1869; 1916; 1956–1957; 1963–1964; 2001–2002 | 1940–1946; 1951–1957; 1964–1965; 1994–1996; 2002 |
| Philippines | 1935; 1943–1947 | 1945–1954; 1983–1990 |
| Poland | N/A | 1992 |

(Continued on next page)

| Country Name | Fast Democratizations | Slow Democratizations |
|---|---|---|
| Portugal | 1879; 1911–1912; 1929–1930 | 1912; 1971–1984 |
| Singapore | 1946–1948; 1950; 1955 | 1956–1957; 1969–1981 |
| Slovakia | 1994 | 1996–1999 |
| South Africa | 1910 | 1991–2010 |
| South Korea | 1964; 1988; 2017 | 1964–1965; 1982–2000 |
| Spain | 1932; 1978 | 1932–1934; 1968–1980 |
| Sri Lanka | 1911; 1932; 1947–1948; 2015–2016 | 1949; 1994–1995; 2011–2017 |
| Sweden | N/A | 1918–1922 |
| Taiwan | 1988; 1996; 2000 | 1988–2012 |
| Thailand | 1933–1934; 1980; 1993; 1998; 2008; 2012 | 1934–1935; 1976; 1980–1989; 1995–2001; 2009–2012 |
| Trinidad and Tobago | 1925; 1946; 1956; 1962 | 1937–1985; 1988 |
| Tunisia | 2011–2012 | 2012–2016 |
| Turkey | 1860; 1900; 1908 | 1987–2003 |
| United Kingdom | N/A | 1920–1930 |
| United States of America | N/A | 1920–1932 |
| Uruguay | 1879–1880; 1923; 1939 | 1916–1920; 1923–1926; 1939–1940 |
| Venezuela | 1885; 1894; 1920; 1936–1937; 1941; 1946–1948; 1958–1959 | 1937–1948; 1959; 1963–1971; 1988–1989 |
| Zimbabwe | 1924; 1981 | 1980–1991 |

# F Country-by-country data construction

## Argentina

Dividend yield data for Argentina comes from the companies listed on the London Stock Exchange (GFUKARGUSDDYM) from 1865, and the Buenos Aires SE Dividend Yield (SYARGYM) from 1866–2018. Ex-dividend return data for Argentina comes from the companies listed on the London Stock Exchange (GFUKARGUSDMPM) from 1866–1947, and the GFD Indices Buenos Aires SE General Index (GFPRARGSTD) from 1948–2018. Cum-dividend return data for Argentina comes from the companies listed on the London Stock Exchange (GFUKARGUSDMRM) from 1866–1966, and the GFD Indices Argentina Stocks Total Return Index (GFTRARGSTM) from 1967–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1866–2018 | SYARGYM |
| | 1865 | GFUKARGUSDDYM |
| Ex-dividend return | 1948–2018 | GFPRARGSTD |
| | 1866–1947 | GFUKARGUSDMPM |
| Cum-dividend return | 1967–2018 | GFTRARGSTM |
| | 1866–1966 | GFUKARGUSDMRM |
| Government bond yield | 2010; 2012–2018 | IGARG10D |
| Gross domestic product | 1870; 1875–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1953–2017 | Varieties of Democracy |
| Government revenue | 1865–2009 | GVRARGA |
| Consumer price index | 1865–2018 | CPARGM |

## Australia

Dividend yield data for Australia comes from the Australia GFD-ASX Dividend Yield (SYAUSYM) from 1834–2018. Ex-dividend return data for Australia comes from the GFD Indices Australia ASX All-Ordinaries (GFPRAUSSTD) from 1826–2018. Cum-dividend return data for Australia comes from the Australia ASX Accumulation Index-All Ordinaries (_AORDAD) from 1826–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1834–2018 | SYAUSYM |
| Ex-dividend return | 1826–2018 | GFPRAUSSTD |
| Cum-dividend return | 1826–2018 | _AORDAD |
| Government bond yield | 1857–2018 | IGAUS10D |
| Gross domestic product | 1826–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1942–2017 | Varieties of Democracy |
| Government revenue | 1902–2017 | JST Macrohistory Database |
| Consumer price index | 1861–2018 | CPAUSM |

## Austria

Dividend yield data for Austria comes from the Vienna SE Dividend Yield (SYAUTYM) from 1925–1939 and 1969–2018. Ex-dividend return data for Austria comes from the companies listed on the London Stock Exchange (GFUKAUTUSDMPM) from

1857–1914, and the GFD Indices Austria Wiener Boersekammer Share Index (GFPRAUTSTD) from 1923–1939 and 1944–2018. Cum-dividend return data for Austria comes from the companies listed on the London Stock Exchange (GFUKAUTUSDMRM) from 1857–1914 and 1929–1932, and the Vienna SE ATX Total Return Index (_ATXTRD) from 1970–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1925–1939; 1969–2018 | SYAUTYM |
| Ex-dividend return | 1923–1939; 1944–2018 | GFPRAUTSTD |
| | 1857–1914 | GFUKAUTUSDMPM |
| Cum-dividend return | 1970–2018 | _ATXTRD |
| | 1857–1914; 1929–1932 | GFUKAUTUSDMRM |
| Government bond yield | 1857–1914; 1923–1939; 1944–2018 | IGAUT10D |
| Gross domestic product | 1860; 1870–1914; 1923–1939; 1944–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1970–2017 | Varieties of Democracy |
| Government revenue | 1857–1914; 1923–1937; 1948–2008 | GVRAUTA |
| Consumer price index | 1863–1914; 1923–1938; 1944–2018 | CPAUTM |

## Belgium

Dividend yield data for Belgium comes from the Belgium SE Dividend Yield (SYBELYM) from 1831–2018. Ex-dividend return data for Belgium comes from the companies listed on the London Stock Exchange (GFUKBELUSDMPM) from 1846–1870, the GFD Indices Brussels All-Share Price Index (GFPRBELSTD) from 1871–1913 and 1919–2018, and the JST Macrohistory Database from 1914–1918. Cum-dividend return data for Belgium comes from the Brussels All-Share Return Index (_BCSHD) from 1832–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1831–2018 | SYBELYM |
| Ex-dividend return | 1871–1913; 1919–2018 | GFPRBELSTD |
| | 1914–1918 | JST Macrohistory Database |
| | 1846–1870 | GFUKBELUSDMPM |
| Cum-dividend return | 1832–2018 | _BCSHD |
| Government bond yield | 1831–2018 | IGBEL10D |
| Gross domestic product | 1846–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1969–2017 | Varieties of Democracy |
| Government revenue | 1831–1912; 1920–1998 | GVRBELA |
| | 1870–1912; 1920–2017 | JST Macrohistory Database |
| Consumer price index | 1831–1913; 1920–1940; 1946–2018 | CPBELM |
| | 1914–1920; 1941–1946 | JST Macrohistory Database |

## Bolivia

Ex-dividend return data for Bolivia comes from the companies listed on the London Stock Exchange (GFUKBOLUSDMPM) from 1826–1836, 1882–1887, 1903–1982, and 1985. Cum-dividend return data for Bolivia comes from the companies listed on the London Stock Exchange (GFUKBOLUSDMRM) from 1826–1836, 1882–1887, 1903–1982, and 1985. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1826–1836; 1882–1887; 1903–1982; 1985 | GFUKBOLUSDMPM |
| Cum-dividend return | 1826–1836; 1882–1887; 1903–1982; 1985 | GFUKBOLUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1903–1982; 1985 | Maddisson Historial Statistics |
| Gini coefficient | 1968–1982; 1985 | Varieties of Democracy |
| Government revenue | 1885–1887; 1903–1982; 1985 | GVRBOLA |
| Consumer price index | 1936–1982; 1985 | CPBOLM |

## Brazil

Dividend yield data for Brazil comes from the companies listed on the London Stock Exchange (GFUKBRAUSDDYM) from 1825–1828, 1959, 1961, and 1964, and the Brazil Dividend Yield (SYBRAYM) from 1829–1840, 1842–1958, 1960, 1962–1963, and1965–2018. Ex-dividend return data for Brazil comes from the GFD Indices Brazil IBV Index (_MIBR00D) from 1826–2018. Cum-dividend return data for Brazil comes from the companies listed on the London Stock Exchange (GFUKBRAUSDMRM) from 1826–1954, and the Brazil Bolsa de Valores de Sao Paulo (_BVSPD) from 1955–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1829–1840; 1842–1958; 1960; | SYBRAYM |
| | 1962–1963;1965–2018 | GFUKBRAUSDDYM |
| | 1825–1828; 1959; 1961; 1964 | |
| Ex-dividend return | 1826–2018 | _MIBR00D |
| Cum-dividend return | 1955–2018 | _BVSPD |
| | 1826–1954 | GFUKBRAUSDMRM |
| Government bond yield | 2008–2018 | IGBRA10D |
| Gross domestic product | 1850–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1958–2017 | Varieties of Democracy |
| Government revenue | 1825–1994; 1997–2008 | GVRBRAA |
| Consumer price index | 1830–2018 | CPBRAM |

## Canada

Dividend yield data for Canada comes from the S&P/TSX-300 Dividend Yield (SYCANYTM) from 1830–2018. Ex-dividend return data for Canada comes from the GFD Indices Canada S&P/TSX 300 Composite (GFPRCANSTD) from 1826–2018. Cum-dividend return data for Canada comes from the Canada S&P/TSX-300 Total Return Index (_TRGSPTSE) from 1826–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1830–2018 | SYCANYTM |
| Ex-dividend return | 1826–2018 | GFPRCANSTD |
| Cum-dividend return | 1826–2018 | _TRGSPTSE |
| Government bond yield | 1853–2018 | IGCAN10D |
| Gross domestic product | 1830; 1840; 1850; 1860;1870–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1951–2017 | Varieties of Democracy |
| Government revenue | 1867–2009 | GVRCANA |
| | 1870–2017 | JST Macrohistory Database |
| Consumer price index | 1826–2018 | CPCANM |

## Switzerland

Dividend yield data for Switzerland comes from the JST Macrohistory Database from 1900–1917 and 1960–1965, and the Switzerland Dividend Yield (SYCHEYM) from 1918–1939 and 1966–2018. Ex-dividend return data for Switzerland comes from the companies listed on the London Stock Exchange (GFUKCHEUSDMPM) from 1873–1876 and 1879–1899, the GFD Indices Switzerland Price Index (GFPRCHESTD) from 1900–1914 and 1917–2018, and the JST Macrohistory Database from 1915–1916. Cum-dividend return data for Switzerland comes from the companies listed on the London Stock Exchange (GFUKCHEUSDMRM) from 1873–1876 and 1879–1899, the JST Macrohistory Database from 1900–1966, and the Swiss Performance Index (_SSHID) from 1967–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1918–1939; 1966–2018 | SYCHEYM |
| | 1900–1917; 1960–1965 | JST Macrohistory Database |
| Ex-dividend return | 1900–1914; 1917–2018 | GFPRCHESTD |
| | 1915–1916 | JST Macrohistory Database |
| | 1873–1876; 1879–1899 | GFUKCHEUSDMPM |
| Cum-dividend return | 1967–2018 | _SSHID |
| | 1900–1966 | JST Macrohistory Database |
| | 1873–1876; 1879–1899 | GFUKCHEUSDMRM |
| Government bond yield | 1893–2018 | IGCHE10D |
| | 1880–1892 | JST Macrohistory Database |
| Gross domestic product | 1873–1876; 1879–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1978–2017 | Varieties of Democracy |
| Government revenue | 1873–1876; 1879–2004 | GVRCHEA |
| | 1873–1876; 1879–2017 | JST Macrohistory Database |
| Consumer price index | 1873–1876; 1879–2018 | CPCHEM |

