CORA Cork Open Research Archive
Cartlann Taighde Oscailte Chorcaí

Title	Democracy and the pricing of initial public offerings around the world
Authors	Duong, Huu Nhan;Goyal, Abhinav;Kallinterakis, Vasileios;Veeraraghavan, Madhu
Publication date	2021-07-23
Original Citation	Duong, H. N., Goyal, A., Kallinterakis, V. and Veeraraghavan, M. (2021) 'Democracy and the pricing of initial public offerings around the world', Journal of Financial Economics, 145(1), pp.322-341. https://doi.org/10.1016/j.jfineco.2021.07.010
Type of publication	Article (peer-reviewed)
Link to publisher's version	10.1016/j.jfineco.2021.07.010
Rights	© 2021, Elsevier B.V. All rights reserved. This manuscript version is made available under the CC BY-NC-ND 4.0 license. - https://creativecommons.org/licenses/by-nc-nd/4.0/
Download date	2026-10-13 12:42:10
Item downloaded from	https://hdl.handle.net/10468/11760

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Democracy and the Pricing of Initial Public Offerings around the World

Huu Nhan Duong
Department of Banking and Finance
Monash University
huu.duong@monash.edu

Abhinav Goyal
Cork University Business School
University College Cork
abhinav.goyal@ucc.ie

Vasileios Kallinterakis
Management School
University of Liverpool
v.kallinterakis@liverpool.ac.uk

Madhu Veeraraghavan
Accounting, Economics and Finance Area
T A Pai Management Institute, Manipal
madhuveeraraghavan@tapmi.edu.in

Forthcoming – Journal of Financial Economics

Abstract

We find a negative relation between democracy and initial public offering (IPO) underpricing for a sample of 23,050 IPOs across 45 countries. The effect of democracy on underpricing is weaker for IPOs audited by Big 4 auditing firms, backed by venture capital firms, and with better disclosure specificity of use of proceeds. Democracy exerts a larger influence on underpricing for firms with higher agency problems, in countries with weaker institutional quality or shareholder protection, and during periods of high investor sentiment or economic policy uncertainty. Overall, our results highlight the importance of democracy in reducing IPO underpricing around the world.

JEL Classification: G10, G14, G15, G30.

Keywords*:* Democracy; IPO underpricing; Information asymmetry; Corporate governance.

Corresponding author*:* Huu Nhan Duong, Department of Banking and Finance, Monash Business School, Monash University, Wellington Road, Clayton, Victoria 3800, Australia. Telephone: (+61) 3 99032032; Email: huu.duong@monash.edu.

Acknowledgement: Veeraraghavan thanks the T A Pai Chair Professorship for funding support. We thank Savitha Heggede and Meghana Mohan for excellent research assistance. The usual disclaimer applies.

Democracy and the Pricing of Initial Public Offerings around the World

ABSTRACT

We find a negative relation between democracy and initial public offering (IPO) underpricing for a sample of 23,050 IPOs across 45 countries. The effect of democracy on underpricing is weaker for IPOs audited by Big 4 auditing firms, backed by venture capital firms, and with better disclosure specificity of use of proceeds. Democracy exerts a larger influence on underpricing for firms with higher agency problems, in countries with weaker institutional quality or shareholder protection, and during periods of high investor sentiment or economic policy uncertainty. Overall, our results highlight the importance of democracy in reducing IPO underpricing around the world.

JEL Classification: G10, G14, G15, G30

Keywords: Democracy; IPO underpricing; Information asymmetry; Corporate governance

Many reforms that are growth-enhancing get rid of special favours that non-democratic regimes have done for their cronies. Democracies are much more pro-reform.

—Acemoglu, Naidu, Restrepo, and Robinson (2019)

1. Introduction

The rise of democracy around the world has spurred a vast literature on the costs and benefits of democracy with respect to economic outcomes. Drawing on various measures for democracy and estimation techniques, evidence in the literature is far from conclusive on whether democracy enhances or impedes economic growth.[1] Although these studies focus on democracy's relation to overall economic growth, very little is known about whether and to what extent democracy affects corporate outcomes. We address this question by examining the influence of democracy on initial public offering (IPO) pricing around the world. Our focus on IPOs is motivated by their role as key sources of financing for new growth opportunities and expansion for corporations (Boulton et al., 2017).

We argue that democracy can affect IPO underpricing by fostering an institutional environment capable of mitigating information asymmetry problems and improving corporate governance. First, IPO firms are typically young, immature, and relatively informationally opaque (Ljungqvist, 2007), thus accommodating higher risk for which investors are compensated via IPO underpricing (i.e., the fact that IPOs sell at an offer price below what investors are willing to pay for shares in the secondary market). An implication of this argument is that mechanisms aimed at reducing information asymmetry, such as country-level earnings quality (Boulton et al., 2011), accounting conservatism (Boulton et al., 2017), and pre-IPO

[1] See, among others, Przeworski and Limongi (1993), Burkhart and Lewis-Beck (1994), Helliwell (1994), Barro (1996, 1999), Tavares and Wacziarg (2001), Rodrik and Wacziarg (2005), Giavazzi and Tabellini (2005), Papaioannou and Siourounins (2008), Persson and Tabellini (2008), Bates et al. (2012), and Acemoglu et al. (2019).

media coverage (Chen et al., 2020) are associated with lower levels of IPO underpricing around the world. Since information flows more freely and the level of information asymmetry is lower in democratic regimes (Delis et al., 2020), we hypothesize that higher levels of democracy will lead to a reduction in IPO underpricing.

Second, the expansion of political rights as a result of democracy fosters economic rights and stimulates growth (Friedman, 1962). Democracy plays an important role in forming and establishing checks and balances that help reassure market expectations on political cycles and stability, improves protection of property rights, and reduces the probability of social conflict (Delis et al., 2020). As a result, democracy can encourage investment and induce economic reforms (Acemoglu et al., 2019), which can improve the business environment. In addition, since incentives to adopt better governance mechanisms at the firm level increase with a country's financial and economic development (Doidge et al., 2007), corporate governance should be improved and agency problems should be less severe in more democratic countries. The strength of governance is particularly important in the IPO setting because agency frictions between the management of IPO firms and investors play a significant role in determining IPO underpricing (Brennan and Franks, 1997; Ljungqvist and Wilhelm, 2003; Smart and Zutter, 2003). These observations imply that democracy should reduce IPO underpricing.

We examine the relation between democracy and IPO underpricing using a global sample consisting of 23,050 IPOs across 45 countries over the period 1990 to 2020. We measure IPO underpricing as the difference between the closing price of the first trading day and the offer price, scaled by the offer price. Our main explanatory variable is institutional democracy (*Democracy*) obtained from the Polity V Project (2018). This is an institution-based measure that captures the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders, the presence of

institutionalized constraints on the exercise of power by the executive, and the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation. This measure is an institution-based and not a perception-based indicator and allows us to examine the effect of institutional democracy (encompassing constitutional elements) to a large extent purified of perception (Delis et al., 2020). *Democracy* assumes values ranging from zero to ten, with higher values indicating higher levels of institutional democracy.

In our baseline regression, we find that *Democracy* is negatively related to IPO underpricing, suggesting that the degree of IPO underpricing is lower in countries with higher institutional democracy. We obtain this finding for the overall sample as well as the sample consisting of countries experiencing at least one change in institutional democracy value during our sample period. Our finding is economically significant, with a one standard deviation increase in *Democracy* associated with a reduction of 7.64 percentage points in IPO underpricing or 29.31% of the average IPO underpricing in our full sample.

In additional analyses, we find that *Democracy* is associated with lower levels of information asymmetry. In particular, we employ three proxies to capture information asymmetry. They are: (i) *Media censorship*, a country-specific index for a free and independent media in the year of the IPO firm's listing multiplied by -1 (Williams, 2015); (ii) *Press censorship*, a country-specific index for a free press in the year of the IPO firm's listing multiplied by -1; and (iii) *Earnings opacity*, a country-specific earnings opacity score (Bhattacharya et al., 2003; Boulton et al., 2011). We show a significantly negative relation between the three proxies and *Democracy*. We also find that the information asymmetry proxies are significantly and positively related to IPO underpricing. These findings are in line with our expectations that democracy affects IPO underpricing via the information asymmetry channel, given the higher transparency levels observed in democratic regimes. Our findings

also hold for each component of *Democracy*, or when we use alternative measures of *Democracy* or IPO underpricing, or when we use alternative model specifications.

Although we show a negative and robust relation between *Democracy* and IPO underpricing, our results could be due to an omitted variable that influences both *Democracy* and IPO underpricing. We mitigate this issue by using a comprehensive list of control variables for IPO, firm, and country characteristics. We also conduct an instrumental variable regression analysis with regional waves of democratization (*Regional democratization*) and transitions to non-democracy (*Regional unrest*) as instruments. The choice of these instruments is motivated by prior findings that demand for democracy and dissatisfaction with a given regime, across countries and within a region, exhibit regional diffusion patterns (Kuran, 1989; Lohmann, 1994). It is also unlikely that regional democratization or unrest in neighboring countries affect IPO underpricing in a given country. Consistent with our baseline results, we find that the fitted value of *Democracy* is negatively related to IPO underpricing.

We further perform various analyses to examine the moderating effect of IPO, firm, or country characteristics on the relation between *Democracy* and IPO underpricing. First, we consider IPO characteristics. Prior work emphasizes that information asymmetry problems in the IPO setting can be mitigated by third-party certifications by high-quality auditors (Menon and Williams, 1991), venture capitalist backing (Megginson and Weiss, 1991; Loughran and Ritter, 2004), or the specificity of the disclosed utilization of IPO proceeds (Leone et al., 2007). We therefore argue that the effect of *Democracy* on IPO underpricing is smaller for IPOs certified by high-quality auditors, IPOs backed by venture capital firms, and IPOs that provide specific information on the use of IPO proceeds. Our results provide evidence supporting this argument.

Second, since IPO underpricing arises from high information asymmetry between investors and insiders, we expect the effect of *Democracy* on IPO underpricing to vary among

firms with differential potential levels of principal–agent conflict. To explore this possibility, we consider various firm-level proxies for principal–agent conflict such as free cash flow (Jensen, 1986; Chen et al., 2011) and inefficiencies in cost management as captured by operating expenses (Ang et al., 2000). We also use asset turnover, asset utilization, and return on assets to reflect greater efficiency in utilization of firm assets, reducing the potential for agency conflict (Ang et al., 2000). We find that the effect of *Democracy* on IPO underpricing is larger (smaller) among firms with higher free cash flow or operating expenses (greater asset turnover, asset utilization, and return on assets). These findings suggest that country-level democracy is particularly important for firms subject to high levels of principal–agent conflict.

We next examine how cross-country differences in institutional structures affect the relation between *Democracy* and IPO underpricing. To the extent that the relation between *Democracy* and underpricing arises from the role of *Democracy* in mitigating information asymmetry and protecting investors' rights, our main results should be less pronounced in countries with better institutional development and shareholder protection. We find support for this argument. Specifically, our baseline results are weaker in countries with greater financial freedom, institutional quality, and perceptions of corruption. Our findings are also less pronounced in countries characterized by stronger shareholder rights (Djankov et al., 2008; Spamann, 2010), stronger securities laws (La Porta et al., 2006), and greater insider trading restrictions (Denis and Xu, 2013). The effect of *Democracy* on IPO underpricing is larger in countries with higher levels of earnings opacity, with a civil law legal culture (La Porta et al., 1998), and in emerging markets. These findings are consistent with the hypothesis that a higher-quality institutional environment will help reduce informational asymmetry and risks and thus mitigate the magnitude of the relation between *Democracy* and IPO underpricing.