## Chile

Dividend yield data for Chile comes from the companies listed on the London Stock Exchange (GFUKCHLUSDDYM) from 1852–1871, 1932–1934, and 1967–1969, and the Chile Dividend Yield (SYCHLYM) from 1872–1931, 1935–1966, and 1983–2018. Ex-dividend return data for Chile comes from the companies listed on the London Stock Exchange (GFUKCHLUSDMPM) from 1853–1894, and the GFD Indices Santiago SE S&P CLX Indice General de Precios de Acciones (GFPRCHLSTD) from 1895–2018. Cum-dividend return data for Chile comes from the companies listed on the London Stock Exchange (GFUKCHLUSDMRM) from 1853–1969, and the Santiago SE S&P CLX IPSA Index (_IPSAD) from 1976–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1872–1931; 1935–1966; 1983–2018 | SYCHLYM |
| | 1852–1871; 1932–1934; 1967–1969 | GFUKCHLUSDDYM |
| Ex-dividend return | 1895–2018 | GFPRCHLSTD |
| | 1853–1894 | GFUKCHLUSDMPM |
| Cum-dividend return | 1976–2018 | _IPSAD |
| | 1853–1969 | GFUKCHLUSDMRM |
| Government bond yield | 2004–2018 | IGCHL10D |
| Gross domestic product | 1852–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1964–2017 | Varieties of Democracy |
| Government revenue | 1857–2009 | GVRCHLA |
| Consumer price index | 1852–2018 | CPCHLM |

## China

Dividend yield data for China comes from the China Dividend Yield (SYCHNYM) from 1908–1930 and 1995–2018. Ex-dividend return data for China comes from the companies listed on the London Stock Exchange (GFUKCHNUSDMPM) from 1883–1886 and 1897–1930, and the GFD Indices Shanghai SE "A" Shares (GFPRCHNSTD) from 1991–2018. Cum-dividend return data for China comes from the companies listed on the London Stock Exchange (GFUKCHNUSDMRM) from 1883–1886 and 1897–1930, and the China Shanghai SE Total Return Index (TRCHNSTM) from 1995–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1908–1930; 1995–2018 | SYCHNYM |
| Ex-dividend return | 1991–2018 | GFPRCHNSTD |
| | 1883–1886; 1897–1930 | GFUKCHNUSDMPM |
| Cum-dividend return | 1995–2018 | TRCHNSTM |
| | 1883–1886; 1897–1930 | GFUKCHNUSDMRM |
| Government bond yield | 2007–2018 | IGCHN10D |
| Gross domestic product | 1900; 1911; 1913; 1929–1930;1991–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1991–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1991–2018 | CPCHNM |

## Colombia

Dividend yield data for Colombia comes from the Colombia Dividend Yield (SYCOLYM) from 1985–2018. Ex-dividend return data for Colombia comes from the companies listed on the London Stock Exchange (GFUKCOLUSDMPM) from 1826–1836, 1852–1913, and 1916–1927, and the GFD Indices Colombia IGBC General Index (GFPRCOLSTD) from 1928–2018. Cum-dividend return data for Colombia comes from the companies listed on the London Stock Exchange (GFUKCOLUSDMRM) from 1826–1836 and 1852–1962, and the Colombia Stock Return Index (TRCOLSTM) from 1988–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1985–2018 | SYCOLYM |
| Ex-dividend return | 1928–2018 | GFPRCOLSTD |
| | 1826–1836; 1852–1913; 1916–1927 | GFUKCOLUSDMPM |
| Cum-dividend return | 1988–2018 | TRCOLSTM |
| | 1826–1836; 1852–1962 | GFUKCOLUSDMRM |
| Government bond yield | 2002–2006; 2008; 2012–2018 | IGCOL10D |
| Gross domestic product | 1860; 1870–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1960–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1862–2018 | CPCOLM |

## Costa Rica

Ex-dividend return data for Costa Rica comes from the companies listed on the London Stock Exchange (GFUKCRIUSDMPM) from 1887–1932, and the GFD Indices Costa Rica Bolsa Nacional de Valores Index (GFPRCRISTD) from 1995–2018. Cum-dividend return data for Costa Rica comes from the companies listed on the London Stock Exchange (GFUKCRIUSDMRM) from 1887–1932. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1995–2018 | GFPRCRISTD |
| | 1887–1932 | GFUKCRIUSDMPM |
| Cum-dividend return | 1887–1932 | GFUKCRIUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1920–1932; 1995–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1995–2017 | Varieties of Democracy |
| Government revenue | 1887–1891; 1893–1932; 1995–2009 | GVRCRIA |
| Consumer price index | 1995–2018 | CPCRIM |

## Cuba

Ex-dividend return data for Cuba comes from the companies listed on the London Stock Exchange (GFUKCUBUSDMPM) from 1839–1867 and 1871–1961. Cum-dividend return data for Cuba comes from the companies listed on the London Stock Exchange (GFUKCUBUSDMRM) from 1839–1867 and 1871–1961. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1839–1867; 1871–1961 | GFUKCUBUSDMPM |
| Cum-dividend return | 1839–1867; 1871–1961 | GFUKCUBUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1844; 1850; 1862; 1881; 1892; 1902–1961 | Maddisson Historial Statistics |
| Gini coefficient | 1953–1961 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | N/A | N/A |

## Czech Republic

Dividend yield data for Czech Republic comes from the Prague SE Dividend Yield (SYCZEYM) from 1926–1938 and 1995–2018. Ex-dividend return data for Czech Republic comes from the GFD Indices Czechoslovakia Stock Market Index (GFPRCZESTM) from 1920–1938, 1941–1945, and 1995–2018, and . Cum-dividend return data for Czech Republic comes from the Prague PX Total Return Index (_PXTRD) from 1995–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1926–1938; 1995–2018 | SYCZEYM |
| Ex-dividend return | 1920–1938; 1941–1945; 1995–2018 | GFPRCZESTM |
| | 1920–1938; 1941–1945; 1995–2018 | GFPRCZESTD |
| Cum-dividend return | 1995–2018 | _PXTRD |
| Government bond yield | 2000–2018 | IGCZE10D |
| Gross domestic product | 1995–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1995–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1921–1938; 1941–1945; 1995–2018 | CPCZEM |

## Germany

Dividend yield data for Germany comes from the Germany Dividend Yield (SYDEUYM) from 1841–1944 and 1951–2018, and the JST Macrohistory Database from 1945–1950. Ex-dividend return data for Germany comes from the GFD Indices Germany CDAX Composite Index (GFPRDEUSTD) from 1836–1914 and 1919–2018, and the JST Macrohistory Database from 1915–1918. Cum-dividend return data for Germany comes from the Germany CDAX Total Return Index (_CDAXD) from 1836–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1841–1944; 1951–2018 | SYDEUYM |
| | 1945–1950 | JST Macrohistory Database |
| Ex-dividend return | 1836–1914; 1919–2018 | GFPRDEUSTD |
| | 1915–1918 | JST Macrohistory Database |
| Cum-dividend return | 1836–2018 | _CDAXD |
| Government bond yield | 1836–1943; 1946–2018 | IGDEU10D |
| Gross domestic product | 1850–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1936–1944; 1949–2017 | Varieties of Democracy |
| Government revenue | 1872–1921; 1924–1942; 1946–2008 | GVRDEUA |
| | 1873–1915; 1925–1938; 1950–2017 | JST Macrohistory Database |
| Consumer price index | 1836–2018 | CPDEUM |

## Denmark

Dividend yield data for Denmark comes from the JST Macrohistory Database from 1872–1873 and 1938–1968, and the Copenhagen SE Dividend Yield (SYDNKYM) from 1874–1937 and 1969–2018. Ex-dividend return data for Denmark comes from the JST Macrohistory Database from 1873, and the GFD Indices OMX Copenhagen All-Share Price Index (GFPRDNKSTD) from 1874–2018. Cum-dividend return data for Denmark comes from the companies listed on the London Stock Exchange (GFUKDNKUSDMRM) from 1854–1864 and 1870–1872, the JST Macrohistory Database from 1873, and the OMX Copenhagen All-Share Gross Index (_OMXCGID) from 1874–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1874–1937; 1969–2018 | SYDNKYM |
| | 1872–1873; 1938–1968 | JST Macrohistory Database |
| Ex-dividend return | 1874–2018 | GFPRDNKSTD |
| | 1873 | JST Macrohistory Database |
| Cum-dividend return | 1874–2018 | _OMXCGID |
| | 1873 | JST Macrohistory Database |
| | 1854–1864; 1870–1872 | GFUKDNKUSDMRM |
| Government bond yield | 1854–1860; 1863–1864; 1870–2018 | IGDNK10D |
| Gross domestic product | 1854–1864; 1870–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1939–2017 | Varieties of Democracy |
| Government revenue | 1854–1864; 1870–2009 | GVRDNKA |
| | 1870–1935; 1954–2017 | JST Macrohistory Database |
| Consumer price index | 1854–1864; 1870–2018 | CPDNKM |

## Ecuador

Dividend yield data for Ecuador comes from the Ecuador Dividend Yield (SYECUYM) from 1996–2008. Ex-dividend return data for Ecuador comes from the companies listed on the London Stock Exchange (GFUKECUUSDMPM) from 1925–1952 and 1958–1975, and the GFD Indices Ecuador Bolsa de Valores de Guayaquil Select Index (GFPRECUSTD) from 1995–2018. Cum-dividend return data for Ecuador comes from the companies listed on the London Stock Exchange (GFUKECUUSDMRM) from 1925–1952 and 1958–1975. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1996–2008 | SYECUYM |
| Ex-dividend return | 1995–2018 | GFPRECUSTD |
| | 1925–1952; 1958–1975 | GFUKECUUSDMPM |
| Cum-dividend return | 1925–1952; 1958–1975 | GFUKECUUSDMRM |
| Government bond yield | 2002–2018 | _RBQD |
| Gross domestic product | 1925–1952; 1958–1975; 1995–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1965–1975; 1995–2017 | Varieties of Democracy |
| Government revenue | 1925–1952; 1958–1975; 1995–2009 | GVRECUA |
| Consumer price index | 1939–1952; 1958–1975; 1995–2018 | CPECUM |

## Egypt

Dividend yield data for Egypt comes from the Egypt Dividend Yield (SYEGYYM) from 1857–1956, 1959–1964, 1966–1969, 1996–2008, and2015–2018. Ex-dividend return data for Egypt comes from the GFD Indices Egyptian Stock Exchange Index (GFPREGYSTM) from 1857–1969 and 1993–2018, and . Cum-dividend return data for Egypt comes from the companies listed on the London Stock Exchange (GFUKEGYUSDMRM) from 1857–1969, and the Egypt Stock Return Index (TREGYSTM) from 1995–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1857–1956; 1959–1964; 1966–1969; | SYEGYYM |
| | 1996–2008;2015–2018 | |
| Ex-dividend return | 1857–1969; 1993–2018 | GFPREGYSTM |
| | 1857–1969; 1993–2018 | GFPREGYSTD |
| Cum-dividend return | 1995–2018 | TREGYSTM |
| | 1857–1969 | GFUKEGYUSDMRM |
| Government bond yield | 1862–1957; 2012–2018 | IGEGYM |
| | 1862–1957; 2012–2018 | IGEGY10D |
| Gross domestic product | 1870; 1913; 1950–1969; 1993–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1958–1969; 1993–2017 | Varieties of Democracy |
| Government revenue | 1857–1969; 1993–2009 | GVREGYA |
| Consumer price index | 1895–1969; 1993–2018 | CPEGYM |