We further examine how the relation between *Democracy* and IPO underpricing varies over time. Given that the prospects of IPO firms are uncertain, their valuation is lower during

periods characterized by higher political uncertainty (Çolak et al., 2017) or higher sentiment (Ljungqvist et al., 2006). We therefore argue that the role of *Democracy* is particularly important during periods characterized by high sentiment or high political uncertainty. Using the Organisation for Economic Co-operation and Development (OECD) consumer confidence index (CCI) as a proxy for investor sentiment and the economic policy uncertainty (EPU) index (Baker et al., 2016) as a proxy for political uncertainty, we find support for this conjecture.

Our work yields significant contributions to the literature in the following ways. First, we contribute to the literature on the benefits and costs of democracy. Prior work in this literature provides mixed findings on the importance of democracy for economic growth (see, for example, Przeworski and Limongi, 1993; Burkhart and Lewis-Beck, 1994; Helliwell, 1994; Barro 1996, 1999; Tavares and Wacziarg, 2001; Giavazzi and Tabellini, 2005; Rodrik and Wacziarg, 2005; Papaioannou and Siourounins, 2008; Persson and Tabellini, 2008; Bates et al., 2012; Acemoglu et al., 2019). We contribute to this literature by showing that democracy can benefit economic growth through its impact in reducing the underpricing of IPOs – a key financing source for growth opportunities and business expansion. In so doing, we generate some of the first large-scale empirical evidence on the effect of democracy on corporate outcomes. Our paper is related to Delis et al. (2020), who show that bank financing costs are lower in more democratic countries. Banks are typically better informed than other capital providers, owing to monitoring and maintaining ongoing relationships with borrowers (Diamond 1984, 1991). From this perspective, our paper builds on Delis et al. (2020) by highlighting that the benefits of democracy also extend to the less informed group of capital providers to young, immature, and informationally opaque IPO firms.

Second, we extend the literature on pricing of IPOs around the world. Prior literature highlights the role of institutional features such as country-level earnings quality (Boulton et al., 2011), accounting conservatism (Boulton et al., 2017), short selling restrictions (Boulton et

al., 2020), and market manipulation rules (Duong et al., 2021) in affecting IPO pricing internationally. We instead focus on the characteristics of the political system that could arguably shape institutional quality and regulations. Our results showcase the importance of institutional democracy in mitigating IPO underpricing around the world.

This paper proceeds as follows. We discuss sample selection and variable construction in Section 2. Section 3 presents the results from the baseline regression and various robustness tests. We discuss the results of our identification tests in Section 4. Section 5 presents our findings on the moderating effects of IPO, firm, and country characteristics on the relation between democracy and IPO underpricing. Section 6 sets forth our conclusions.

2. Sample selection and variable description

2.1. Data sources and definitions

We obtain data from several sources. IPO data are collected from the Thomson Financial SDC Platinum New Issue database for the period 1990 through 2020. The institutional democracy (*Democracy*) data are from the Polity V Project (2018), which provides a country–year measure for institutional democracy.[2] We also use additional proxies of institutional democracy, namely, *Polity* and *Autocracy*, both sourced from the Polity V Project (2018). We obtain firm-level financial information and stock returns from Datastream and Worldscope. We collect data on country-level economic development and the quality of listing for stock exchanges from the World Bank's World Development Indicators.

Following prior IPO research (Boulton et al., 2010, 2017; Lin et al., 2013; Espenlaub et al., 2016, 2020; Chen et al., 2020), we exclude exchange-traded funds, American and global depositary receipts, rights offerings, spin-off private placements, closed-end funds, real estate investment trusts, and limited partnerships and warrants. Next, we require IPO firms to have

[2] The Polity V Project (2018) uses the variable name DEMOC.

information in Datastream or Worldscope for the IPO year. Further, we exclude countries for which we are unable to source data for *Democracy* for all IPO years in our sample. Finally, we drop all IPOs from countries with fewer than five IPOs during our sample period.[3] These filtering criteria yield a final sample of 23,050 IPOs listed in 45 countries over a 31-year period. In our analysis, the value for *Democracy* is based on the main stock exchange on which the IPO is first listed, rather than the IPO-company's country of incorporation (Duong et al., 2021).[4]

2.2. Variable measurement

Our dependent variable is IPO first-day return (*IPO underpricing*). Following prior literature (Ellul and Pagano, 2006; Boulton et al. 2010, 2011, 2017; Chen et al., 2020), we calculate *IPO underpricing* as the first-day closing price of an IPO minus its offer price, scaled by the offer price.

Our primary variable of interest is institutional democracy (*Democracy*). For every country–year, *Democracy* ranges from zero to 10, with zero indicating no institutional democracy and 10 indicating the maximum level of institutional democracy. According to the Polity V Project (2018), *Democracy* has three key dimensions: 1) the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders; 2) institutionalized constraints on the exercise of power by the executive; and 3) the guarantee of civil liberties to all citizens in their daily lives and in acts of political

[3] In line with Boulton et al. (2011), we do not impose a minimum offer price restriction. Applying a filter of a $1.00 minimum offer price (converting the local currency to U.S. dollars based on the exchange rate as of the IPO date) would greatly reduce the number of IPOs in many emerging countries. Therefore, the main analysis presented here imposes no minimum offer price restriction. Our results are unaffected by exclusion of IPOs with low offer prices.

[4] Similar to prior research (Doidge et al. 2013, 2017), a large fraction of our IPO-sample listings is identified with IPOs from the United States (5,992), China (2,262), Japan (2,227), India (1,447), and the United Kingdom (1,341).

participation. Besides these three dimensions, other aspects of pluralistic democracy include the rule of law, systems of checks and balances, and freedom of the press.

Our selection of control variables follows the literature (Ellul and Pagano, 2006; Çolak et al., 2017; Chen et al., 2020). *Offer size* is the natural logarithm of total proceeds raised by the IPO firm and controls for the size of the IPO firm. The measure *Profitability* is defined as earnings before interest and taxes divided by total assets, and accounts for firm performance. We control for the issuing firm's capital structure with *Leverage*, measured as the ratio of total debt over total assets. We also include *Market-to-book*, calculated as the market value of assets divided by the book value of assets at the time of listing, to control for a firm's growth opportunities. *IPO age* is the natural logarithm of one plus the difference in years since the firm was established up to the year of listing, and it controls for the lifecycle of the IPO firm.

Next, we include *Equity carve-out*, an indicator variable equal to 1 if the IPO firm is a carve-out of a publicly listed firm, and zero otherwise. To control for the pricing technique, we include *IPO commitment* and *Bookbuilding*, which are dummy variables equal to 1 if the underwriter purchased securities from the issuer to be offered to the public or if the IPO is conducted using bookbuilding, respectively, and zero otherwise. The variable *Shares issued* is the natural logarithm of the total number of shares issued by the IPO firm, reflecting the IPO's demand in the market. Lastly, to control for the reputation of the financial intermediaries assisting the IPO firm in the listing process, we include *Underwriter*, *Big 4 auditor*, and *VC back*. These are dummy variables equal to one if, respectively, the IPO is underwritten by a reputable underwriter, audited by one of the Big Four accounting firms, or backed by a venture capital firm, and zero otherwise.

To mitigate the possibility that *Democracy* captures other country-specific characteristics observed at the country–year level, we control for variables reflecting economic, institutional, and financial development, as well as current economic conditions. Hence,

following prior literature (Ellul and Pagano, 2006; Boulton et al., 2010, 2017; Espenlaub et al., 2016, 2020; Chen et al., 2020; Duong et al., 2021), we control for the state of the economy and the level of capital market development in the country where an IPO takes place. Specifically, we include *IPO activity*, defined as the ratio of the number of IPOs issued in a year to the total number of firms listed in that country. We also include *Market return*, a country-specific benchmark value-weighted index return over the three months preceding the offering.

Further, we control for *GDP per capita*, which is the natural logarithm of the country-specific gross domestic product (GDP) per capita in the year of the IPO firm listing, and *GDP growth*, measured as the change in annual GDP per capita. Lastly, we control for *Market size*, measured as the ratio of the annual total market capitalization of stocks traded to GDP, and *Market liquidity*, measured as the ratio of the annual total value of stocks traded to GDP. To mitigate the effect of potential outliers, we winsorize all IPO-level variables (except for dummy variables) at both the 1st and 99th percentiles.

2.3. Summary statistics

Table 1 presents descriptive statistics for the variables. Average (median) *IPO underpricing* in our IPO sample is 0.2607 (0.1133). Average (median) value of *Democracy* is 8.0777 (10.0000). IPOs in our sample have an average *Offer size* of $28.88 million ($e^{3.3631}$ = 28.88). The average IPO firm in our sample has *Profitability* equal to 0.0221, *Leverage* equal to 0.2464, and *Market-to-book* equal to 3.2708. Average (median) *IPO age* at the time of listing is 5.5 (seven) years. Almost 70% of the IPOs come with a commitment clause, while 61.51% use bookbuilding (*Bookbuilding*). The results reported in Table 1 are largely consistent with

prior studies on international IPOs (Ellul and Pagano, 2006; Boulton et al., 2010, 2017; Lin et al., 2013; Chen et al., 2020; Duong et al., 2021).[5]

[Table 1 about here]

3. Empirical results

3.1. Univariate analysis

We begin with a univariate analysis of the relation between *Democracy* and IPO underpricing. In Figure 1, we plot average country-level *Democracy* and underpricing for all the IPOs used in this study for 45 countries, ranked in decreasing order of *Democracy* and increasing level of *IPO underpricing*, from left to right. We also plot a trend line for the country-level average *Democracy*–IPO underpricing relation. Figure 1 shows substantial variations in IPO underpricing internationally. When it comes to *Democracy*, most regions with developed economies – the European Union, North America (Canada and the United States) and Australasia (Australia and New Zealand) – exhibit higher levels of democracy (i.e., a perfect score of ten) over our sample period. Conversely, most emerging economies, irrespective of their location, have experienced a mix of democratic and autocratic governments over the years. Of the 45 countries in our sample, China, Egypt, Singapore, and Nigeria not only exhibit the lowest level of *Democracy*, but also a high level of IPO underpricing. The trend line in Figure 1 provides initial evidence consistent with our hypothesis that countries that exhibit higher levels of *Democracy* tend to have lower average IPO underpricing.

[Figure 1 about here]

In Figure 2, we divide our sample IPO firms into 11 groups based on their listing country's *Democracy* score on a scale from zero to ten for the year of listing. Group 0

[5] In untabulated results, the correlation matrix of these variables shows that *IPO underpricing* is negatively correlated with the key explanatory variable, *Democracy*. The largest variance inflation factor among the independent variables is 3.37, with an overall model average variance inflation factor of 1.60, well below the common threshold of five, suggesting that multicollinearity is not a concern in our setting (O'Brien 2007).

(Group 10) corresponds to those IPOs listed in the country–year when the *Democracy* score was zero (10) for the country in that listing year. We then calculate average IPO first-day return for each of the 11 groups and plot the results in Figure 2. Figure 2 shows that the average IPO underpricing for Group 0 is 51.1%, whereas the average IPO underpricing for Group 10 is 22.3%. The difference between the average returns in the two groups is statistically significant (p-value < 0.01).

Further, in line with Figure 1, we plot the trend line for the average *Democracy*–IPO underpricing relation. As expected, we observe a significantly negative relation between *Democracy* and underpricing. In conjunction with Figure 1, Figure 2 is consistent with the notion that higher country-level *Democracy* results in a lower degree of IPO underpricing.

[Figure 2 about here]

3.2. Baseline regression analysis

We begin our assessment of the relation between institutional democracy and IPO first-day returns by employing the following model:

$$\begin{aligned} IPO\ underpricing_j = {} & \alpha + \beta_1 Democracy_j + \beta_2 Offer\ size_j + \beta_3 Profitability_j + \beta_4 Leverage_j \\ & + \beta_5 Market\text{-}to\text{-}book_j + \beta_6 IPO\ age_j + \beta_7 Equity\ carve\text{-}out_j + \beta_8 IPO\ commitment_j + \\ & \beta_9 Bookbuilding_j + \beta_{10} Shares\ issued_j + \beta_{11} Underwriter_j + \beta_{12} Big4\ Auditor_j + \beta_{13} VC \\ & back_j + \beta_{14} IPO\ activity_j + \beta_{15} Market\ return_j + \beta_{16} GDP\ per\ capita_j + \beta_{17} GDP\ growth_j \\ & + \beta_{18} Market\ size_j + \beta_{19} Market\ liquidity_j + \sum FE + \varepsilon_j , \end{aligned} \quad (1)$$

where subscript *j* denotes IPO firm; $\sum FE$ accommodates country, industry,[6] and year fixed effects; and ε reflects the model's residual term. We estimate Equation (1) using pooled ordinary least squares (OLS), with standard errors adjusted for heteroskedasticity and clustered at the country level.

[6] Industry fixed effects are controlled here by following Kenneth French's 12-industry classification (retrieved from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french).

Table 2 presents the estimates from the four models nested in Equation (1). Model 1 includes *Democracy* and industry and year fixed effects. Model 2 is similar to Model 1 and additionally includes firm-level control variables. Model 3 is similar to Model 2 and includes country-level control variables. This model corresponds to the full baseline model of Equation (1). In Model 4, we further include country fixed effects to control for time-invariant country characteristics of the IPO firms. In this model, we include only those 21 countries that experienced at least one change in the value of institutional democracy over our sample period.

Our findings show that the coefficient of *Democracy* is, in all four models, negative and significant (at the 1% level), suggesting that higher levels of institutional democracy are associated with lower underpricing for firms on the first day of their public listing. Our findings are also economically significant. For instance, based on the coefficient estimates in Model 3, a one standard deviation increase in the value of *Democracy* (3.3633) leads to a reduction in average IPO first-day return by 7.64 percentage points.[7] This, in turn, corresponds to a significant reduction of 29.31% in our full sample's first-day IPO return average.

As for the estimates of our firm- and country-level variables, for the full sample, we observe a positive (negative) relation between IPO first-day return and *Profitability*, *Market-to-book*, *IPO age*, *IPO commitment*, *Underwriter*, *VC back*, *Market return*, *GDP per capita*, *GDP growth*, and *Market liquidity* (*Offer size*, *Leverage*, *Equity carve-out*, *Shares issued*, *Market size*, and *IPO activity*). These findings are similar to those reported in the IPO literature (Ellul and Pagano, 2006; Demers and Joos, 2007; Boulton et al., 2010, 2011, 2017; Gao et al., 2013; Chemmanur and Yan, 2017; Çolak et al., 2017; Chen et al., 2020; Duong et al., 2021).

[Table 2 about here]

[7] Calculated as 3.3633 (-0.0227) = -0.0764 for Model 3.

3.3. Democracy and the information asymmetry channel in IPO underpricing

The results presented in Table 2 demonstrate that increasing levels of institutional democracy tend to be associated with lower underpricing in IPO markets. Much of this argument hinges on the established relation between democracy and transparency (Curtin and Meijer, 2006; Fairbanks et al., 2007; Hollyer et al., 2011; Fung, 2013; Delis et al., 2020), which dampens information asymmetry between corporate insiders and outside investors in the marketplace (via, for example, enhanced disclosure requirements and freedom of the press). Accordingly, we would expect information asymmetry to be inversely related to *Democracy* and positively related to underpricing *per se*.

We test for this empirically by employing three proxies of information asymmetry: *Media censorship*, a country-specific index for free and independent media in the year of the IPO firm listing multiplied by -1 (Williams, 2015); *Press censorship*, a country-specific index for a free press in the year of the IPO firm listing multiplied by -1 (sourced by Freedom House); and *Earnings opacity*, a country-specific earnings opacity score (Bhattacharya et al., 2003; Boulton et al., 2011). We then utilize each of the three proxies in two separate estimations: first, we regress each proxy on *Democracy*, and second, we repeat our estimations in Table 2 by substituting *Democracy* with each proxy in turn. We present the results in Table 3. We observe a significantly negative relation between each proxy and *Democracy* in Models 1a, 2a, and 3a. We further find in Models 1b, 2b, and 3b that all proxies are significantly and positively related to IPO underpricing. These estimates are in line with expectations, suggesting that democracy affects IPO underpricing via the information asymmetry channel, given the higher transparency levels observed in democratic regimes.

[Table 3 about here]

3.4. Effects of components of democracy on IPO underpricing

Following De Mesquita et al. (2005) and Delis et al. (2020), we now examine the effect of each of the *Democracy* components (*Executive recruitment competitiveness*, *Executive recruitment openness*, *Executive constraints*, and *Participation competitiveness*) on IPO underpricing Specifically, we include each of the *Democracy* components separately in the estimation of our baseline model. We present the findings from each of these four estimations in Table 4.

We find that the negative *Democracy*–IPO underpricing relation is evident for each of the *Democracy* components. We also repeat the estimation of our baseline model by bundling all four components simultaneously. We observe significantly negative coefficient estimates for *Executive constraints* (10% level) and *Participation competitiveness* (1% level), while those for *Executive recruitment competitiveness* and *Executive recruitment openness* are insignificant. In summary, consistent with Delis et al. (2020), we find that, among the four components of *Democracy*, the one with the economically more significant impact on underpricing is *Participation competitiveness*, both individually and when grouped with the remaining three components. This variable essentially indicates whether countries have a multi-party democratic system and associated freedom of expression. The political science literature has long viewed multi-party competition and free elections as essential conditions for characterization of a democratic system in a country (De Mesquita et al., 2005).

[Table 4 about here]

3.5. Robustness tests

Our results thus far indicate that democratic countries tend to witness lower levels of underpricing. Nevertheless, to the extent that our sample draws on a wide variety of markets with different institutional features in their political structures, one could argue that *Democracy* offers only partial insight into a country's degree of institutional democracy. Additionally, it is

possible that the negative relation between *Democracy* and IPO underpricing does not restrict itself strictly within the first day, but rather exhibits a longer memory than that, potentially persisting across various horizons following the IPO.

To test the robustness of our main findings, we draw on a battery of institutional democracy measures and repeat our estimation from Model 3 of Table 2, using each of the following variables as our democracy variable: *Polity*, from the Polity V Project (2018); *Democracy_FH*, from the Freedom House database; *Democracy_ANRR*, from Acemoglu et al. (2019); *Democracy_BMR*, from Boix et al. (2013); *Democracy_CGV*, from Cheibub et al. (2010); *Autocracy*, from the Polity V Project (2018); and *Reversal autocracy*, from Acemoglu et al. (2019).

The results presented in Panel A of Table 5 are consistent with the main results reported in Table 2. More specifically, we find that the coefficients of the other institutional democracy proxies, as presented in Models (1) to (5) are significantly negative at the 1% level. These findings confirm that the higher the level of institutional democracy enjoyed by a country, the lower the IPO underpricing. The coefficients for *Autocracy* and *Reversal autocracy* in Models (6) and (7) suggest that any departure of an economy from democratic norms is likely to be accompanied by an elevation of IPO underpricing in its stock market.

Our next set of robustness tests aims to gauge the extent to which the negative *Democracy*–IPO underpricing relation extends beyond the first day. This test addresses the potential issue that IPO firms in more democratic countries experience a sharp surge in their market prices beyond their IPO day. This surge in price would cast doubt on the actual importance of *Democracy* in reducing underpricing. To investigate this issue, following Lin et al. (2013), we re-estimate Model 3 of Table 2 for one, two, and four weeks following the IPO day for our sample. The results in Panel B of Table 5 indicate a consistently negative and

significant sign for *Democracy*, suggesting that the negative *Democracy*–IPO underpricing relation holds beyond the IPO day.

Next, we modify our baseline model to include additional IPO-level and economy-wide controls to mitigate the potential omitted variable bias. Following prior literature (e.g., Ritter, 1984; Demers and Joos, 2007; Chemmanur and Yan, 2017; Çolak et al., 2017; Chen et al., 2020), we include *Oversubscription* and *IPO float* to control for IPO demand, *Asset turnover* to account for firm efficacy in asset utilization, *Free cash-flow* to capture the potential for firm financial slack, *Advertising intensity* to control for firm visibility, and *Price revision* to control for partial adjustment effects in IPO prices. We also control for IPO market conditions and regulatory environment conditions by including *Hot issue market* and *Political stability*.[8]

The estimates reported in Panel C of Table 5 show that *Democracy* retains its significantly negative sign. Regarding additional control variables, we find that IPO underpricing rises most with (a) upward price revision of IPOs; (b) IPO firm efficacy in asset turnover; and (c) IPO visibility. We re-estimate our baseline regression model using average values at the country–year level, to control for the effect of extremely underpriced IPOs (e.g., Aggarwal et al., 2002) in a particular country. The results reported in Panel D of Table 5 show that the coefficient of *Democracy* is significantly negative, suggesting that, even after controlling for the effect of extremely underpriced IPOs, the inverse relation between *Democracy* and IPO underpricing persists.[9]

[8] The sample size for this test reduces to 9,636 IPOs due to limited availability of data required to construct these additional controls.

[9] As an additional untabulated analysis, we test the robustness of our findings by estimating Model 4 from Table 2 for individual countries (for countries accommodating at least 100 IPOs over our sample period and for which a change in the democracy score is recorded over the sample window), industries, and issue years. With the exception of Poland, the relation between IPO underpricing and *Democracy* is significantly (at the 10% level or better) negative for all other countries. A similar picture emerges at the industry level, where *Democracy* is significantly (with the exception of Utilities, where it is insignificant) negative across all industries. When we perform our estimations for individual issue years, we find that this negative relation persists across almost all years, with the exception of 1992, 1997, 1999 and 2012. Taken together, the negative relation between institutional democracy and IPO underpricing is not motivated by any particular country, industry, or issue year for our sample IPOs. These results are not reported here in the interest of brevity and are available from the authors on request.

[Table 5 about here]

4. Endogeneity – instrumental variable regression analysis

Although the relation between democracy and IPO underpricing appears robustly negative in the results presented thus far, one cannot rule out the possibility of this relation being due to one or more factors that are correlated with both *Democracy* and IPO first-day returns. Alternatively, large upward swings in underpricing can motivate governments to resort to regulatory responses aimed at curtailing information asymmetry in the marketplace (e.g., stricter disclosure requirements) that affect a country's institutional democracy score. In addition, to the extent that globalization promotes enhanced integration of economies in the global financial architecture (Bekaert and Harvey, 1995; Stiglitz, 2010; Bekaert et al., 2011), it could well be that our results capture the growing participation of international investors in the IPOs of emerging/frontier markets, whose higher risk levels tend to promote greater underpricing, irrespective of their institutional democracy features.

We employ an instrumental variable regression approach to address endogeneity concerns. In our empirical setting, an instrumental variable is valid if it satisfies both the *relevance* condition (i.e., when it is significantly correlated with *Democracy* but not with the residuals from the baseline model) and the *exclusion* condition (i.e., it should not produce an effect *per se* on IPO first-day returns; Larcker and Rusticus, 2010; Roberts and Whited, 2013). To that end, we use two variables related to a country's institutional democracy as instrumental variables: *Regional democratization* and *Regional unrest*.[10]

Prior literature (e.g., Kuran, 1989; Lohmann, 1994) shows that both the demand for democracy as well as dissatisfaction with a given regime, across countries and within a region, exhibit regional diffusion patterns, more so in view of intra-regional correlations in terms of history, political culture, practical problems, and close informational networks. The exclusion

[10] We collect data for the *Regional democratization* and *Regional unrest* from Acemoglu et al. (2019).

restriction requires that regional waves be significant determinants of democracy but should have no direct effect on IPO underpricing. While it is not possible to test for this condition directly, clearly this is a plausible presumption. Motivated by these observations, we exploit regional waves of democratization (*Regional democratization*) and transitions to non-democracy (*Regional unrest*) as sources of exogenous variation in democracy.