## Spain

Dividend yield data for Spain comes from the Madrid SE Dividend Yield (SYESPYM) from 1875–1930 and 1940–2018, and the JST Macrohistory Database from 1931–1939. Ex-dividend return data for Spain comes from the GFD Indices Madrid SE General Index (GFPRESPSTD) from 1834–1835, 1846–1936, and 1941–2018, and the JST Macrohistory Database from 1937–1940. Cum-dividend return data for Spain comes from the companies listed on the London Stock Exchange (GFUKESPUSDMRM) from 1846–1848 and 1854–1899, the JST Macrohistory Database from 1900–1940, and the Barcelona SE-30 Return Index (_BCNPR30) from 1941–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1875–1930; 1940–2018 | SYESPYM |
| | 1931–1939 | JST Macrohistory Database |
| Ex-dividend return | 1834–1835; 1846–1936; 1941–2018 | GFPRESPSTD |
| | 1937–1940 | JST Macrohistory Database |
| Cum-dividend return | 1941–2018 | _BCNPR30 |
| | 1900–1940 | JST Macrohistory Database |
| | 1846–1848; 1854–1899 | GFUKESPUSDMRM |
| Government bond yield | 1834–1835; 1846–1936; 1940–2018 | IGESP10D |
| Gross domestic product | 1835; 1850–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1965–2017 | Varieties of Democracy |
| Government revenue | 1834–1835; 1849–1935; 1940–1998 | GVRESPA |
| | 1870–1935; 1940–2017 | JST Macrohistory Database |
| Consumer price index | 1834–1835; 1846–1936; 1939–2018 | CPESPM |
| | 1937–1939 | JST Macrohistory Database |

## Estonia

Dividend yield data for Estonia comes from the Estonia Dividend Yield (SYESTYM) from 1998–2008 and 2016–2018. Ex-dividend return data for Estonia comes from the GFD Indices OMX Talinn SE Total Return Index (GFPRESTSTD) from 1996–2018. Cum-dividend return data for Estonia comes from the OMX Talinn SE Total Return Index (_OMXTGID) from 1996–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1998–2008; 2016–2018 | SYESTYM |
| Ex-dividend return | 1996–2018 | GFPRESTSTD |
| Cum-dividend return | 1996–2018 | _OMXTGID |
| Government bond yield | 1997–2010 | IGEST10M |
| Gross domestic product | 1996–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1996–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1996–2018 | CPESTM |

## Ethiopia

Ex-dividend return data for Ethiopia comes from the companies listed on the London Stock Exchange (GFUKETHUSDMPM) from 1909–1914 and 1918–1924. Cum-dividend return data for Ethiopia comes from the companies listed on the London Stock Exchange (GFUKETHUSDMRM) from 1909–1914 and 1918–1924. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1909–1914; 1918–1924 | GFUKETHUSDMPM |
| Cum-dividend return | 1909–1914; 1918–1924 | GFUKETHUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | N/A | N/A |
| Gini coefficient | N/A | N/A |
| Government revenue | N/A | N/A |
| Consumer price index | N/A | N/A |

## Finland

Dividend yield data for Finland comes from the JST Macrohistory Database from 1912–1961, and the Helsinki SE Dividend Yield (SYFINYM) from 1962–2018. Ex-dividend return data for Finland comes from the GFD Indices OMX Helsinki All-Share Price Index (GFPRFINSTD) from 1913–2018. Cum-dividend return data for Finland comes from the JST Macrohistory Database from 1896–1912, and the OMX Helsinki All-Share Gross Index (_OMXHGID) from 1913–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1962–2018 | SYFINYM |
| | 1912–1961 | JST Macrohistory Database |
| Ex-dividend return | 1913–2018 | GFPRFINSTD |
| Cum-dividend return | 1913–2018 | _OMXHGID |
| | 1896–1912 | JST Macrohistory Database |
| Government bond yield | 1896–1953; 1960–2018 | IGFIN10D |
| | 1954–1959 | JST Macrohistory Database |
| Gross domestic product | 1896–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1952–2017 | Varieties of Democracy |
| Government revenue | 1896–1998 | GVRFINA |
| | 1896–2017 | JST Macrohistory Database |
| Consumer price index | 1913–1914; 1916–2018 | CPFINM |
| | 1896–1913; 1915–1916 | JST Macrohistory Database |

## France

Dividend yield data for France comes from the France Dividend Yield (SYFRAYM) from 1816–1914 and 1919–2018, and the JST Macrohistory Database from 1915–1918. Ex-dividend return data for France comes from the GFD Indices France CAC All-Tradable Index (GFPRFRASTD) from 1817–2018. Cum-dividend return data for France comes from the France CAC All-Tradable Total Return Index (TRSBF250D) from 1817–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1816–1914; 1919–2018 | SYFRAYM |
| | 1915–1918 | JST Macrohistory Database |
| Ex-dividend return | 1817–2018 | GFPRFRASTD |
| Cum-dividend return | 1817–2018 | TRSBF250D |
| Government bond yield | 1816–2018 | IGFRA10D |
| Gross domestic product | 1820–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1956–2017 | Varieties of Democracy |
| Government revenue | 1816–1993 | GVRFRAA |
| | 1870–2017 | JST Macrohistory Database |
| Consumer price index | 1840–2018 | CPFRAM |

## United Kingdom

Dividend yield data for United Kingdom comes from the UK FTSE-100/UK-100 Dividend Yield (_DFTSED) from 1816–2018. Ex-dividend return data for United Kingdom comes from the companies listed on the London Stock Exchange (GFUK100MPM) from 1817–1870, the JST Macrohistory Database from 1871–1933, and the GFD Indices UK FTSE All-Share Index (GFPRGBRSTD) from 1934–2018. Cum-dividend return data for United Kingdom comes from the UK FTSE All-Share Return Index (_TFTASD) from 1817–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1816–2018 | _DFTSED |
| Ex-dividend return | 1934–2018 | GFPRGBRSTD |
| | 1871–1933 | JST Macrohistory Database |
| | 1817–1870 | GFUK100MPM |
| Cum-dividend return | 1817–2018 | _TFTASD |
| Government bond yield | 1816–2018 | IGGBR10D |
| Gross domestic product | 1816–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1938–2017 | Varieties of Democracy |
| Government revenue | 1816–2008 | GVGBRREV |
| | 1870–2017 | JST Macrohistory Database |
| Consumer price index | 1870–2017 | JST Macrohistory Database |

## Ghana

Dividend yield data for Ghana comes from the Ghana Dividend Yield (SYGHAYM) from 1996–2008 and 2016. Ex-dividend return data for Ghana comes from the companies listed on the London Stock Exchange (GFUKGHAUSDMPM) from 1870–1872, 1876–1880, 1883–1976, and 1985, and the GFD Indices Ghana Stock Exchange Composite Index (GFPRGHASTD) from 2011–2018. Cum-dividend return data for Ghana comes from the companies listed on the London Stock Exchange (GFUKGHAUSDMRM) from 1870–1872, 1876–1976, and 1985. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1996–2008; 2016 | SYGHAYM |
| Ex-dividend return | 2011–2018 | GFPRGHASTD |
| | 1870–1872; 1876–1880; 1883–1976; 1985 | GFUKGHAUSDMPM |
| Cum-dividend return | 1870–1872; 1876–1976; 1985 | GFUKGHAUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1870; 1913; 1950–1976; 1985; 1996–2008; 2011–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1996–2008; 2011–2017 | Varieties of Democracy |
| Government revenue | 1870–1872; 1876–1955; 1957–1976; 1985; 1996–1998; 2001–2004; 2006–2008 | GVRGHAA |
| Consumer price index | N/A | N/A |

## Greece

Dividend yield data for Greece comes from the Athens SE Dividend Yield (SYGRCYM) from 1977–2018. Ex-dividend return data for Greece comes from the companies listed on the London Stock Exchange (GFUKGRCUSDMPM) from 1840–1843 and 1865–1930, and the GFD Indices Athens SE General Index (GFPRGRCSTD) from 1953–2018. Cum-dividend return data for Greece comes from the companies listed on the London Stock Exchange (GFUKGRCUSDMRM) from 1840–1843 and 1865–1930, and the ASE Total Return General Index (_RETMD) from 1977–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1977–2018 | SYGRCYM |
| Ex-dividend return | 1953–2018 | GFPRGRCSTD |
| | 1840–1843; 1865–1930 | GFUKGRCUSDMPM |
| Cum-dividend return | 1977–2018 | _RETMD |
| | 1840–1843; 1865–1930 | GFUKGRCUSDMRM |
| Government bond yield | 1981–1988; 1992–2018 | IGGRC10D |
| Gross domestic product | 1840–1843; 1865–1930; 1953–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1957–2017 | Varieties of Democracy |
| Government revenue | 1840–1843; 1865–1930; 1953–2008 | GVRGRCA |
| Consumer price index | 1922–1930; 1953–2018 | CPGRCM |

## Guatemala

Ex-dividend return data for Guatemala comes from the companies listed on the London Stock Exchange (GFUKGTMUSDMPM) from 1924–1963. Cum-dividend return data for Guatemala comes from the companies listed on the London Stock Exchange (GFUKGTMUSDMRM) from 1924–1963. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1924–1963 | GFUKGTMUSDMPM |
| Cum-dividend return | 1924–1963 | GFUKGTMUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1924–1963 | Maddisson Historial Statistics |
| Gini coefficient | 1948–1963 | Varieties of Democracy |
| Government revenue | 1924–1963 | GVRGTMA |
| Consumer price index | 1937–1963 | CPGTMM |

## Guyana

Ex-dividend return data for Guyana comes from the companies listed on the London Stock Exchange (GFUKGUYUSDMPM) from 1846–1848 and 1866–1921. Cum-dividend return data for Guyana comes from the companies listed on the London Stock Exchange (GFUKGUYUSDMRM) from 1846–1848 and 1866–1921. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1846–1848; 1866–1921 | GFUKGUYUSDMPM |
| Cum-dividend return | 1846–1848; 1866–1921 | GFUKGUYUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | N/A | N/A |
| Gini coefficient | N/A | N/A |
| Government revenue | 1846–1847; 1866–1921 | GVRGUYA |
| Consumer price index | N/A | N/A |

## Hong Kong

Dividend yield data for Hong Kong comes from the Hang Seng Index Dividend Yield (SYHKGYM) from 1891–1941 and 1947–2018. Ex-dividend return data for Hong Kong comes from the companies listed on the London Stock Exchange (GFUKHKGUSDMPM) from 1866–1964, and the GFD Indices Hong Kong Hang Seng Composite Index (GFPRHKGSTD) from 1965–2018. Cum-dividend return data for Hong Kong comes from the companies listed on the London Stock Exchange (GFUKHKGUSDMRM) from 1866–1969, and the Hang Seng Composite Return Index (_HSIDVD) from 1970–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1891–1941; 1947–2018 | SYHKGYM |
| Ex-dividend return | 1965–2018 | GFPRHKGSTD |
| | 1866–1964 | GFUKHKGUSDMPM |
| Cum-dividend return | 1970–2018 | _HSIDVD |
| | 1866–1969 | GFUKHKGUSDMRM |
| Government bond yield | 1996–2018 | IGHKG10D |
| Gross domestic product | 1870; 1913; 1950–2018 | Maddisson Historial Statistics |
| Gini coefficient | N/A | N/A |
| Government revenue | 1866–1941; 1946–2009 | GVRHKGA |
| Consumer price index | 1947–2018 | CPHKGM |