We present the results of the instrumental variable regression analysis in Table 6. Model 1 reports the results for all 45 countries and Model 2 reports the results for only the 21 countries that experienced a change in the value of *Democracy* during our sample period. The results from the first stage show that *Regional democratization* (*Regional unrest*) has a positive (negative) and significant relation with *Democracy*, thus satisfying the *relevance* condition. The F-statistic for the excluded instruments suggests that the two instrumental variables have a strong influence on the likelihood of democracy for countries in that region, and the issue of weak instruments is not a concern in our setting (Stock et al., 2002).

Since we have more instruments than endogenous regressors (*Democracy*), we further perform the Hansen-Sargan test of overidentifying restrictions. The test statistic and the corresponding p-value indicate that the test for overidentifying restrictions is satisfactory, and that the instruments are uncorrelated with the error term of the second-stage model, providing some support for the instruments' validity. To the extent that there is no reason to suggest that the effect of either instrumental variable (*Regional democratization* or *Regional unrest*) on IPO first-day returns once *Democracy* has been controlled for, the *exclusion* condition is likely to be satisfied. Similar to our baseline results in Table 2, the results in the second-stage regression show that the instrumented *Democracy* variable has a negative and significant relation with IPO underpricing.[11]

[11] To control for endogeneity issues not captured in the above tests, we perform a placebo test, where we generate a random version of *Democracy* for each test per country per year, drawing on an 11-point scale (zero to 10) in each regression, by performing the test 1,000 times. Results (not reported here but available from the authors upon request) reveal that this randomly generated value for *Democracy* is of very small magnitude (-0.0001) and, though negative, bears no significant

[Table 6 about here]

5. Moderating effect of IPO-level and country-level characteristics on the democracy–underpricing relation

5.1. IPO certification and disclosure specificity

We now investigate whether the level of third-party IPO certification and the specificity in the disclosed utilization of IPO proceeds exert a moderating influence on the negative relation between democracy and IPO underpricing. Prior work suggests that investors tend to assess the quality of a prospective IPO firm contingent on its IPO being backed by venture capital firms (Megginson and Weiss, 1991; Loughran and Ritter, 2004) and audited by a high-quality auditor before the IPO (Menon and Williams, 1991). The rationale underlying this tendency is that the presence of venture capitalists or high-quality auditors can help mitigate the information asymmetry between corporate insiders and outside investors, by suggesting to investors that an IPO bears a lower risk profile and, consequently, higher quality.

With respect to the disclosure specificity of an IPO's proceeds, the more specific (general) the reasons outlined in the IPO's prospectus regarding the utilization of these proceeds, the lower (higher) the uncertainty surrounding the IPO. As a result, investors are more likely to prefer lower offer prices for firms with less/no disclosure specificity (Leone et al., 2007). These arguments imply that involvement of quality third-party financial intermediaries in an IPO and the presence of disclosure specificity in the utilization of proceeds can mitigate the magnitude of the negative relation between institutional democracy and IPO underpricing.

To proxy for IPO certification, we rely on several indicators employed in the literature (e.g., Megginson and Weiss, 1991; Menon and Williams, 1991; Loughran and Ritter, 2004). The first indicator is *Big 4 auditor*, which equals 1 if the IPO firm is audited by one of the Big 4

relation to IPO underpricing. These findings highlight that the effect of institutional democracy on IPO underpricing is likely not random.

auditing firms, and zero otherwise. We also use *VC back*, which equals 1 if the IPO firm is backed by a venture capital firm, and zero otherwise. As to disclosure specificity, we employ *Proceed use*, which assumes the value of 1 if the IPO prospectus discloses a specific purpose or rationale behind use of the IPO proceeds (e.g., investments, debt payoff, corporate restructuring/expansion), and zero if the firm offers disclosure only of 'General Corporate Purposes' (Leone et al., 2007).

We examine the moderating role of third-party IPO certification and disclosure specificity on the association between *Democracy* and underpricing by interacting *Democracy* with *Big 4 auditor*, *VC back*, and *Proceed use*, respectively. The results, in Panel A of Table 7, show that the estimates of the interaction terms are all positive and significant (at the 1% level), suggesting that IPO certification and disclosure specificity can mitigate the magnitude of the the negative relation between institutional democracy and IPO underpricing. Overall, the effect of *Democracy* on IPO first-day returns is smaller for IPOs audited by Big 4 auditing firms, backed by venture capital firms, and with better disclosure specificity pertaining to use of proceeds.

5.2. Principal–agent conflict potential and underpricing

This subsection examines how the *Democracy*–IPO underpricing relation varies with IPO firms' agency problems. Firms with higher (lower) potential for agency conflicts will engender a riskier (less risky) profile and will thus be expected to project greater (lower) underpricing (Brennan and Franks, 1997; Ljungqvist and Wilhelm, 2003; Smart and Zutter, 2003). We empirically test for the effect of the potential for agency problems on the *Democracy*–IPO underpricing relation by utilizing the following firm-specific variables: *Free cash-flow*, *Operating expense*, *Asset turnover*, *Asset utilization*, and *Return on assets*.

The choice of free cash-flow is motivated by prior evidence (Jensen, 1986; Chen et al., 2011) on higher free cash-flow levels amplifying the potential for opportunistic managerial behavior. Higher operating expenses can be indicative of inefficiencies in firm cost management (Ang et al., 2000), thus potentially reflecting loss-creating behavior on behalf of managers and giving rise to agency problems. In contrast, higher values of asset turnover/utilization and return on assets denote greater efficiency in the utilization of firm assets, and hence less potential for agency conflict (Ang et al., 2000). As with earlier tables, each of these five variables enters the baseline model both separately and in interaction with *Democracy*.

The findings presented in Panel B of Table 7 show that the estimates of the agency-related variables (with the exception of *Return on assets*) are significant (at the 10% level or better) and their signs are in line with our expectations. Specifically, higher (lower) values of free cash flow and operating expenses (asset turnover/utilization) are associated with higher underpricing levels. The coefficient of the interaction terms for *Free cash-flow* and *Operating expense* (*Asset turnover*, *Asset utilization*, and *Return on assets*) are significantly negative (positive), indicating that these variables amplify (moderate) the magnitude of the negative relation between *Democracy* and IPO underpricing. Overall, our findings demonstrate that the effect of *Democracy* on IPO underpricing is larger among firms with higher agency problems.

5.3. Effects of country-level institutional setup

A large amount of research (Blonigen, 2005; Bénassy-Quéré et al., 2007; Busse and Hefeker, 2007; Krifa-Schneider and Matei, 2010; Jayasuriya, 2011; Walch and Wörz, 2012; Economou and Hassapis, 2015; Economou et al., 2017) investigates the effect of various institutional and policy factors on a country's ability to attract investment, with results consistently indicating that the higher the quality of a country's institutional environment, the

more attractive the country appears to investors. To the extent that institutionally developed jurisdictions allow investors enhanced transparency, ease of access, functioning market mechanisms, and low costs of doing business, we expect that these countries will enjoy greater quality in their informational environment. Greater informational environment quality is, in principle, beneficial for the efficiency of their capital markets since it helps reduce information asymmetry – and risks – and would therefore be expected to lead to lower levels of IPO underpricing. If so, this argument suggests that institutional development could confer a moderating effect on the negative relation between institutional democracy and IPO underpricing.

We proxy for a country's institutional development by employing three different measures: (a) *Financial freedom*, an index that scores an economy's financial freedom in terms of ease of access to financing opportunities for individuals and businesses (Chortareas et al., 2013); (b) *Institutional quality*, which measures a country's economic institutional quality in the year of the IPO firm's listing (Kunčič, 2014); and (c) *Corruption perception*, which compares countries based on the number of bribes reported and prosecution cases regarding corruption and effectiveness in terms of investigators, prosecutors, courts, and media investigating and exposing corruption cases (Donchev and Ujhelyi, 2014). Higher values of *Corruption perception* indicate lower perceived level of public sector corruption.

Similar to Panels A and B of Table 7, each of the three proxies enters our baseline regression model both separately and in interaction with the *Democracy* variable. The results reported in Table 7, Panel C show that all three measures are significantly negatively related to IPO underpricing, suggesting that countries enjoying higher (lower) institutional development tend to witness lower (higher) underpricing for their IPOs, on average. The interaction terms between *Democracy* and the institutional development proxies are significantly positive, implying that country-level institutional development mitigates the

magnitude of the negative relation between institutional democracy and IPO underpricing. Overall, *Democracy* has a smaller effect on IPO first-day returns when IPOs take place in countries with a high level of economic freedom, high-quality economic institutions, and low perceived corruption.

5.4. Effects of investor legal protections

Although we have shown institutional democracy to exert a negative influence on IPO underpricing across the world, it is possible that this influence can be moderated by the quality of a country's legal protection of minority shareholders. A country's quality of investor legal protection is associated with both the definition of the rights of investors as shareholders and the extent to which these rights are legally enforced, thus suggesting that greater investor protection helps reduce the perceived threat of expropriation of outside investors by corporate insiders and encourages more investors to participate in equity financing. The quality of a country's legal protection of minority shareholders, therefore, can potentially mitigate the magnitude of the negative relation between *Democracy* and IPO underpricing.

We employ a number of proxies for minority shareholder protection. More specifically, our proxies include *Shareholder rights*, based on the anti-director self-dealing rights index by country (Djankov et al., 2008; Spamann, 2010); *Security law*, which measures the average number of country-specific disclosure requirements by stock exchanges, liability standards, and public enforcement of legal contracts (La Porta et al., 2006); *Insider trading restrictions*, an index scoring a country in terms of its restrictions on insider trading (Denis and Xu, 2013); *Earnings opacity*, an index that scores a country in terms of the opacity of its earnings (Bhattacharya et al., 2003; Boulton et al., 2011); *Civil law*, a dummy with the value 1 if the IPO's jurisdiction belongs to the civil law family, and zero if it belongs to the common law family (in view of evidence on common (civil) law countries tending to offer greater (lesser)

protection to minority shareholders; La Porta et al., 1998); and *Emerging*, a dummy assuming the value of unity if the IPO's jurisdiction is formally classified as emerging by the International Monetary Fund, and zero otherwise (Lins, 2003).[12] Similar to the measures in previous tables, each of these proxies enters the baseline model both separately as well as in interaction with *Democracy*.

The results presented in Panel D of Table 7 show that IPO underpricing is dampened (amplified) in countries with higher scores in terms of shareholder rights, securities law, and insider trading restrictions (emerging market classification, greater earnings opacity, and belonging to the civil law legal family). These findings are consistent with previous literature (e.g., Boulton et al. 2010, 2011; Lin et al., 2013; Chen et al., 2020). More specifically, we find that the coefficients of the interaction terms for *Shareholder rights*, *Security law*, and *Insider trading* (*Earnings opacity*, *Civil law*, and *Emerging*) are significantly positive (negative), indicating that these variables moderate (amplify) the magnitude of the negative relation between *Democracy* and IPO underpricing. Collectively, our results demonstrate that the negative effect of institutional democracy on IPO underpricing is smaller in countries with better protection of minority investors.

5.5. Investor sentiment and economic policy uncertainty

Investor sentiment has been linked to IPO underpricing through a variety of avenues (Derrien, 2005; Cook et al., 2006; Cornelli et al., 2006; Ljungqvist et al., 2006; Bajo and Raimondo, 2017). For the most part, sentiment is related to the trades of retail investors, who have been traditionally viewed as key candidates for the role of noise traders in the market (Barber et al., 2009). Motivated by optimistic sentiment, retail investors can lead IPO firms'

[12] Emerging markets have traditionally been reported to accommodate institutional designs less protective of minority shareholders (Lins, 2003; Klapper and Love, 2004).

first-day prices to meteoric rises, with the effect being predictably stronger during bullish markets (Boulton et al., 2020).[13]

From a behavioral standpoint, the effect of sentiment on IPO underpricing hinges on a trade-off between risk and optimism. On one hand, prior research (Forgas, 1998; Schwarz, 1990) indicates that positive mood can reduce the perceived riskiness of a decision and prompt investors to employ heuristics (as opposed to rational processing) in decision making. On the other hand, the decision to invest in an IPO is in itself risky, considering that IPO firms have no prior price history and are young, immature, and informationally opaque. To the extent, therefore, that optimism (rather than fundamentals) would motivate retail investor participation in an IPO during positive-sentiment periods, one would expect the valuations of retail (and presumably uninformed) investors to be in excess of those of their institutional (presumably informed) peers. This argument, in turn, suggests the potential for the wide divergence of valuations that can encourage price overshooting for IPOs during positive-sentiment periods (Cornelli et al., 2006; Ljungqvist, 2007) and lead IPO firms to experience long-run underperformance (Ljungqvist et al., 2006).[14]

To assess the effect of investor sentiment on the relation between institutional democracy and IPO underpricing, we employ the monthly consumer confidence index (CCI) from the OECD as our proxy for investor sentiment.[15] We create a dummy (*High CCI*), which equals 1 if the issue date of the IPO falls within a month when the country's CCI is in the top quintile of all the months for a specific country in the sample, zero otherwise. In line with

[13] Boulton et al. (2020) show that IPO underpricing during high-sentiment periods exceeds underpricing during low-sentiment periods by 3% to 4%.

[14] The predictability in returns associated with sentiment-driven trading can prompt informed investors to engage in rational speculation to exploit the behaviour of their noise investor counterparts. Assuming underwriters set the offer price in excess of the IPO issue's intrinsic value (corresponding to institutional investor valuations) but below the valuation of retail investors, this can provide institutional investors the opportunity to profit from flipping their shares to retail investors in early aftermarket trading (Derrien, 2005; Ljungqvist et al., 2006).

[15] The data are available at https://data.oecd.org/leadind/consumer-confidence-index-cci.htm. The choice of consumer confidence index, a proxy of consumer sentiment, is motivated by the strong association of consumer sentiment with retail investor sentiment (De Long et al., 1990; Kumar and Lee, 2006).

previous tables, *High CCI* enters the baseline model both separately and in interaction with *Democracy*.

The results, presented in Table 7, Panel E (Model 1) demonstrate that high consumer sentiment is positively related to IPO underpricing. The coefficient estimate for the interaction term is negative and significant, thus suggesting that investor optimism helps amplify the negative effect of institutional democracy on IPO underpricing. The latter is consistent with the strong association of consumer sentiment with retail investor sentiment (De Long et al., 1990; Kumar and Lee, 2006), shown in prior work to promote IPO underpricing (Ljungqvist et al., 2006). Overall, these results showcase the larger negative effect of *Democracy* on IPO underpricing during optimistic periods, which are more susceptible to investor exuberance.

Another factor relevant to the *Democracy*–underpricing relation is economic policy uncertainty (Baker et al., 2016). To the extent that high (low) EPU can boost (dampen) the market's risk levels, one would expect investors to be less (more) willing to accept a high offer price for IPO firms during economically uncertain periods, thus potentially prompting higher (lower) underpricing levels. Accordingly, we postulate that the negative relation between democracy and IPO underpricing will be stronger during periods with high EPU, as the benefits of democracy in alleviating information asymmetry problems and promoting governance should be stronger during more uncertain times.

We use the measure of EPU proposed by Baker et al. (2016). Specifically, we measure EPU as the natural logarithm of the country-specific EPU index for the month–year of IPO listing. In the context of our estimations, *EPU* enters the baseline model both separately and in interaction with *Democracy*. The results, presented in Table 7, Panel E (Model 2), show that the interaction term *Democracy* * *EPU* assumes a significantly negative value, suggesting that the negative effect of institutional democracy on IPO underpricing becomes larger during periods with higher EPU.

[Table 7 about here]

6. Conclusions

Does democracy affect IPO underpricing? Using a global sample of 23,050 IPOs across 45 countries and a period spanning 1990 to 2020, we find that democracy has a significantly negative impact on IPO underpricing. A one standard deviation increase in the value of *Democracy* reduces average IPO first-day return by 7.64 percentage points or 29.31% of the average first-day IPO return. We further show that the level of information asymmetry, one of the key determinants of IPO underpricing, is lower in countries with higher levels of democracy. Our findings are robust to a battery of tests, including alternative measures of democracy, model specifications, subsamples, and tests to address omitted variable bias.

In cross-sectional analyses, we find that the relation between *Democracy* and IPO underpricing is attenuated when IPOs receive third-party certifications from reputable underwriters, have high-quality auditors, or are backed by venture capitalists. The influence of *Democracy* on IPO underpricing is larger in firms with high levels of principal–agent conflict and in countries with lower institutional development or weaker shareholder protection. *Democracy* also exerts a larger effect on IPO underpricing during periods characterized by higher economic policy uncertainty or higher investor sentiment. Overall, our results demonstrate the importance of institutional democracy in facilitating information flow and improving the functioning of economic institutions, leading to significant benefits to firms through lower costs of financing.

Appendix A
Variable Definitions and Sources

Advertising intensity	Advertising expenses divided by sales of the IPO firm at the time of listing. Source: Worldscope.
Asset turnover	Sales divided by total assets of the IPO firm at the time of listing. Source: Worldscope.
Asset utilization	Sales divided by number of employees of the IPO firm at the time of listing. Source: Worldscope.
Autocracy	The indicator is an additive 11-point scale (0–10). Zero indicates no institutional autocracy, and 10 indicates a maximum level of institutional autocracy in the country. Source: Polity V Project (2018).
Big 4 auditor	Dummy variable equal to 1 if the IPO firm is audited by a Big 4 auditing firm, and 0 otherwise. Source: SDC Platinum.
Bookbuilding	Dummy variable equal to 1 if IPO uses bookbuilding, and 0 otherwise. Source: SDC Platinum.
Civil law	Dummy variable equal to 1 if IPO firm is listed in a civil law country, and 0 otherwise. Source: La Porta et al. (1998).
Corruption perception	Country-specific corruption perception index. Source: Transparency International.
Democracy	The indicator is an additive 11-point scale (0–10). Zero indicates no institutional democracy, and 10 indicates a maximum level of institutional democracy. Source: Polity V Project (2018).
Democracy_ANRR	Dummy variable equal to 1 if IPO firm is listed in a country with institutional democracy, and 0 otherwise. Source: Acemoglu et al. (2019).
Democracy_BMR	Dummy variable equal to 1 if IPO firm is listed in a country with institutional democracy, and 0 otherwise. Source: Boix et al. (2013).
Democracy_CGV	Dummy variable equal to 1 if IPO firm is listed in a country with institutional democracy, and 0 otherwise. Source: Cheibub et al. (2010).
Democracy_FH	Continuous measure equal to 2 if country is a full democracy, 1 if it is a partial democracy, and 0 otherwise. Source: Freedom House.
Earnings opacity	Country-specific earnings opacity score. Source: Bhattacharya et al. (2003); Boulton et al. (2011).
Emerging	Dummy variable equal to 1 if the IPO firm is listed in an emerging market, and 0 otherwise. Source: IMF World Economic Outlook Database.
EPU	Natural logarithm of the country-specific economic policy uncertainty index for the month–year of IPO listing. Source: Baker et al. (2016).

Equity carve-out	Dummy variable equal to 1 if the IPO firm is a carve-out of a publicly listed firm, and 0 otherwise. Source: SDC Platinum
Executive constraints	The extent of institutionalized constraints on the decision-making power of chief executives, whether individuals or collectivities. Source: Polity V Project (2018).
Executive recruitment competitiveness	The extent that prevailing modes of advancement give subordinates equal opportunities to become super-ordinates. Source: Polity V Project (2018).
Executive recruitment openness	Recruitment of the chief executive is "open" to the extent that all politically active population has an opportunity, in principle, to attain the position through a regularized process. Source: Polity V Project (2018).
Financial freedom	The index scores an economy's financial freedom to ensure easy and effective access to financing opportunities for people and businesses in the economy. Source: Heritage Foundation
Free cash-flow	Operating income before depreciation minus taxes, interest expenses, and any dividend payment (both preferred and common), divided by total assets of the IPO firm at the time of listing. Source: Worldscope.
GDP per capita	Natural logarithm of country-specific GDP per capita in the year of the IPO firm listing. Source: World Bank WDI.
GDP growth	Country-specific GDP per capita growth in the year of IPO firm listing. Source: World Bank WDI.
High CCI	Dummy variable equal to 1 if the IPO is issued in a month when the country's Consumer Confidence Index is in the top quintile of all the months for a specific country in the sample, and 0 otherwise. Source: OECD Leading Indicators Database.
Hot issue market	Average initial return for IPOs issued during the three months prior to the month of the firm's IPO. Source: SDC Platinum.
Institutional quality	Country-specific measure of economic institutional quality in the year of the IPO firm listing. Source: Kunčič (2014).
Insider trading restrictions	Country-specific internal trading restriction index in the year of IPO firm listing. Source: Denis and Xu (2013).
IPO activity	Total number of IPOs in the issue year divided by the number of listed firms for the country of listing. Source: SDC Platinum / World Bank WDI.
IPO age	Logarithmic transformation of the sum of 1 and the difference in years since the firm was established up to the year of listing. Source: SDC Platinum / Worldscope.
IPO commitment	Dummy variable equal to 1 if the underwriter purchases securities from the issuer to be offered to the public, and 0 otherwise. Source: SDC Platinum.
IPO float	Regular shares issued to the public for trading divided by the total number of outstanding shares. Source: SDC Platinum.

IPO underpricing	IPO's first-day closing price minus the offer price, scaled by the offer price. Source: SDC Platinum / Datastream.
Leverage	Total debt divided by total assets of the IPO firm at the time of listing. Source: SDC Platinum / Worldscope.
Market liquidity	Country-specific total value of stock traded divided by GDP in the year of the IPO listing. Source: World Bank WDI.
Market return	Return on the country-specific benchmark value-weighted index over the three months preceding the offering. Source: Datastream.
Market-to-book	Market value of assets divided by total assets (book value of assets) of the IPO firm at the time of listing. Source: SDC Platinum / Worldscope.
Market size	Country-specific total market capitalization of stocks traded divided by GDP in the year of the IPO listing. Source: World Bank WDI.
Media censorship	Country-specific index for free and independent media in the year of the IPO firm listing multiplied by -1. Source: Williams (2015).
Offer size	Logarithmic transformation of total proceeds raised by the IPO firm (in millions of U.S. dollars) at the time of listing. Source: SDC Platinum.
One-week (Two-week or Four-week) underpricing	IPO closing price at the end of the first week (two weeks or four weeks) minus offer price, divided by offer price. Source: SDC Platinum / Datastream.
Operating expense	Operating expense divided by total assets of the IPO firm at the time of listing. Source: SDC Platinum / Worldscope.
Oversubscription	Dummy variable equal to 1 if the total volume of orders in the underwriting book exceeds the number of shares offered, and 0 otherwise. Source: SDC Platinum.
Participation competitiveness	The extent to which alternative preferences for policy and leadership can be pursued in the political arena. Source: Polity V Project (2018).
Political stability	Country-specific political stability index in the year of the IPO firm listing. Source: Worldwide Governance Indicators Project.
Polity	The Polity score is computed by subtracting the autocracy score from the Democracy score; the resulting unified polity scale ranges from + 10 (strongly democratic) to −10 (strongly autocratic). Source: Polity V Project (2018).
Press censorship	Country-specific index for free press in the year of IPO firm listing multiplied by -1. Source: Freedom House.
Price revision	Difference between the IPO offer price and the mid-point of the initial filing range, divided by the mid-point of the initial filing range. Source: SDC Platinum.
Proceed use	Dummy variable equal to 1 if the IPO prospectus discloses a specific purpose or rationale behind using IPO proceeds (e.g., investments, paying off debt,

	corporate restructure/expansion), and 0 if the firm discloses only a "General Corporate Purpose". Source: SDC Platinum.
Profitability	EBIT divided by total assets of the IPO firm at the time of listing. Source: SDC Platinum / Worldscope.
Regional democratization	Regional waves of democratization and transition to non-democracy, excluding information in the IPO listing country. Source: Acemoglu et al. (2019).
Regional unrest	Regional unrest, excluding information in the IPO listing country. Source: Acemoglu et al. (2019).
Return on assets	Net income divided by total assets of the IPO firm at the time of listing. Source: SDC Platinum / Worldscope.
Reversal autocracy	Dummy variable equal to 1 if there is a reversal from democracy to non-democracy in the country–year of IPO listing, and 0 otherwise. Source: Acemoglu et al. (2019).
Security law	Country-specific securities law variable for the year of IPO firm listing. Source La Porta et al. (2006) and World Bank Doing Business Indicator Database.
Shareholder rights	Country-specific shareholder rights index. Source: Djankov et al. (2008) and Spamann (2010).
Shares issued	Logarithmic transformation of total shares issued by the IPO firm at the time of listing. Source: SDC Platinum
Underwriter	Dummy variable equal to 1 if the investment bank underwriting the IPO is in the top quartile based on combined IPO proceeds, and 0 otherwise. Source: SDC Platinum
VC back	Dummy variable equal to 1 if the IPO firm is backed by venture capital, and 0 otherwise. Source: SDC Platinum.