## Hungary

Dividend yield data for Hungary comes from the Hungary Dividend Yield (SYHUNYM) from 1873–1898 and 1993–2018. Ex-dividend return data for Hungary comes from the GFD Indices Hungary Stock Market Index (GFPRHUNSTM) from 1925–1944, 1947–1948, and 1992–2018, and . Cum-dividend return data for Hungary comes from the Budapest Stock Exchange Index (_BUXD) from 1992–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1873–1898; 1993–2018 | SYHUNYM |
| Ex-dividend return | 1925–1944; 1947–1948; 1992–2018 | GFPRHUNSTM |
| | 1925–1944; 1947–1948; 1992–2018 | GFPRHUNSTD |
| Cum-dividend return | 1992–2018 | _BUXD |
| Government bond yield | 1999–2018 | IGHUN10D |
| Gross domestic product | 1890; 1925–1942; 1947–1948; 1992–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1992–2017 | Varieties of Democracy |
| Government revenue | 1873–1898; 1927–1940; 1992–2009 | GVRHUNA |
| Consumer price index | 1925–1944; 1947–1948; 1992–2018 | CPHUNM |

## Indonesia

Dividend yield data for Indonesia comes from the companies listed on the London Stock Exchange (GFUKIDNUSDDYM) from 1906–1981, and the Indonesia Dividend Yield (SYIDNYM) from 1990–2018. Ex-dividend return data for Indonesia comes from the companies listed on the London Stock Exchange (GFUKIDNUSDMPM) from 1892–1981. Cum-dividend return data for Indonesia comes from the companies listed on the London Stock Exchange (GFUKIDNUSDMRM) from 1892–1981, and the Indonesia Stock Return Index (TRIDNSTM) from 1988–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1990–2018 | SYIDNYM |
| | 1906–1981 | GFUKIDNUSDDYM |
| Ex-dividend return | 1892–1981 | GFUKIDNUSDMPM |
| Cum-dividend return | 1988–2018 | TRIDNSTM |
| | 1892–1981 | GFUKIDNUSDMRM |
| Government bond yield | 2009–2018 | IGIDN10D |
| Gross domestic product | 1892–1941; 1949–1981; 1988–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1964–1981; 1988–2017 | Varieties of Democracy |
| Government revenue | 1892–1939; 1950–1981; 1988–2009 | GVRIDNA |
| Consumer price index | 1926–1932; 1935–1942; 1948–1981; | CPIDNM |
| | 1988–2018 | |

## India

Dividend yield data for India comes from the India Nifty Dividend Yield (SYINDYD) from 1816–2018. Ex-dividend return data for India comes from the companies listed on the London Stock Exchange (GFUKINDUSDMPM) from 1817–1920, and the GFD Indices Bombay SE Sensitive Index (GFPRINDSTD) from 1921–2018. Cum-dividend return data for India comes from the companies listed on the London Stock Exchange (GFUKINDUSDMRM) from 1817–1822, and the India Stocks Total Return Index (TRINDSTM) from 1823–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1816–2018 | SYINDYD |
| Ex-dividend return | 1921–2018 | GFPRINDSTD |
| | 1817–1920 | GFUKINDUSDMPM |
| Cum-dividend return | 1823–2018 | TRINDSTM |
| | 1817–1822 | GFUKINDUSDMRM |
| Government bond yield | 1816–2018 | IGIND10D |
| Gross domestic product | 1821; 1831; 1841; 1850–1851; 1861; 1870; 1884–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1951–2017 | Varieties of Democracy |
| Government revenue | 1816–2008 | GVRINDA |
| Consumer price index | 1870–2018 | CPINDM |

## Ireland

Dividend yield data for Ireland comes from the companies listed on the London Stock Exchange (GFUKIRLUSDDYM) from 1825–1914 and 1971–1985, the JST Macrohistory Database from 1920–1970, and the Ireland Dividend Yield (SYIRLYM) from 1990–2018. Ex-dividend return data for Ireland comes from the companies listed on the London Stock Exchange (GFUKIRLUSDMPM) from 1818–1822 and 1826–1920, the JST Macrohistory Database from 1921–1934, and the GFD Indices Ireland ISEQ Overall Price Index (GFPRIRLSTD) from 1935–2018. Cum-dividend return data for Ireland comes from the Ireland ISEQ General Return Index (_IGNTD) from 1818–1822 and 1826–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1990–2018 | SYIRLYM |
| | 1920–1970 | JST Macrohistory Database |
| | 1825–1914; 1971–1985 | GFUKIRLUSDDYM |
| Ex-dividend return | 1935–2018 | GFPRIRLSTD |
| | 1921–1934 | JST Macrohistory Database |
| | 1818–1822; 1826–1920 | GFUKIRLUSDMPM |
| Cum-dividend return | 1818–1822; 1826–2018 | _IGNTD |
| Government bond yield | 1860–2018 | IGIRL10D |
| Gross domestic product | 1820; 1870; 1913; 1921–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1973–2017 | Varieties of Democracy |
| Government revenue | 1938; 1944–2017 | JST Macrohistory Database |
| Consumer price index | 1914; 1922–2018 | CPIRLM |
| | 1922 | JST Macrohistory Database |

## Iran

Ex-dividend return data for Iran comes from the GFD Indices Tehran SE Price Index (GFPRIRNSTD) from 1991–2018. Cum-dividend return data for Iran comes from the Tehran Dividend and Price Index (TEDPIXD) from 1999–2008. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1991–2018 | GFPRIRNSTD |
| Cum-dividend return | 1999–2008 | TEDPIXD |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1991–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1991–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1991–2018 | CPIRNM |

## Iceland

Ex-dividend return data for Iceland comes from the GFD Indices OMX Iceland All-Share Price Index (GFPRISLSTD) from 1993–2018. Cum-dividend return data for Iceland comes from the OMX Iceland All-Share Gross Index (_OMXIGID) from 2003–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1993–2018 | GFPRISLSTD |
| Cum-dividend return | 2003–2018 | _OMXIGID |
| Government bond yield | 2004–2018 | IGISL10D |
| Gross domestic product | 1993–2018 | Maddisson Historial Statistics |
| Gini coefficient | 2004–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1993–2018 | CPISLM |

## Israel

Dividend yield data for Israel comes from the Israel Dividend Yields (SYISRYM) from 1993–2018. Ex-dividend return data for Israel comes from the GFD Indices Tel Aviv All-Share Price Index (GFPRISRSTD) from 1950–2018. Cum-dividend return data for Israel comes from the companies listed on the London Stock Exchange (GFUKISRUSDMRM) from 1966–1985, and the Tel Aviv SE Return Index (TRISRSTM) from 1993–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1993–2018 | SYISRYM |
| Ex-dividend return | 1950–2018 | GFPRISRSTD |
| Cum-dividend return | 1993–2018 | TRISRSTM |
| | 1966–1985 | GFUKISRUSDMRM |
| Government bond yield | 2012–2018 | IGISR10D |
| Gross domestic product | 1950–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1950–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1950–2018 | CPISRM |

## Italy

Dividend yield data for Italy comes from the JST Macrohistory Database from 1870–1924 and 1945, and the Italy Dividend Yield (SYITAYM) from 1925–1944 and 1946–2018. Ex-dividend return data for Italy comes from the companies listed on the London Stock Exchange (GFUKITAUSDMPM) from 1849–1851 and 1863–1870, the JST Macrohistory Database from 1871–1905, and the GFD Indices Banca Commerciale Italiana Index (GFPRITASTD) from 1906–2018. Cum-dividend return data for Italy comes from the JST Macrohistory Database from 1871–1924, and the Italy BCI Global Return Index (_BCIPRD) from 1925–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1925–1944; 1946–2018 | SYITAYM |
| | 1870–1924; 1945 | JST Macrohistory Database |
| Ex-dividend return | 1906–2018 | GFPRITASTD |
| | 1871–1905 | JST Macrohistory Database |
| | 1849–1851; 1863–1870 | GFUKITAUSDMPM |
| Cum-dividend return | 1925–2018 | _BCIPRD |
| | 1871–1924 | JST Macrohistory Database |
| Government bond yield | 1849–1851; 1863–2018 | IGITA10D |
| Gross domestic product | 1849–1851; 1863–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1948–2017 | Varieties of Democracy |
| Government revenue | 1863–1998 | GVRITAA |
| | 1870–2017 | JST Macrohistory Database |
| Consumer price index | 1863–2018 | CPITAM |

## Jamaica

Dividend yield data for Jamaica comes from the Jamaica SE Dividend Yield (SYJAMYM) from 1983–2008 and 2016–2018. Ex-dividend return data for Jamaica comes from the companies listed on the London Stock Exchange (GFUKJAMUSDMPM) from 1846–1849, 1922–1924, and 1966–1969, and the GFD Indices Jamaica All-Jamaican Stock Exchange Index (GFPRJAMSTD) from 1970–2018. Cum-dividend return data for Jamaica comes from the companies listed on the London Stock Exchange (GFUKJAMUSDMRM) from 1846–1849, 1922–1924, and 1966–1969. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1983–2008; 2016–2018 | SYJAMYM |
| Ex-dividend return | 1970–2018 | GFPRJAMSTD |
| | 1846–1849; 1922–1924; 1966–1969 | GFUKJAMUSDMPM |
| Cum-dividend return | 1846–1849; 1922–1924; 1966–1969 | GFUKJAMUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1966–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1966–2017 | Varieties of Democracy |
| Government revenue | 1846–1849; 1922–1924; 1966–1993 | GVRJAMA |
| Consumer price index | 1966–2018 | CPJAMM |

## Jordan

Dividend yield data for Jordan comes from the Amman SE Dividend Yield (SYJORYM) from 1978–2008 and 2016–2018. Ex-dividend return data for Jordan comes from the GFD Indices Jordan Amman SE All-Share Index (GFPRJORSTD) from 1979–2018. Cum-dividend return data for Jordan comes from the Jordan Stock Return Index (TRJORSTM) from 1988–2006. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1978–2008; 2016–2018 | SYJORYM |
| Ex-dividend return | 1979–2018 | GFPRJORSTD |
| Cum-dividend return | 1988–2006 | TRJORSTM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1978–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1978–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1978–2018 | CPJORM |

## Japan

Dividend yield data for Japan comes from the Tokyo SE Dividend Yield (SYJPNYM) from 1886–1945 and 1949–2018, and the JST Macrohistory Database from 1948. Ex-dividend return data for Japan comes from the GFD Indices Tokyo SE Price Index (GFPRJPNSTD) from 1879–2018. Cum-dividend return data for Japan comes from the Japan Topix Total Return Index (_TOPXDVD) from 1886–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1886–1945; 1949–2018 | SYJPNYM |
| | 1948 | JST Macrohistory Database |
| Ex-dividend return | 1879–2018 | GFPRJPNSTD |
| Cum-dividend return | 1886–2018 | _TOPXDVD |
| Government bond yield | 1879–2018 | IGJPN10D |
| Gross domestic product | 1885–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1900–2017 | Varieties of Democracy |
| Government revenue | 1879–2008 | GVRJPNA |
| | 1879–2017 | JST Macrohistory Database |
| Consumer price index | 1879–2018 | CPJPNM |

## Kenya

Dividend yield data for Kenya comes from the Kenya Nairobi SE Dividend Yield (SYKENYM) from 1983–2008 and 2016–2018. Ex-dividend return data for Kenya comes from the companies listed on the London Stock Exchange (GFUKKENUSDMPM) from 1908–1924, 1928–1930, and 1950–1964, and the GFD Indices Nairobi SE Index (GFPRKENSTD) from 1965–2018. Cum-dividend return data for Kenya comes from the companies listed on the London Stock Exchange (GFUKKENUSDMRM) from 1908–1924, 1928–1930, and 1950–1970. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1983–2008; 2016–2018 | SYKENYM |
| Ex-dividend return | 1965–2018 | GFPRKENSTD |
| | 1908–1924; 1928–1930; 1950–1964 | GFUKKENUSDMPM |
| Cum-dividend return | 1908–1924; 1928–1930; 1950–1970 | GFUKKENUSDMRM |
| Government bond yield | 2008–2018 | IGKEN10D |
| Gross domestic product | 1950–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1914–1924; 1928–1930; 1950–2017 | Varieties of Democracy |
| Government revenue | 1908–1924; 1928–1930; 1950–2005 | GVRKENA |
| Consumer price index | 1950–2018 | CPKENM |

## South Korea

Dividend yield data for South Korea comes from the Korea SE Dividend Yield (SYKORYM) from 1963–2018. Ex-dividend return data for South Korea comes from the companies listed on the London Stock Exchange (GFUKKORUSDMPM) from 1926–1930, and the GFD Indices Korea SE Stock Price Index (GFPRKORSTD) from 1963–2018. Cum-dividend return data for South Korea comes from the companies listed on the London Stock Exchange (GFUKKORUSDMRM) from 1926–1930, and the Korea Stocks Total Return Index (TRKORSTM) from 1963–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1963–2018 | SYKORYM |
| Ex-dividend return | 1963–2018 | GFPRKORSTD |
| | 1926–1930 | GFUKKORUSDMPM |
| Cum-dividend return | 1963–2018 | TRKORSTM |
| | 1926–1930 | GFUKKORUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1926–1930; 1963–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1963–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1963–2018 | CPKORM |

## Kuwait

Dividend yield data for Kuwait comes from the Kuwait SE Dividend Yield (SYKWTYM) from 2005–2008 and 2015–2018. Ex-dividend return data for Kuwait comes from the GFD Indices Kuwait SE Composite Index (GFPRKWTSTM) from 1974–1987 and 1994–2018, and . Cum-dividend return data for Kuwait comes from the DJ Kuwait Titans Total Return 30 Total Return Index USD (_DJKW30T) from 2010–2014. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 2005–2008; 2015–2018 | SYKWTYM |
| Ex-dividend return | 1974–1987; 1994–2018 | GFPRKWTSTM |
| | 1974–1987; 1994–2018 | GFPRKWTSTD |
| Cum-dividend return | 2010–2014 | _DJKW30T |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1974–1987; 1994–2018 | Maddisson Historial Statistics |
| Gini coefficient | N/A | N/A |
| Government revenue | N/A | N/A |
| Consumer price index | 1974–1987; 1994–2018 | CPKWTM |

## Lebanon

Dividend yield data for Lebanon comes from the Lebanon Beirut SE Dividend Yield (SYLBNYM) from 2006–2008 and 2016–2018. Ex-dividend return data for Lebanon comes from the GFD Indices Lebanon Beirut Stock Exchange Index (GFPRLBNSTM) from 1949–1959 and 1997–2018, and . Cum-dividend return data for Lebanon comes from the Beirut BDLCI OY Balanced Return Index (_DBLCBBD) from 2011–2015 and 2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 2006–2008; 2016–2018 | SYLBNYM |
| Ex-dividend return | 1949–1959; 1997–2018 | GFPRLBNSTM |
| | 1949–1959; 1997–2018 | GFPRLBNSTD |
| Cum-dividend return | 2011–2015; 2018 | _DBLCBBD |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1950–1959; 1997–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1997–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1997–2018 | CPLBNM |

## Sri Lanka

Dividend yield data for Sri Lanka comes from the Sri Lanka Dividend Yield (SYLKAYM) from 1864–1877, 1880–1884, 1886–1932, 1934–1984, and1991–2018, and the companies listed on the London Stock Exchange (GFUKLKAUSDDYM) from 1933.

Ex-dividend return data for Sri Lanka comes from , the GFD Indices Colombo SE All-Share Index (GFPRLKASTD) from 1953–1974 and 1985–2018, and the companies listed on the London Stock Exchange (GFPRLKASTM) from 1953–1974 and 1985–2018. Cum-dividend return data for Sri Lanka comes from the companies listed on the London Stock Exchange (GFUKLKAUSDMRM) from 1843–1847 and 1865–1984, and the Sri Lanka Stock Return Index (TRLKASTM) from 1993–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1864–1877; 1880–1884; 1886–1932; | SYLKAYM |
| | 1934–1984;1991–2018 | GFUKLKAUSDDYM |
| | 1933 | |
| Ex-dividend return | 1953–1974; 1985–2018 | GFPRLKASTD |
| | 1953–1974; 1985–2018 | GFPRLKASTM |
| | 1843–1847; 1865–1952; 1975–1984 | GFUKLKAUSDMPM |
| Cum-dividend return | 1993–2018 | TRLKASTM |
| | 1843–1847; 1865–1984 | GFUKLKAUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1870–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1953–2017 | Varieties of Democracy |
| Government revenue | 1843–1847; 1864–1912; 1914–2008 | GVRLKAA |
| Consumer price index | 1938–2018 | CPLKAM |

## Lithuania

Dividend yield data for Lithuania comes from the Lithuania Dividend Yield (SYLTUYM) from 1999–2002, 2004–2008, and 2016–2018. Ex-dividend return data for Lithuania comes from the GFD Indices OMX Vilnius VILSE Total Return Index (GFPRLTUSTD) from 1996–2018. Cum-dividend return data for Lithuania comes from the OMX Vilnius VILSE Total Return Index (_OMXVGID) from 1996–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1999–2002; 2004–2008; 2016–2018 | SYLTUYM |
| Ex-dividend return | 1996–2018 | GFPRLTUSTD |
| Cum-dividend return | 1996–2018 | _OMXVGID |
| Government bond yield | 1997–2018 | IGLTU10D |
| Gross domestic product | 1996–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1996–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1996–2018 | CPLTUM |

## Luxembourg

Ex-dividend return data for Luxembourg comes from the GFD Indices Luxembourg SE LUXX Index (GFPRLUXSTD) from 1930–1940 and 1946–2018. Cum-dividend return data for Luxembourg comes from the Luxembourg SE Total Return Index (_LUXXRD) from 1985–2016. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1930–1940; 1946–2018 | GFPRLUXSTD |
| Cum-dividend return | 1985–2016 | _LUXXRD |
| Government bond yield | 1946–2018 | IGLUX10D |
| Gross domestic product | 1950–2018 | Maddisson Historial Statistics |
| Gini coefficient | N/A | N/A |
| Government revenue | N/A | N/A |
| Consumer price index | 1930–1940; 1946–2018 | CPLUXM |

## Latvia

Dividend yield data for Latvia comes from the Latvia Dividend Yield (SYLVAYM) from 1999–2008. Ex-dividend return data for Latvia comes from the companies listed on the London Stock Exchange (GFRUSLVARUSSIAEPM) from 1866–1894 and 1899–1911, and the GFD Indices OMX Riga SE Total Return Index (GFPRLVASTD) from 1997–2018. Cum-dividend return data for Latvia comes from the OMX Riga SE Total Return Index (_OMXRGID) from 1997–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1999–2008 | SYLVAYM |
| Ex-dividend return | 1997–2018 | GFPRLVASTD |
| | 1866–1894; 1899–1911 | GFRUSLVARUSSIAEPM |
| Cum-dividend return | 1997–2018 | _OMXRGID |
| Government bond yield | 1998–2017 | IGLVA10D |
| Gross domestic product | 1997–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1997–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1997–2018 | CPLVAM |

## Morocco

Dividend yield data for Morocco comes from the Morocco Dividend Yield (SYMARYM) from 1983–2008 and 2015–2018. Ex-dividend return data for Morocco comes from the GFD Indices Casablanca Financial Group 25 Share Index (GFPRMARSTD) from 1980–2018. Cum-dividend return data for Morocco comes from the Morocco Stock Return Index (TRMARSTM) from 1995–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1983–2008; 2015–2018 | SYMARYM |
| Ex-dividend return | 1980–2018 | GFPRMARSTD |
| Cum-dividend return | 1995–2018 | TRMARSTM |
| Government bond yield | 2000–2018 | IGMAR15D |
| Gross domestic product | 1980–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1980–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1980–2018 | CPMARM |

## Mexico

Dividend yield data for Mexico comes from the companies listed on the London Stock Exchange (GFUKMEXUSDDYM) from 1824–1831, 1839–1842, 1845, 1850, 1861, 1867–1871, 1877–1879, and 1915, and the Mexico SE Dividend Yield (SYMEXYM) from 1832–1838, 1843–1844, 1846–1849, 1851–1860, 1862–1866, 1872–1876, 1880–1914, and 1917. Ex-dividend return data for

Mexico comes from the companies listed on the London Stock Exchange (GFUKMEXUSDMPM) from 1825–1930, and the GFD Indices Mexico SE Indice de Precios y Cotizaciones (GFPRMEXSTD) from 1931–2018. Cum-dividend return data for Mexico comes from the companies listed on the London Stock Exchange (GFUKMEXUSDMRM) from 1825–1982, and the Mexico SE Return Index (_IRTD) from 1983–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1832–1838; 1843–1844; 1846–1849; | SYMEXYM |
| | 1851–1860; 1862–1866; 1872–1876; | GFUKMEXUSDDYM |
| | 1880–1914; 1917 | |
| | 1824–1831; 1839–1842; 1845; 1850; 1861; | |
| | 1867–1871; 1877–1879; 1915 | |
| Ex-dividend return | 1931–2018 | GFPRMEXSTD |
| | 1825–1930 | GFUKMEXUSDMPM |
| Cum-dividend return | 1983–2018 | _IRTD |
| | 1825–1982 | GFUKMEXUSDMRM |
| Government bond yield | 2001–2018 | IGMEX10D |
| Gross domestic product | 1850; 1860; 1870; 1890;1895–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1950–2017 | Varieties of Democracy |
| Government revenue | 1825–1913; 1917–2009 | GVRMEXA |
| Consumer price index | 1886–1913; 1918–2018 | CPMEXM |

## Malta

Ex-dividend return data for Malta comes from the GFD Indices Malta SE Index (GFPRMLTSTD) from 1996–2018. Cum-dividend return data for Malta comes from Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1996–2018 | GFPRMLTSTD |
| Cum-dividend return | N/A | N/A |
| Government bond yield | 1996–2018 | IGMLT10D |
| Gross domestic product | 1996–2018 | Maddisson Historial Statistics |
| Gini coefficient | N/A | N/A |
| Government revenue | N/A | N/A |
| Consumer price index | 1996–2018 | CPMLTM |

## Burma/Myanmar

Ex-dividend return data for Burma/Myanmar comes from the companies listed on the London Stock Exchange (GFUKMMRUSDMPM) from 1891–1977. Cum-dividend return data for Burma/Myanmar comes from the companies listed on the London Stock Exchange (GFUKMMRUSDMRM) from 1891–1977. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1891–1977 | GFUKMMRUSDMPM |
| Cum-dividend return | 1891–1977 | GFUKMMRUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1901; 1906; 1911; 1913; 1916; 1921; 1926; 1931 | Maddisson Historial Statistics |
| Gini coefficient | 1958–1977 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1932–1941; 1970–1977 | CPMMRM |

## Mozambique

Ex-dividend return data for Mozambique comes from the companies listed on the London Stock Exchange (GFUKMOZUSDMPM) from 1896–1932 and 1966–1975. Cum-dividend return data for Mozambique comes from the companies listed on the London Stock Exchange (GFUKMOZUSDMRM) from 1896–1932 and 1966–1975. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1896–1932; 1966–1975 | GFUKMOZUSDMPM |
| Cum-dividend return | 1896–1932; 1966–1975 | GFUKMOZUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1966–1975 | Maddisson Historial Statistics |
| Gini coefficient | N/A | N/A |
| Government revenue | N/A | N/A |
| Consumer price index | 1966–1973 | CPMOZM |