References

Acemoglu, D., Naidu, S., Restrepo, P., Robinson, J.A., 2019. Democracy does cause growth. J. Polit. Econ. 127(1), 47-100. doi: https://doi.org/10.1086/700936

Aggarwal, R.K., Krigman, L., Womack, K.L., 2002. Strategic IPO underpricing, information momentum, and lockup expiration selling. J. Financ. Econ. 66(1), 105-137. doi: https://doi.org/10.1016/S0304-405X(02)00152-6

Ang, J.S., Cole, R.A., Lin, J.W., 2000. Agency costs and ownership structure. J. Finance 55(1), 81-106. doi: https://doi.org/10.1111/0022-1082.00201

Bajo, E., Raimondo, C., 2017. Media sentiment and IPO underpricing. J. Corp. Finance 46, 139-153. doi: https://doi.org/10.1016/j.jcorpfin.2017.06.003

Baker, S.R., Bloom, N., Davis, S.J., 2016. Measuring economic policy uncertainty. Quar. J. Econ. 131(4), 1593-1636. doi: https://doi.org/10.1093/qje/qjw024

Barber, B.M., Lee, Y., Liu, Y., Odean, T., 2009. Just how much do individuals lose by trading? Rev. Financ. Econ. 22(2), 609-632. doi: https://doi.org/10.1093/rfs/hhn046

Barro, R.J., 1996. Democracy and growth. J. Econ. Growth 1(1), 1-27. doi: https://doi.org/10.1007/BF00163340

Barro, R.J., 1999. Determinants of democracy. J. Polit. Econ. 107(S6), 158-183. doi: https://doi.org/10.1086/250107

Bates, R, H., Fayad, G., Hoeffler, A., 2012. The state of democracy in Sub-Saharan Africa. Inter. Area Stud. Rev. 15(4), 323-338. doi: https://doi.org/10.1177/2233865912462373

Bekaert, G., Harvey, C.R., 1995. Time-varying world market integration. J. Finance 50(2), 403-444. doi: https://doi.org/10.1111/j.1540-6261.1995.tb04790.x

Bekaert, G., Harvey, C.R., Lundblad, C., 2011. Financial openness and productivity. World Development 39(1), 1-19. doi: https://doi.org/10.1016/j.worlddev.2010.06.016

Bénassy-Quéré, A., Coupet, M., Mayer, T., 2007. Institutional determinants of foreign direct investment. World Econ. 30(5), 764-782. doi: https://doi.org/10.1111/j.1467-9701.2007.01022.x

Bhattacharya, U., Daouk, H., Welker, M., 2003. The world price of earnings opacity. Amer. Acc. Rev. 78(3), 641-678. doi: https://doi.org/10.2308/accr.2003.78.3.641

Blonigen, B.A., 2005. A review of the empirical literature on FDI determinants. Atlantic Econ. 33(4), 383-403. doi: https://doi.org/10.1007/s11293-005-2868-9

Boix, C., Miller, M., Rosato, S., 2013. A complete data set of political regimes, 1800-2007. Comp. Polit. Stud. 46(12), 1523-1554. doi: https://doi.org/10.1177/0010414012463905

Boulton, T.J., Smart, S.B., Zutter, C.J., 2010. IPO underpricing and international corporate governance. J. Int. Bus. Stud. 41(2), 206-222. doi: https://doi.org/10.1057/jibs.2009.38

Boulton, T.J., Smart, S.B., Zutter, C.J., 2011. Earnings quality and international IPO underpricing. Acc. Rev. 86(2), 483-505. doi: https://doi.org/10.2308/accr.00000018

Boulton, T.J., Smart, S.B., Zutter, C.J., 2017. Conservatism and international IPO underpricing. J. Int. Bus. Stud. 48(6), 763-785. doi: https://doi.org/10.1057/s41267-016-0054-8

Boulton, T.J., Smart, S.B., Zutter, C.J., 2020. Worldwide short selling regulations and IPO underpricing. J. Corp. Finance 62, 101596. doi: https://doi.org/10.1016/j.jcorpfin.2020.101596

Brennan, M.J., Franks, J., 1997. Underpricing, ownership and control in initial public offerings of equity securities in the UK. J. Financ. Econ. 45(3), 391-413. doi: https://doi.org/10.1016/S0304-405X(97)00022-6

Burkhart, R.E., Lewis-Back, M.S., 1994. Comparative democracy: the economic development thesis. Amer. Poli. Sci. Rev. 88(4), 903-910. doi: https://doi.org/10.2307/2082715

Busse, M., Hefeker, C., 2007. Political risk, institutions and foreign direct investment. Eur. J. Polit. Econ. 23(2), 397-415. doi: https://doi.org/10.1016/j.ejpoleco.2006.02.003

Cheibub, J.A., Gandhi, J., Vreeland, J.R., 2010. Democracy and dictatorship revisited. Public Choice 143(1/2), 67-101. doi: https://doi.org/10.1007/s11127-009-9491-2

Chemmanur, T., Yan, A., 2017. Product market advertising, heterogeneous beliefs, and the long-run performance of initial public offerings. J. Corp. Finance 46, 1-24. doi: https://doi.org/10.1016/j.jcorpfin.2017.06.010

Chen, K., Chen, Z., Wei, K., 2011. Agency costs of free cash flow and the effect of shareholder rights on the implied cost of equity capital. J. Financ. Quant. Anal. 46(1), 171–207. doi: https://doi.org/10.1017/S0022109010000591

Chen, Y., Goyal, A., Veeraraghavan, M., Zolotoy, L., 2020. Media coverage and IPO pricing around the world. J. Financ. Quant. Anal. 55(5), 1515-1553. doi: https://doi.org/10.1017/S0022109019000486

Chortareas, G.E., Girardone, C., Ventouri, A., 2013. Financial freedom and bank efficiency: evidence from the European Union. J. Ban. Finance 37(4), 1223-1231. doi: https://doi.org/10.1016/j.jbankfin.2012.11.015

Çolak, G., Durnev, A., Qian, Y., 2017. Political uncertainty and IPO activity: evidence from US gubernatorial elections. J. Financ. Quant. Anal. 52(6), 2523-2564. doi: https://doi.org/10.1017/S0022109017000862

Cook, D.O., Kieschnick, R., Van Ness, R.A., 2006. On the marketing of IPOs. J. Financ. Econ. 82(1), 35-61. doi: https://doi.org/10.1016/j.jfineco.2005.08.005

Cornelli, F., Goldreich, D., Ljungqvist, A., 2006. Investor sentiment and pre-IPO markets. J. Finance. 61(3), 1187-1216. doi: https://doi.org/10.1111/j.1540-6261.2006.00870.x

Curtin, D., Meijer, A.J., 2006. Does transparency strengthen legitimacy? Information Polity. 11(2), 109-122. doi: https://doi.org/10.3233/IP-2006-0091

De Long, J.B., Shleifer, A., Summers, L.H., Waldmann, R.J., 1990. Noise trader risk in financial markets. J. Polit. Econ. 98(4), 703–738. doi: https://doi.org/10.1086/261703

De Mesquita, B.B., Downs, G.W., Smith, A., Cherif, F.M., 2005. Thinking inside the box: a closer look at democracy and human rights. Inter. Stud. Quar. 49(3), 439-457. doi: https://doi.org/10.1111/j.1468-2478.2005.00372.x

Delis, M.D., Hasan, I., Ongena, S., 2020. Democracy and credit. J. Financ. Econ. 136(2), 571-596. doi: https://doi.org/10.1016/j.jfineco.2019.09.013

Demers, E., Joos. P., 2007. IPO failure risk. J. Acc. Res. 45(2), 333-371. doi: https://doi.org/10.1111/j.1475-679X.2007.00236.x

Denis, D.J., Xu, J., 2013. Insider trading restrictions and top executive compensation. J. Acc. Econ. 56(1), 91-112. doi: https://doi.org/10.1016/j.jacceco.2013.04.003

Derrien, F., 2005. IPO Pricing in “hot” market conditions: who leaves money on the table? J. Finance 60(1), 487-521. doi: https://doi.org/10.1111/j.1540-6261.2005.00736.x

Diamond, D.W., 1984. Financial intermediation and delegated meeting. Rev. Econ. Stud. 51(3), 393-414. doi: https://doi.org/10.2307/2297430

Diamond, D.W., 1991. Monitoring and reputation: the choice between bank loans and directly placed debt. J. Poli. Econ. 99(4), 689-721. doi: https://doi.org/10.1086/261775

Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2008. The law and economics of self-dealing. J. Financ. Econ. 88(3), 430-465. doi: https://doi.org/10.1016/j.jfineco.2007.02.007

Doidge, C., Karolyi, G.A., Stulz, R.M., 2007. Why do countries matter so much for corporate governance? J. Financ. Econ. 86(1), 1-39. doi: https://doi.org/10.1016/j.jfineco.2006.09.002

Doidge, C., Karolyi, G.A., Stulz, R.M., 2013. The US left behind? Financial globalization and the rise of IPOs outside the US. J. Financ. Econ. 110(3), 546-573. doi: https://doi.org/10.1016/j.jfineco.2013.08.008

Doidge, C., Karolyi, G.A., Stulz, R.M., 2017. The US listing gap. J. Financ. Econ. 123(3), 464-487. doi: https://doi.org/10.1016/j.jfineco.2016.12.002

Donchev, D., Ujhelyi, G., 2014. What do corruption indices measure? Econ. Polit. 26(2), 309-331. doi: https://doi.org/10.1111/ecpo.12037

Duong, H.N., Goyal, A., Kallinterakis, V., Veeraraghavan, M., 2021. Market manipulation rules and IPO underpricing. J. Corp. Finance. 67, 101846. doi: https://doi.org/10.1016/j.jcorpfin.2020.101846

Economou, F., Hassapis, C., 2015. Foreign direct investment inflows determinants in four South European economies. Inv. Manag. Financ. Innov. 12(3), 182-189.

Economou, F., Hassapis, C., Philippas, N., Tsionas, M., 2017. Foreign direct investment determinants in OECD and developing countries. Rev. Dev. Econ. 21(3), 527-542. doi: https://doi.org/10.1111/rode.12269

Ellul, A., Pagano, M., 2006. IPO underpricing and after-market liquidity. Rev. Financ. Stud. 19(2), 381-421. doi: https://doi.org/10.1093/rfs/hhj018

Espenlaub, S., Goyal, A., Mohamed, A., 2016. Impact of legal institutions on IPO survival: A global perspective. J.Financ.Stab.25,98-112. doi: https://doi.org/10.1016/j.jfs.2016.06.003

Espenlaub, S., Goyal, A., Mohamed, A., 2020. The impact of shareholders and creditors rights on IPO performance: an international study. Brit. Acc. Rev. 52(1), 100872. doi: https://doi.org/10.1016/j.bar.2019.100872

Fairbanks, J., Plowman, K.D., Rawlins, B.L., 2007. Transparency in government communication. J. Pub. Aff. 7(1), 23-37. doi: https://doi.org/10.1002/pa.245

Forgas, J.P., 1998. On feeling good and getting your way: mood effects on negotiator cognition and bargaining strategies. J. Pers. Soci. Psych. 74(3), 565-577. doi: https://doi.org/10.1037//0022-3514.74.3.565

Friedman, M., 1962. Capitalism and freedom. University of Chicago Press, Chicago.

Fung, A., 2013. Infotopia: unleashing the democratic power of transparency. Politics and Society. 41(2), 183-212. doi: https://doi.org/10.1177/0032329213483107

Gao, X., Ritter, J.R., Zhu, Z., 2013. Where have all the IPOs gone? J. Financ. Quant. Anal. 48(6), 1663-1692. doi: https://doi.org/10.1017/S0022109014000015

Giavazzi, F., Tabellini, G., 2005. Economic and political liberalizations. J. Monet. Econ. 52(7), 1297-1330. doi: https://doi.org/10.1016/j.jmoneco.2005.05.002

Helliwell, J.F., 1994. International growth linkages: evidence from Asia and the OECD. In: Ito, T., Krueger, A. (Eds.), Macroeconomic Linkage: Savings, Exchange Rates, and Capital Flows, NBER-EASE. University of Chicago Press, Chicago, Vol. 3, pp. 7-29.

Hollyer, J.R., Rosendorff, B.P., Vreeland, J.R., 2011. Democracy and transparency. J. Polit. 73(4), 1191-1205. doi: https://doi.org/10.1017/S0022381611000880

Jayasuriya, D., 2011. Improvements in the World Bank's ease of doing business rankings: do they translate into greater foreign direct investment inflows? The World Bank, Policy Research. Working paper 5787.

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. Ame. Econ. Rev. 76(2), 323-329.

Klapper, L.F., Love, I., 2004. Corporate governance, investor protection, and performance in emerging markets. J. Corp. Finance 10(5), 703-728. doi: https://doi.org/10.1016/S0929-1199(03)00046-4

Krifa-Schneider, H., Matei, I., 2010. Business climate, political risk and FDI in developing countries: evidence from panel data. Int. J. Econ. Finance. 2(5), 54-65. doi: https://doi.org/10.5539/ijef.v2n5p54

Kumar, A., Lee, C.M., 2006. Retail investor sentiment and return comovements. J. Finance. 61(5), 2451-2486. doi: https://doi.org/10.1111/j.1540-6261.2006.01063.x

Kunčič, A., 2014. Institutional quality dataset. J. Inst. Econ. 10(1), 135-161. doi: https://doi.org/10.1017/S1744137413000192

Kuran, T., 1989. Sparks and prairie fires: a theory of unanticipated political revolution. Public Choice 61(1), 41–74. doi: https://doi.org/10.1007/BF00116762

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R.W., 1998. Law and finance. J. Polit. Econ. 106(6), 1113–1155. doi: https://doi.org/10.1086/250042

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2006. What works in securities laws? J. Finance 61(1), 1-32. doi: https://doi.org/10.1111/j.1540-6261.2006.00828.x

Larcker, D.F. Rusticus, T.O., 2010. On the use of instrumental variables in accounting research. J. Acc. Econ. 49(3), 186-205. https://doi.org/10.1016/j.jacceco.2009.11.004

Leone, A.J., Rock, S., Willenborg, M., 2007. Disclosure of intended use of proceeds and underpricing of initial public offerings. J. Acc. Res. 45(1), 111–153. doi: https://doi.org/10.1111/j.1475-679X.2006.00229.x

Lin, H.L., Pukthuanthong, K., Walker, T.J., 2013. An international look at the lawsuit avoidance hypothesis of IPO underpricing. J. Corp. Finance 19, 56-77. doi: https://doi.org/10.1016/j.jcorpfin.2012.10.003

Lins, K.V., 2003. Equity ownership and firm value in emerging markets. J. Financ. Quant. Anal. 38(1), 159-184. doi: https://doi.org/10.2307/4126768

Ljungqvist, A., Wilhelm, Jr., W.J., 2003. IPO Pricing in the dot-com bubble. J. Finance. 58(2), 723-752. doi: https://doi.org/10.1111/1540-6261.00543

Ljungqvist, A., Nanda, V., Singh, R., 2006. Hot markets, investor sentiment, and IPO pricing. J. Bus. 79(4), 1667-1702. doi: http://dx.doi.org/10.1086/503644

Ljungqvist, A., 2007. IPO underpricing. In: Eckbo, B.E. (Ed.), Handbook of Corporate Finance: Empirical Corporate Finance. North Holland, Amsterdam, Vol. 1, pp. 375-418.

Lohmann, S., 1994. Dynamics of informational cascades: the Monday demonstrations in Leipzig, East Germany, 1989–1991. World Politics 47(1), 42–101. doi: https://doi.org/10.2307/2950679

Loughran, T., Ritter, J.R., 2004. Why has IPO underpricing changed over time? Financ. Manag. 33(3), 5-37.

Megginson, W.L., Weiss, K.A., 1991. Venture capitalist certification in initial public offerings. J. Finance 46(3), 879-903. doi: https://doi.org/10.1111/j.1540-6261.1991.tb03770.x

Menon, K., Williams, D.D., 1991. Auditor credibility and Initial Public Offerings. Acc. Rev. 66, 313-332.

O'Brien, R., 2007. A caution regarding rules of thumb for variance inflation factors. Quality and Quantity 41, 673-690. doi: https://doi.org/10.1007/s11135-006-9018-6

Papaioannou, E., Siourounis, G., 2008. Democratization and growth. Econ. J. 118(532), 1520-1551. doi: https://doi.org/10.1111/j.1468-0297.2008.02189.x

Persson, T., Tabellini, G., 2007. The growth effect of democracy: is it heterogenous and how can it be estimated? NBER. Working paper no. 13150.

Przeworski, A., Limongi, F., 1993. Political regimes and economic growth. J. Econ. Persp. 7(3), 51-69. doi: https://doi.org/10.1257/jep.7.3.51

Ritter, J.R., 1984. The "hot issue" market of 1980. J. Bus. 57(2), 215-240. doi: http://dx.doi.org/10.1086/296260

Roberts, M.R., Whited, T.M., 2013. Endogeneity in Empirical Corporate Finance. In: Constantinides, G.M., Harris, M., & Stulz, R.M. (Eds.), Handbook of the Economics of Finance. North Holland, Amsterdam, Vol. 2A, pp. 493-572.

Rodrik, D., Wacziarg, R., 2005. Do democratic transitions produce bad economic outcomes? Amer. Econ. Rev. 95(2), 50-55. doi: https://doi.org/10.1257/000282805774670059

Schwarz, N., 1990. Feelings as information: informational and motivational functions of affective states. In: Higgins, E.T., Sorrentino, R.M. (Eds.), Handbook of Motivation and Cognition: Foundations of Social Behavior. The Guilford Press, New York, Vol. 2, pp. 527-561.

Smart, S.B., Zutter, C.J., 2003. Control as a motivation for underpricing: a comparison of dual and single-class IPOs. J. Financ. Econ. 69(1), 85-110. doi: https://doi.org/10.1016/S0304-405X(03)00109-0

Spamann, H., 2010. The "antidirector right index" revisited. Rev. Financ. Stud. 23(2), 467-486. doi: https://doi.org/10.1093/rfs/hhp067

Stiglitz, J.E., 2010. Risk and global economic architecture: why full financial integration may be undesirable. Am. Eco. Rev. 100(2), 388-392. doi: https://doi.org/ 10.1257/aer.100.2.388

Stock, J.H., Wright, J.H., Yogo, M., 2002. A survey of weak instruments and weak identification in generalized method of moments. J. Bus. Econ. Stat. 20(4), 518–529. doi: https://doi.org/10.1198/073500102288618658

Tavares, J., Wacziarg, R., 2001. How democracy affects growth. Eur. Econ. Rev. 45(8), 1341-1378. doi: https://doi.org/10.1016/S0014-2921(00)00093-3

Walch, N., Wörz, J., 2012. The impact of country risk ratings and of the status of EU integration on FDI inflows in CESEE countries. Focus on European Economic Integration. 3, 8-26.

Williams, A., 2015. A global index of information transparency and accountability. J. Compa. Econ. 43(3), 804-824. doi: https://doi.org/10.1016/j.jce.2014.10.004

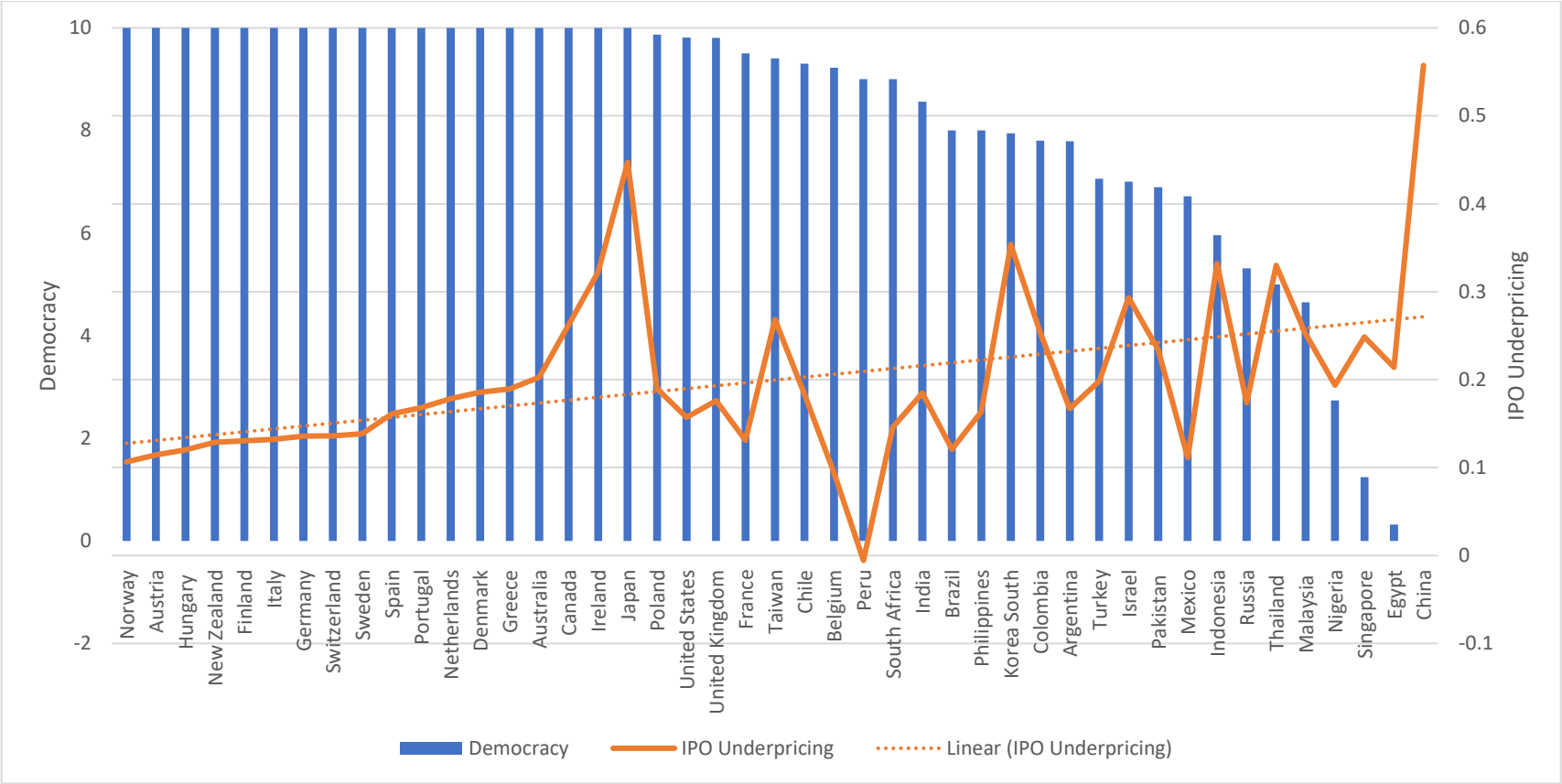

Fig. 1. Country-level Democracy and Average IPO Underpricing

Countries are reported from most to least country-level institutional democracy as illustrated by the bar heights. The line shows country average IPO underpricing. The trend line indicates that countries with lower democracy experience greater average IPO underpricing. The panel consists of 45 countries over the period 1990–2020. Variable definitions and sources are presented in Appendix A.