## Mauritius

Dividend yield data for Mauritius comes from the Mauritius Dividend Yield (SYMUSYM) from 1996–2008 and 2015–2018. Ex-dividend return data for Mauritius comes from the companies listed on the London Stock Exchange (GFUKMUSUSDMPM) from 1865–1892 and 1899–1915, and the GFD Indices Securities Exchange of Mauritius Index (GFPRMUSSTD) from 1990–2018. Cum-dividend return data for Mauritius comes from the companies listed on the London Stock Exchange (GFUKMUSUSDMRM) from 1865–1892 and 1899–1915, and the Mauritius Semdex Total Return Index Dollars (_SEMTRDD) from 1990–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1996–2008; 2015–2018 | SYMUSYM |
| Ex-dividend return | 1990–2018 | GFPRMUSSTD |
| | 1865–1892; 1899–1915 | GFUKMUSUSDMPM |
| Cum-dividend return | 1990–2018 | _SEMTRDD |
| | 1865–1892; 1899–1915 | GFUKMUSUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1990–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1990–2017 | Varieties of Democracy |
| Government revenue | 1865–1892; 1899–1915; 1990–2008 | GVRMUSA |
| Consumer price index | 1990–2018 | CPMUSM |

## Malawi

Ex-dividend return data for Malawi comes from the GFD Indices Malawi SE Index (GFPRMWISTD) from 1997–2018. Cum-dividend return data for Malawi comes from the companies listed on the London Stock Exchange (GFUKMWIUSDMRM) from 1966–1974. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1997–2018 | GFPRMWISTD |
| Cum-dividend return | 1966–1974 | GFUKMWIUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1966–1974; 1997–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1969–1974; 1997–2017 | Varieties of Democracy |
| Government revenue | 1966–1974 | GVRMWIA |
| Consumer price index | 1997–2018 | CPMWIM |

## Malaysia

Dividend yield data for Malaysia comes from the Malaysia Dividend Yield (SYMYSYM) from 1972–2018. Ex-dividend return data for Malaysia comes from the companies listed on the London Stock Exchange (GFUKMYSUSDMPM) from 1890–1973, and the GFD Indices Malaysia KLSE Composite (GFPRMYSSTD) from 1974–2018. Cum-dividend return data for Malaysia comes from the companies listed on the London Stock Exchange (GFUKMYSUSDMRM) from 1890–1972, and the Kuala Lumpur KLSE Return Index (_TFTFBMD) from 1973–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1972–2018 | SYMYSYM |
| Ex-dividend return | 1974–2018 | GFPRMYSSTD |
| | 1890–1973 | GFUKMYSUSDMPM |
| Cum-dividend return | 1973–2018 | _TFTFBMD |
| | 1890–1972 | GFUKMYSUSDMRM |
| Government bond yield | 1964–2018 | IGMYS10D |
| Gross domestic product | 1900–1942; 1947–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1958–2017 | Varieties of Democracy |
| Government revenue | 1890–1938; 1946; 1948–2009 | GVRMYSA |
| Consumer price index | 1948–2018 | CPMYSM |

## Nigeria

Dividend yield data for Nigeria comes from the companies listed on the London Stock Exchange (GFUKNGAUSDDYM) from 1906–1976, and the Nigeria Dividend Yield (SYNGAYM) from 1985–2018. Ex-dividend return data for Nigeria comes from the companies listed on the London Stock Exchange (GFUKNGAUSDMPM) from 1888–1976, and the GFD Indices Nigeria SE All-Share Index (GFPRNGASTD) from 1985–2018. Cum-dividend return data for Nigeria comes from the companies listed on the London Stock Exchange (GFUKNGAUSDMRM) from 1888–1976, and the GFD Indices Nigeria Stocks Total Return Index (GFTRNGASTM) from 1988–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1985–2018 | SYNGAYM |
| | 1906–1976 | GFUKNGAUSDDYM |
| Ex-dividend return | 1985–2018 | GFPRNGASTD |
| | 1888–1976 | GFUKNGAUSDMPM |
| Cum-dividend return | 1988–2018 | GFTRNGASTM |
| | 1888–1976 | GFUKNGAUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1950–1976; 1985–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1959–1976; 1985–2017 | Varieties of Democracy |
| Government revenue | 1888–1976; 1985–2007 | GVRNGAA |
| Consumer price index | 1953–1976; 1985–2018 | CPNGAM |

## Nicaragua

Ex-dividend return data for Nicaragua comes from the companies listed on the London Stock Exchange (GFUKNICUSDMPM) from 1864–1891. Cum-dividend return data for Nicaragua comes from the companies listed on the London Stock Exchange (GFUKNICUSDMRM) from 1864–1891. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1864–1891 | GFUKNICUSDMPM |
| Cum-dividend return | 1864–1891 | GFUKNICUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | N/A | N/A |
| Gini coefficient | N/A | N/A |
| Government revenue | N/A | N/A |
| Consumer price index | N/A | N/A |

## Netherlands

Dividend yield data for Netherlands comes from the Netherlands SE Dividend Yield (SYNLDYAM) from 1891–2018. Ex-dividend return data for Netherlands comes from the companies listed on the London Stock Exchange (GFUKNLDUSDMPM) from 1846–1890 and 1945–1946, and the GFD Indices Netherlands All-Share Price Index (GFPRNLDSTD) from 1891–1944 and 1947–2018. Cum-dividend return data for Netherlands comes from the companies listed on the London Stock Exchange (GFUKNLDUSDMRM) from 1846–1899, the JST Macrohistory Database from 1900–1950, and the Netherlands All-Share Return Index (_AAXGRD) from 1951–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1891–2018 | SYNLDYAM |
| Ex-dividend return | 1891–1944; 1947–2018 | GFPRNLDSTD |
| | 1846–1890; 1945–1946 | GFUKNLDUSDMPM |
| Cum-dividend return | 1951–2018 | _AAXGRD |
| | 1900–1950 | JST Macrohistory Database |
| | 1846–1899 | GFUKNLDUSDMRM |
| Government bond yield | 1846–1944; 1946–2018 | IGNLD10D |
| | 1945 | JST Macrohistory Database |
| Gross domestic product | 1846–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1938–2017 | Varieties of Democracy |
| Government revenue | 1846–1998 | GVRNLDA |
| | 1870–2017 | JST Macrohistory Database |
| Consumer price index | 1846–2018 | CPNLDM |

## Norway

Dividend yield data for Norway comes from the JST Macrohistory Database from 1880–1968, and the Oslo SE Dividend Yield (SYNORYM) from 1969–2018. Ex-dividend return data for Norway comes from the JST Macrohistory Database from 1881–1914, and the GFD Indices Oslo SE OBX-25 Stock Index (GFPRNORSTD) from 1915–2018. Cum-dividend return data for Norway comes from the JST Macrohistory Database from 1881–1969, and the Oslo SE Total Return Index (_NTOTD) from 1970–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1969–2018 | SYNORYM |
| | 1880–1968 | JST Macrohistory Database |
| Ex-dividend return | 1915–2018 | GFPRNORSTD |
| | 1881–1914 | JST Macrohistory Database |
| Cum-dividend return | 1970–2018 | _NTOTD |
| | 1881–1969 | JST Macrohistory Database |
| Government bond yield | 1880–2018 | IGNOR10D |
| Gross domestic product | 1880–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1957–2017 | Varieties of Democracy |
| Government revenue | 1880–2008 | GVRNORA |
| | 1880–1943; 1949–2017 | JST Macrohistory Database |
| Consumer price index | 1880–2018 | CPNORM |

## New Zealand

Dividend yield data for New Zealand comes from the companies listed on the London Stock Exchange (GFUKNZLUSDDYM) from 1862, and the New Zealand Dividend Yield (SYNZLYM) from 1863–2018. Ex-dividend return data for New Zealand comes from the companies listed on the London Stock Exchange (GFUKNZLUSDMPM) from 1863–1926, and the GFD Indices New Zealand SE All-Share Capital Index (GFPRNZLSTD) from 1927–2018. Cum-dividend return data for New Zealand comes from the companies listed on the London Stock Exchange (GFUKNZLUSDMRM) from 1863–1980, and the New Zealand SE Gross All-Share Index (_NZGID) from 1987–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1863–2018 | SYNZLYM |
| | 1862 | GFUKNZLUSDDYM |
| Ex-dividend return | 1927–2018 | GFPRNZLSTD |
| | 1863–1926 | GFUKNZLUSDMPM |
| Cum-dividend return | 1987–2018 | _NZGID |
| | 1863–1980 | GFUKNZLUSDMRM |
| Government bond yield | 1862–2018 | IGNZL10D |
| Gross domestic product | 1870–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1954–2017 | Varieties of Democracy |
| Government revenue | 1862–2014 | GVRNZLA |
| Consumer price index | 1914–2018 | CPNZLM |

## Pakistan

Dividend yield data for Pakistan comes from the Pakistan Dividend Yield (SYPAKYM) from 1985–2018. Ex-dividend return data for Pakistan comes from the GFD Indices Pakistan Karachi SE-100 Index (GFPRPAKSTD) from 1961–2018. Cum-dividend return data for Pakistan comes from the Pakistan Stock Return Index (TRPAKSTM) from 1988–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1985–2018 | SYPAKYM |
| Ex-dividend return | 1961–2018 | GFPRPAKSTD |
| Cum-dividend return | 1988–2018 | TRPAKSTM |
| Government bond yield | 1961–2018 | IGPAK10D |
| Gross domestic product | 1961–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1963–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1961–2018 | CPPAKM |

## Peru

Dividend yield data for Peru comes from the Peru Dividend Yield (SYPERYM) from 1993–2018. Ex-dividend return data for Peru comes from the companies listed on the London Stock Exchange (GFUKPERUSDMPM) from 1826, 1868–1907, and

1910–1926, and the GFD Indices Lima S&P/BVL Peru General Index (GFPRPERSTD) from 1927–2018. Cum-dividend return data for Peru comes from the companies listed on the London Stock Exchange (GFUKPERUSDMRM) from 1826, 1868–1907, and 1910–1975, and the Peru Lima General Index Total Return (_SPBLPGD) from 1993–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1993–2018 | SYPERYM |
| Ex-dividend return | 1927–2018 | GFPRPERSTD |
| | 1826; 1868–1907; 1910–1926 | GFUKPERUSDMPM |
| Cum-dividend return | 1993–2018 | _SPBLPGD |
| | 1826; 1868–1907; 1910–1975 | GFUKPERUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1826; 1868–1907; 1910–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1961–2017 | Varieties of Democracy |
| Government revenue | 1869–1880; 1887–1894; 1896–1907; 1910–2009 | GVRPERA |
| Consumer price index | 1900–1907; 1910–2018 | CPPERM |

## Philippines

Dividend yield data for Philippines comes from the Philippines Dividend Yield (SYPHLYM) from 1982–2018. Ex-dividend return data for Philippines comes from the companies listed on the London Stock Exchange (GFUKPHLUSDMPM) from 1890–1892 and 1911–1952, and the GFD Indices Manila SE Composite Index (GFPRPHLSTD) from 1953–2018. Cum-dividend return data for Philippines comes from the companies listed on the London Stock Exchange (GFUKPHLUSDMRM) from 1890–1892 and 1911–1981, and the Philippines Return Stock Index (TRPHLSTM) from 1982–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1982–2018 | SYPHLYM |
| Ex-dividend return | 1953–2018 | GFPRPHLSTD |
| | 1890–1892; 1911–1952 | GFUKPHLUSDMPM |
| Cum-dividend return | 1982–2018 | TRPHLSTM |
| | 1890–1892; 1911–1981 | GFUKPHLUSDMRM |
| Government bond yield | 1996–2018 | IGPHL10D |
| Gross domestic product | 1911–1940; 1946–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1957–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1911–1941; 1945–2018 | CPPHLM |

## Poland

Dividend yield data for Poland comes from the Poland Dividend Yield (SYPOLYM) from 1993–2018. Ex-dividend return data for Poland comes from the companies listed on the London Stock Exchange (GFRUSPOLRUSSIAEPM) from 1867–1914, and the GFD Indices Poland Pre-War Nominal Stock Index (GFPRPOLSTM) from 1922–1939. Cum-dividend return data for Poland comes from the Warsaw SE General Index (_WIGD) from 1992–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1993–2018 | SYPOLYM |
| Ex-dividend return | 1922–1939 | GFPRPOLSTM |
| | 1867–1914 | GFRUSPOLRUSSIAEPM |
| Cum-dividend return | 1992–2018 | _WIGD |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1867–1900; 1910; 1913; 1929–1938;1992–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1992–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1914; 1922–1939; 1992–2018 | CPPOLM |

## Portugal

Dividend yield data for Portugal comes from the JST Macrohistory Database from 1870–1985, and the Portugal Dividend Yield (SYPRTYM) from 1986–2018. Ex-dividend return data for Portugal comes from the companies listed on the London Stock Exchange (GFUKPRTUSDMPM) from 1856–1870, the JST Macrohistory Database from 1871–1931 and 1975–1977, and the GFD Indices Oporto PSI-20 Index (GFPRPRTSTD) from 1932–1974 and 1978–2018. Cum-dividend return data for Portugal comes from the companies listed on the London Stock Exchange (GFUKPRTUSDMRM) from 1856–1870, the JST Macrohistory Database from 1871–1988, and the Lisbon BVL General Return Index (_BVLGD) from 1989–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1986–2018 | SYPRTYM |
| | 1870–1985 | JST Macrohistory Database |
| Ex-dividend return | 1932–1974; 1978–2018 | GFPRPRTSTD |
| | 1871–1931; 1975–1977 | JST Macrohistory Database |
| | 1856–1870 | GFUKPRTUSDMPM |
| Cum-dividend return | 1989–2018 | _BVLGD |
| | 1871–1988 | JST Macrohistory Database |
| | 1856–1870 | GFUKPRTUSDMRM |
| Government bond yield | 1856–1974; 1976–2018 | IGPRT10D |
| | 1975 | JST Macrohistory Database |
| Gross domestic product | 1861; 1865–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1973–2017 | Varieties of Democracy |
| Government revenue | 1879–1903; 1917–1919; 1922–1968; | GVRPRTA |
| | 1970–2014 | JST Macrohistory Database |
| | 1870–2017 | |
| Consumer price index | 1930–2018 | CPPRTM |
| | 1870–1930 | JST Macrohistory Database |

## Paraguay

Ex-dividend return data for Paraguay comes from the companies listed on the London Stock Exchange (GFUKPRYUSDMPM) from 1890–1893, 1908–1914, 1921–1922, and 1930–1965, and the GFD Indices Asuncion SE PDV General Index (GFPRPRYSTD) from 1994–2008. Cum-dividend return data for Paraguay comes from the companies listed on the London Stock Exchange (GFUKPRYUSDMRM) from 1890–1893, 1908–1914, 1921–1922, and 1930–1965. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1994–2008 | GFPRPRYSTD |
| | 1890–1893; 1908–1914; 1921–1922; 1930–1965 | GFUKPRYUSDMPM |
| Cum-dividend return | 1890–1893; 1908–1914; 1921–1922; 1930–1965 | GFUKPRYUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1939–1965; 1994–2008 | Maddisson Historial Statistics |
| Gini coefficient | 1994–2008 | Varieties of Democracy |
| Government revenue | 1890–1893; 1913–1914; 1921–1922; 1930–1932; 1935–1951; 1953; 1958–1965; 1994 | GVRPRYA |
| Consumer price index | 1938–1965; 1994–2008 | CPPRYM |

## Qatar

Dividend yield data for Qatar comes from the Qatar SE Dividend Yield (SYQATYM) from 2005–2008 and 2015–2018. Ex-dividend return data for Qatar comes from the GFD Indices Qatar SE General Index (GFPRQATSTD) from 1996 and 2000–2018. Cum-dividend return data for Qatar comes from the Qatar USD Total Return Index (_QSIUSTD) from 2006–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 2005–2008; 2015–2018 | SYQATYM |
| Ex-dividend return | 1996; 2000–2018 | GFPRQATSTD |
| Cum-dividend return | 2006–2018 | _QSIUSTD |
| Government bond yield | 2012–2018 | IGQAT10D |
| Gross domestic product | 1996; 2000–2018 | Maddisson Historial Statistics |
| Gini coefficient | 2007–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 2002–2018 | CPQATM |

## Romania

Dividend yield data for Romania comes from the Romania Dividend Yield (SYROUYM) from 1998–2014 and 2016–2018. Ex-dividend return data for Romania comes from the companies listed on the London Stock Exchange (GFUKROUUSDMPM) from 1871–1940, and the GFD Indices Bucharest SE Index in Lei (GFPRROUSTD) from 1998–2018. Cum-dividend return data for Romania comes from the companies listed on the London Stock Exchange (GFUKROUUSDMRM) from 1871–1940. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1998–2014; 2016–2018 | SYROUYM |
| Ex-dividend return | 1998–2018 | GFPRROUSTD |
| | 1871–1940 | GFUKROUUSDMPM |
| Cum-dividend return | 1871–1940 | GFUKROUUSDMRM |
| Government bond yield | 2001–2018 | IGROU10D |
| Gross domestic product | 1871–1914; 1920–1940; 1998–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1998–2017 | Varieties of Democracy |
| Government revenue | 1883–1895; 1897–1914; 1916–1939; | GVRROUA |
| | 1998–2009 | |
| Consumer price index | 1914; 1921–1940; 1998–2018 | CPROUM |

## Russia

Dividend yield data for Russia comes from , the Russia Dividend Yield (SYRUSYM) from 1871–1915 and 1996–2018, and the companies listed on the London Stock Exchange (GFRUSMDYM) from 1871–1915 and 1996–2018. Ex-dividend return data for Russia comes from the GFD Indices Russia Cap-Weighted Price Index (GFPRRUSSTM) from 1866–1930 and 1994–2018, and . Cum-dividend return data for Russia comes from the companies listed on the London Stock Exchange (GFUKRUSENUSDMRM) from 1916–1932, and the Russian Depository Total Return Index (_RDXTRUD) from 1995–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1871–1915; 1996–2018 | SYRUSYM |
| | 1871–1915; 1996–2018 | GFRUSMDYM |
| | 1865–1870; 1916–1932 | GFUKRUSUSDDYM |
| Ex-dividend return | 1866–1930; 1994–2018 | GFPRRUSSTM |
| | 1866–1930; 1994–2018 | GFPRRUSSTD |
| Cum-dividend return | 1995–2018 | _RDXTRUD |
| | 1916–1932 | GFUKRUSENUSDMRM |
| Government bond yield | 1996–2018 | IGRUS10D |
| Gross domestic product | 1994–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1994–2017 | Varieties of Democracy |
| Government revenue | 1865–1914; 1924–1932; 1996–2009 | GVRRUSA |
| Consumer price index | 1885–1913; 1916–1932; 1994–2018 | CPRUSM |

## Singapore

Dividend yield data for Singapore comes from the Singapore SE Dividend Yield (SYSGPYM) from 1972–2018. Ex-dividend return data for Singapore comes from the companies listed on the London Stock Exchange (GFUKSGPUSDMPM) from 1896–1898, 1921–1957, and 1962–1965, and the GFD Indices Singapore FTSE All-Share Index (GFPRSGPSTD) from 1966–2018. Cum-dividend return data for Singapore comes from the companies listed on the London Stock Exchange (GFUKSGPUSDMRM) from 1896–1898, 1921–1957, and 1962–1969, and the Singapore Straits Times Return Index (_TFTFSTD) from 1970–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1972–2018 | SYSGPYM |
| Ex-dividend return | 1966–2018 | GFPRSGPSTD |
| | 1896–1898; 1921–1957; 1962–1965 | GFUKSGPUSDMPM |
| Cum-dividend return | 1970–2018 | _TFTFSTD |
| | 1896–1898; 1921–1957; 1962–1969 | GFUKSGPUSDMRM |
| Government bond yield | 1998–2018 | IGSGP10D |
| Gross domestic product | 1921–1939; 1950–1957; 1962–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1966–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1948–1957; 1962–2018 | CPSGPM |

## Sierra Leone

Ex-dividend return data for Sierra Leone comes from the companies listed on the London Stock Exchange (GFUKSLEUSDMPM) from 1926–1930. Cum-dividend return data for Sierra Leone comes from the companies listed on the London Stock Exchange (GFUKSLEUSDMRM) from 1926–1930. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1926–1930 | GFUKSLEUSDMPM |
| Cum-dividend return | 1926–1930 | GFUKSLEUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | N/A | N/A |
| Gini coefficient | N/A | N/A |
| Government revenue | 1926–1930 | GVRSLEA |
| Consumer price index | N/A | N/A |

## El Salvador

Ex-dividend return data for El Salvador comes from the companies listed on the London Stock Exchange (GFUKSLVUSDMPM) from 1888–1890, 1909–1930, and 1979–1986, and the GFD Indices El Salvador Stock Market Index (GFPRSLVSTD) from 2004–2014. Cum-dividend return data for El Salvador comes from the companies listed on the London Stock Exchange (GFUKSLVUSDMRM) from 1888–1890, 1909–1930, and 1979–1986. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 2004–2014 | GFPRSLVSTD |
| | 1888–1890; 1909–1930; 1979–1986 | GFUKSLVUSDMPM |
| Cum-dividend return | 1888–1890; 1909–1930; 1979–1986 | GFUKSLVUSDMRM |
| Government bond yield | 1909–1930 | IGSLVM |
| Gross domestic product | 1920–1930; 1979–1986; 2004–2014 | Maddisson Historial Statistics |
| Gini coefficient | 1979–1986; 2004–2014 | Varieties of Democracy |
| Government revenue | 1888–1890; 1909–1930; 1979–1986; 2004–2009 | GVRSLVA |
| Consumer price index | 1979–1986; 2004–2014 | CPSLVM |

## Slovakia

Dividend yield data for Slovakia comes from the Slovakia Dividend Yield (SYSVKYM) from 1996–2008. Ex-dividend return data for Slovakia comes from the GFD Indices Bratislava SE SAX Index (GFPRSVKSTD) from 1994–2018. Cum-dividend return data for Slovakia comes from Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1996–2008 | SYSVKYM |
| Ex-dividend return | 1994–2018 | GFPRSVKSTD |
| Cum-dividend return | N/A | N/A |
| Government bond yield | 1994–2018 | IGSVK10D |
| Gross domestic product | 1994–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1994–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1994–2018 | CPSVKM |

## Sweden

Dividend yield data for Sweden comes from the Stockholm SE Dividend Yield (SYSWEYM) from 1871–2018. Ex-dividend return data for Sweden comes from the companies listed on the London Stock Exchange (GFUKSWEUSDMPM) from 1854–1870, and the GFD Indices Sweden OMX Affrsvrldens General Index (GFPRSWESTD) from 1871–2018. Cum-dividend return data for Sweden comes from the companies listed on the London Stock Exchange (GFUKSWEUSDMRM) from 1854–1870, and the OMX Stockholm Benchmark Gross Index (GFD extension (_OMXSBGI) from 1871–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1871–2018 | SYSWEYM |
| Ex-dividend return | 1871–2018 | GFPRSWESTD |
| | 1854–1870 | GFUKSWEUSDMPM |
| Cum-dividend return | 1871–2018 | _OMXSBGI |
| | 1854–1870 | GFUKSWEUSDMRM |
| Government bond yield | 1854–2018 | IGSWE10D |
| Gross domestic product | 1854–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1935–2017 | Varieties of Democracy |
| Government revenue | 1854–2003 | GVRSWEA |
| | 1870–2017 | JST Macrohistory Database |
| Consumer price index | 1854–2018 | CPSWEM |

## Thailand

Dividend yield data for Thailand comes from the Thailand Dividend Yield (SYTHAYM) from 1975–2018. Ex-dividend return data for Thailand comes from the companies listed on the London Stock Exchange (GFUKTHAUSDMPM) from 1920–1970, and the GFD Indices Thailand SET General Index (GFPRTHASTD) from 1976–2018. Cum-dividend return data for Thailand comes from the companies listed on the London Stock Exchange (GFUKTHAUSDMRM) from 1920–1970, and the Bangkok SE SET Return Index (_SETITRD) from 1976–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1975–2018 | SYTHAYM |
| Ex-dividend return | 1976–2018 | GFPRTHASTD |
| | 1920–1970 | GFUKTHAUSDMPM |
| Cum-dividend return | 1976–2018 | _SETITRD |
| | 1920–1970 | GFUKTHAUSDMRM |
| Government bond yield | 1979–2018 | IGTHA10D |
| Gross domestic product | 1929; 1938; 1950–1970; 1975–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1962–1970; 1975–2017 | Varieties of Democracy |
| Government revenue | 1920–1970; 1975–2008 | GVRTHAA |
| Consumer price index | 1948–1970; 1975–2018 | CPTHAM |

## Trinidad and Tobago

Dividend yield data for Trinidad and Tobago comes from the Trinidad and Tobago Dividend Yield (SYTTOYM) from 1983–1988, 1996–2008, and 2016–2018. Ex-dividend return data for Trinidad and Tobago comes from the companies listed on the London Stock Exchange (GFUKTTOUSDMPM) from 1866–1867 and 1913–1982, and the GFD Indices Trinidad and Tobago SE Composite (GFPRTTOSTD) from 1983–2018. Cum-dividend return data for Trinidad and Tobago comes from the companies listed on the London Stock Exchange (GFUKTTOUSDMRM) from 1866–1867 and 1913–1985. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1983–1988; 1996–2008; 2016–2018 | SYTTOYM |
| Ex-dividend return | 1983–2018 | GFPRTTOSTD |
| | 1866–1867; 1913–1982 | GFUKTTOUSDMPM |
| Cum-dividend return | 1866–1867; 1913–1985 | GFUKTTOUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1950–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1958–2017 | Varieties of Democracy |
| Government revenue | 1866–1867; 1913–1989; 1991–2009 | GVRTTOA |
| Consumer price index | 1935; 1938–2018 | CPTTOM |

## Tunisia

Dividend yield data for Tunisia comes from the Tunisia Dividend Yield (SYTUNYM) from 1997–2008 and 2015–2018. Ex-dividend return data for Tunisia comes from the GFD Indices Tunisia SE TunIndex (GFPRTUNSTD) from 1991–2018. Cum-dividend return data for Tunisia comes from Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1997–2008; 2015–2018 | SYTUNYM |
| Ex-dividend return | 1991–2018 | GFPRTUNSTD |
| Cum-dividend return | N/A | N/A |
| Government bond yield | 1991–2016 | IGTUN10M |
| Gross domestic product | 1991–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1991–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1991–2018 | CPTUNM |

## Turkey

Dividend yield data for Turkey comes from the Istanbul SE Dividend Yield (SYTURYM) from 1986–2018. Ex-dividend return data for Turkey comes from the companies listed on the London Stock Exchange (GFUKTURUSDMPM) from 1857–1930, and the GFD Indices Istanbul SE IMKB-100 Price Index (GFPRTURSTD) from 1987–2018. Cum-dividend return data for Turkey comes from the companies listed on the London Stock Exchange (GFUKTURUSDMRM) from 1857–1930, and the Turkey ISE-100 Total Return Index (TRRBILED) from 1987–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1986–2018 | SYTURYM |
| Ex-dividend return | 1987–2018 | GFPRTURSTD |
| | 1857–1930 | GFUKTURUSDMPM |
| Cum-dividend return | 1987–2018 | TRRBILED |
| | 1857–1930 | GFUKTURUSDMRM |
| Government bond yield | 2010–2018 | IGTUR10D |
| Gross domestic product | 1870; 1913; 1918; 1923–1930;1986–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1986–2017 | Varieties of Democracy |
| Government revenue | 1857–1877; 1879–1884; 1887–1906; 1908–1912; 1914–1918; 1923–1930; 1986–2009 | GVRTURA |
| Consumer price index | 1857–1862; 1867–1880; 1884–1918; 1922–1930;1986–2018 | CPTURM |

## Taiwan

Dividend yield data for Taiwan comes from the Taiwan SE Dividend Yield (SYTWNYM) from 1985–2018. Ex-dividend return data for Taiwan comes from the GFD Indices Taiwan SE Capitalization Weighted Index (GFPRTWNSTD) from 1968–2018. Cum-dividend return data for Taiwan comes from the Taiwan FTSE/TSE-50 Return Index (_TSE50TD) from 1988–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1985–2018 | SYTWNYM |
| Ex-dividend return | 1968–2018 | GFPRTWNSTD |
| Cum-dividend return | 1988–2018 | _TSE50TD |
| Government bond yield | 1995–2018 | IGTWN10D |
| Gross domestic product | 1968–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1968–2017 | Varieties of Democracy |
| Government revenue | 1968–2008 | GVRTWNA |
| Consumer price index | 1968–2018 | CPTWNM |

## Uruguay

Ex-dividend return data for Uruguay comes from the companies listed on the London Stock Exchange (GFUKURYUSDMPM) from 1874–1925, and the GFD Indices Uruguay Stock Exchange Index (GFPRURYSTD) from 1926–1995. Cum-dividend return data for Uruguay comes from the companies listed on the London Stock Exchange (GFUKURYUSDMRM) from 1874–1940 and 1966–1971. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | N/A | N/A |
| Ex-dividend return | 1926–1995 | GFPRURYSTD |
| | 1874–1925 | GFUKURYUSDMPM |
| Cum-dividend return | 1874–1940; 1966–1971 | GFUKURYUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1874–1995 | Maddisson Historial Statistics |
| Gini coefficient | 1961–1995 | Varieties of Democracy |
| Government revenue | 1874–1876; 1879; 1884–1995 | GVRURYA |
| Consumer price index | 1874–1995 | CPURYM |

## United States of America

Dividend yield data for United States of America comes from the companies listed on the London Stock Exchange (GFUKUSAUSDDYM) from 1821–1832, 1837–1838, 1852–1857, and 1865–1870, and the S&P 500 Monthly Dividend Yield (SYUSAYM) from 1871–2018. Ex-dividend return data for United States of America comes from the companies listed on the London Stock Exchange (GFUS100MPM) from 1817–1871, and the GFD Indices US-100 - S&P 500 Composite Price Index (GFPRUSASTD) from 1872–2018. Cum-dividend return data for United States of America comes from the companies listed on the London Stock Exchange (GFUKUSAUSDMRM) from 1822–1833, 1837–1839, 1853–1857, and 1864–1871, and the S&P 500 Total Return Index (_SPXTRD) from 1872–2018. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1871–2018 | SYUSAYM |
| | 1821–1832; 1837–1838; 1852–1857; 1865–1870 | GFUKUSAUSDDYM |
| Ex-dividend return | 1872–2018 | GFPRUSASTD |
| | 1817–1871 | GFUS100MPM |
| Cum-dividend return | 1872–2018 | _SPXTRD |
| | 1822–1833; 1837–1839; 1853–1857; 1864–1871 | GFUKUSAUSDMRM |
| Government bond yield | 1817–2018 | IGUSA10D |
| Gross domestic product | 1817–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1944–2017 | Varieties of Democracy |
| Government revenue | 1817–2013 | GVRUSAA |
| | 1870–2017 | JST Macrohistory Database |
| Consumer price index | 1817–2018 | CPUSAM |

## Venezuela

Dividend yield data for Venezuela comes from the Venezuela Dividend Yield (SYVENYM) from 1985–2014. Ex-dividend return data for Venezuela comes from the companies listed on the London Stock Exchange (GFUKVENUSDMPM) from 1853–1859, 1875–1882, and 1885–1929, and the GFD Indices Caracas SE Bursatil General Index (GFPRVENSTD) from 1930–2018. Cum-dividend return data for Venezuela comes from the companies listed on the London Stock Exchange (GFUKVENUSDMRM) from 1853–1859, 1875–1882, 1885–1959, and 1963–1971, and the GFD Indices Venezuela Stocks Total Return Index (GFTRVENSTM) from 1988–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1985–2014 | SYVENYM |
| Ex-dividend return | 1930–2018 | GFPRVENSTD |
| | 1853–1859; 1875–1882; 1885–1929 | GFUKVENUSDMPM |
| Cum-dividend return | 1988–2018 | GFTRVENSTM |
| | 1853–1859; 1875–1882; 1885–1959; 1963–1971 | GFUKVENUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1853–1859; 1875–1882; 1885–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1962–2017 | Varieties of Democracy |
| Government revenue | 1853–1859; 1875–1877; 1879–1882; 1885–2009 | GVRVENA |
| Consumer price index | 1900–2015 | CPVENM |

## South Africa

Dividend yield data for South Africa comes from the Johannesburg SE Dividend Yield (SYZAFYM) from 1835–2018. Ex-dividend return data for South Africa comes from the companies listed on the London Stock Exchange (GFUKZAFUSDMPM) from 1834, and the GFD Indices FTSE/JSE All-Share Index (GFPRZAFSTD) from 1835–2018. Cum-dividend return data for South Africa comes from the companies listed on the London Stock Exchange (GFUKZAFUSDMRM) from 1834–1960, and the Johannesburg SE All-Share Return Index (_TFTFTSD) from 1961–2018. Other series come from various sources and are shown in the table below.

| Series Type | Dates Available | Series Symbol |
|---|---|---|
| Dividend yield | 1835–2018 | SYZAFYM |
| Ex-dividend return | 1835–2018 | GFPRZAFSTD |
| | 1834 | GFUKZAFUSDMPM |
| Cum-dividend return | 1961–2018 | _TFTFTSD |
| | 1834–1960 | GFUKZAFUSDMRM |
| Government bond yield | 1860–2018 | IGZAF10D |
| Gross domestic product | 1840; 1843; 1847; 1850–1910; 1918; 1924–2018 | Maddisson Historial Statistics |
| Gini coefficient | 1959–2017 | Varieties of Democracy |
| Government revenue | N/A | N/A |
| Consumer price index | 1895–2018 | CPZAFM |

## Zimbabwe

Dividend yield data for Zimbabwe comes from the companies listed on the London Stock Exchange (GFUKZWEUSDDYM) from 1904–1974, and the Zimbabwe Industrials Dividend Yield (SYZWEYM) from 1975–2008. Ex-dividend return data for Zimbabwe comes from the companies listed on the London Stock Exchange (GFUKZWEUSDMPM) from 1894–1975, and the GFD Indices Zimbabwe Industrials Index (GFPRZWESTD) from 1976–2013. Cum-dividend return data for Zimbabwe comes from the companies listed on the London Stock Exchange (GFUKZWEUSDMRM) from 1894–1978 and 1981–1985. Other series come from various sources and are shown in the table below.

| **Series Type** | **Dates Available** | **Series Symbol** |
|---|---|---|
| Dividend yield | 1975–2008 | SYZWEYM |
| | 1904–1974 | GFUKZWEUSDDYM |
| Ex-dividend return | 1976–2013 | GFPRZWESTD |
| | 1894–1975 | GFUKZWEUSDMPM |
| Cum-dividend return | 1894–1978; 1981–1985 | GFUKZWEUSDMRM |
| Government bond yield | N/A | N/A |
| Gross domestic product | 1950–2013 | Maddisson Historial Statistics |
| Gini coefficient | 1945–2013 | Varieties of Democracy |
| Government revenue | 1894–1997 | GVRZWEA |
| Consumer price index | 1914; 1920; 1926–2013 | CPZWEM |