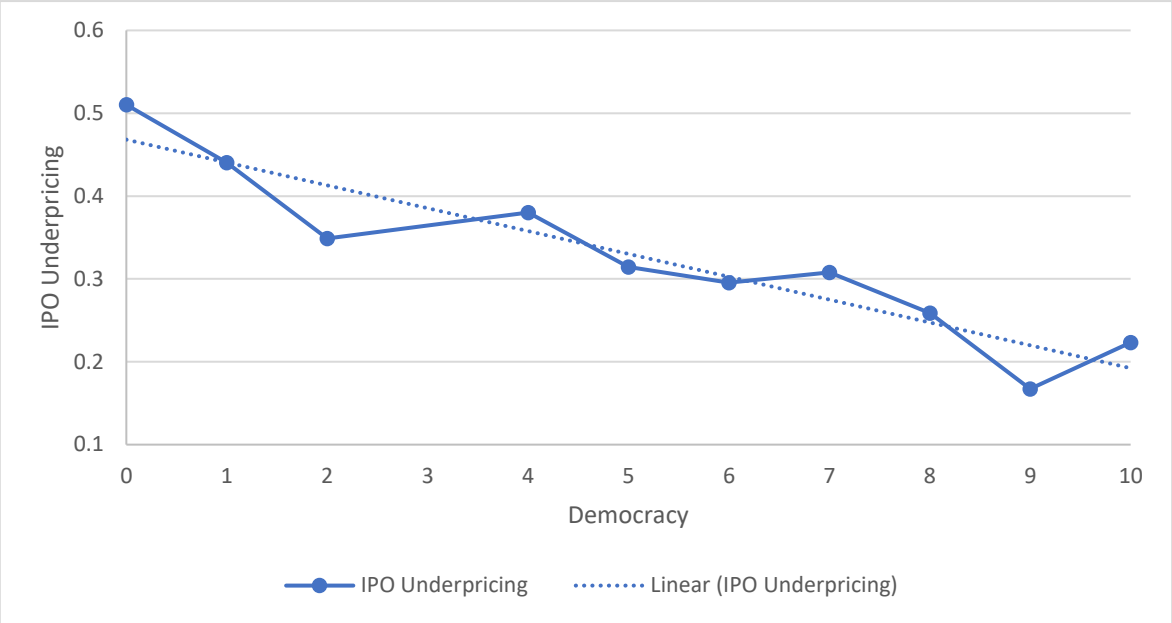

Fig. 2. Institutional Democracy and Average IPO Underpricing
We calculate average IPO underpricing at each level of institutional democracy on an 11-point scale of 0-10 (Polity V Project, 2018). The line shows average IPO underpricing. The trend line indicates that IPOs in the region of lower democracy experience greater average underpricing. The panel consists of 23,050 IPOs over the period 1990–2020. Variable definitions and sources are presented in Appendix A.

Table 1
Descriptive Statistics.
This table presents descriptive statistics of the variables used in the baseline regression analysis. Our sample consists of 23,050 IPOs across 45 countries from 1990 to 2020. Variable definitions and sources are presented in Appendix A.

Variables	Observations	Mean	Std. Dev.	10%	Median	90%
IPO underpricing	23,050	0.2607	0.4141	-0.1222	0.1133	0.7192
Democracy	23,050	8.0777	3.3633	0.0000	10.0000	10.0000
Offer size	23,050	3.3631	1.5895	1.2909	3.3877	5.4278
Profitability	23,050	0.0221	0.2698	-0.1452	0.0572	0.2087
Leverage	23,050	0.2464	0.2611	0.0000	0.1774	0.5858
Market-to-book	23,050	3.2708	4.6036	0.7200	2.0030	6.3250
IPO age	23,050	1.7093	1.3134	0.0000	1.9459	3.3673
Equity carve-out	23,050	0.1773	0.3819	0.0000	0.0000	1.0000
IPO commitment	23,050	0.6987	0.4588	0.0000	1.0000	1.0000
Bookbuilding	23,050	0.6151	0.4866	0.0000	1.0000	1.0000
Shares issued	23,050	3.3363	1.8643	1.1160	3.1477	5.8655
Underwriter	23,050	0.3492	0.4974	0.0000	0.0000	1.0000
Big 4 auditor	23,050	0.3054	0.4606	0.0000	0.0000	1.0000
VC back	23,050	0.1894	0.3918	0.0000	0.0000	1.0000
IPO activity	23,050	0.0947	0.0600	0.0291	0.0848	0.1782
Market return	23,050	0.0282	0.1091	-0.0859	0.0295	0.1263
GDP per capita	23,050	9.7737	1.3112	7.6043	10.3079	10.8594
GDP growth	23,050	0.0304	0.0270	0.0058	0.0257	0.0672
Market size	23,050	1.3240	1.8468	0.4518	0.9100	1.5544
Market liquidity	23,050	1.1192	1.1131	0.2543	0.8597	2.2238

Table 2

Democracy and IPO Underpricing: Baseline Regression Results.

This table presents regression results for the relation between institutional democracy in a country and IPO underpricing. Our sample consists of 23,050 IPOs across 45 countries from 1990 to 2020. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity and clustered at the country level. Models 1-3 include IPOs for all 45 countries, while Model 4 is restricted to only those 21 countries that experienced at least one change in Democracy over the sample period. Constant, country fixed effects (depending upon the model), industry fixed effects based on Fama–French 12-industry classification, and year of listing fixed effects are included in the regressions. Variable definitions and sources are presented in Appendix A.

Dependent Variable	IPO Underpricing							
	Model 1		Model 2		Model 3		Model 4	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Democracy	-0.0239	-25.64	-0.0262	-23.43	-0.0227	-18.23	-0.0122	-3.84
Offer size			-0.0462	-13.49	-0.0516	-14.69	-0.0374	-9.46
Profitability			0.0337	2.79	0.0358	2.94	0.0085	0.58
Leverage			-0.0387	-3.94	-0.0354	-3.59	-0.0457	-4.48
Market-to-book			0.0052	6.78	0.0051	6.62	0.0009	1.26
IPO age			0.0174	9.39	0.0172	9.31	0.0078	3.69
Equity carve-out			-0.0160	-2.60	-0.0114	-1.83	-0.0086	-1.17
IPO commitment			0.0412	7.01	0.0290	5.03	-0.0102	-1.19
Bookbuilding			0.0036	0.55	-0.0016	-0.24	-0.0254	-2.67
Shares issued			-0.0096	-4.90	-0.0072	-3.51	0.0276	9.95
Underwriter			0.0601	6.35	0.0594	6.24	0.0505	4.84
Big 4 auditor			-0.0067	-1.06	-0.0093	-1.42	-0.0154	-2.38
VC back			0.0767	8.92	0.0696	7.98	0.0063	0.76
IPO activity					-0.2463	-4.97	-0.0018	-0.03
Market return					0.1846	7.63	0.1738	6.73
GDP per capita					0.0087	3.43	0.0408	1.89
GDP growth					1.3390	8.05	-0.2493	-1.40
Market size					-0.0168	-6.73	0.0180	4.27
Market liquidity					0.0454	9.59	0.0416	5.28
Country FE	No		No		No		Yes	
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
Observations	23,050		23,050		23,050		14,606	
Adjusted R^2	0.0803		0.1156		0.1249		0.0916	

Table 3

Information Asymmetry, Democracy and IPO Underpricing: Effect of Democracy through Information Asymmetry Channel on IPO Underpricing.

This table presents regression results for the relation between institutional democracy and different proxies of information asymmetry in a country and then the relation of these proxies to IPO underpricing. Our sample consists of 23,050 IPOs across 45 countries from 1990 to 2020. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity and clustered at the country level. Constant, country fixed effects (depending upon the model), industry fixed effects based on Fama–French 12-industry classification, and year of listing fixed effects are included in the regressions. Variable definitions and sources are presented in Appendix A.

Dependent Variable	Media censorship		IPO Underpricing		Press censorship		IPO Underpricing		Earnings opacity		IPO Underpricing	
	Model 1a		Model 1b		Model 2a		Model 2b		Model 3a		Model 3b	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Democracy	-0.0116	-6.73			-0.0454	-16.36			-0.1089	-2.81		
Media censorship			0.3543	4.75								
Press censorship							0.5431	7.83				
Earnings opacity											0.0669	20.35
Offer size			-0.0496	-14.13			-0.0300	-8.12			-0.0522	-14.79
Profitability			0.0306	2.53			0.0354	2.88			0.0246	2.03
Leverage			-0.0365	-3.76			-0.0211	-2.07			-0.0433	-4.38
Market-to-book			0.0048	6.54			0.0064	7.78			0.0049	6.40
IPO age			0.0085	4.51			0.0090	4.79			0.0093	4.90
Equity carve-out			-0.0203	-3.25			-0.0191	-2.94			-0.0110	-1.74
IPO commitment			0.0124	1.72			0.0217	2.89			0.0138	2.33
Bookbuilding			0.0045	0.57			-0.0093	-1.12			0.0029	0.43
Shares issued			0.0046	1.92			0.0003	0.13			0.0075	3.89
Underwriter			0.0320	3.33			0.0366	3.72			0.0540	5.61
Big 4 auditor			0.0105	1.55			0.0033	0.47			0.0174	2.47
VC back			0.0422	5.05			0.0259	2.86			0.0720	8.50
IPO activity			-0.4397	-7.08			-0.5014	-8.17			-0.2494	-4.75
Market return			0.1827	6.42			0.1490	5.26			0.2036	7.83
GDP per capita			-0.0562	-4.81			-0.0644	-4.88			0.0427	13.84
GDP growth			1.0982	6.52			1.1732	6.85			1.9277	11.10
Market size			0.0003	0.07			-0.0007	-0.16			-0.0416	-15.94
Market liquidity			0.0572	9.35			0.0572	9.29			0.0708	14.40
Country FE	No		Yes		No		Yes		No		No	
Industry FE	No		Yes		No		Yes		No		Yes	

Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	210	23,050	205	20,280	67	22,642
Adjusted R^2	0.4462	0.1718	0.6066	0.1572	0.4325	0.1329

Table 4

Democracy and IPO Underpricing: Components of Democracy Index from Polity V Project (2018).

This table presents regression results for the four components of democracy and IPO underpricing. Our sample consists of 14,606 IPOs across 21 countries that experienced at least one change in Democracy from 1990 to 2020. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity and clustered at the country level. Constant, country fixed effects, industry fixed effects based on Fama–French 12-industry classification, and year of listing fixed effects are included in all regressions. Variable definitions and sources are presented in Appendix A.

Dependent Variable	IPO Underpricing									
	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Executive recruitment competitiveness	-0.0260	-2.89							-0.0122	-0.58
Executive recruitment openness			-0.0194	-3.02					-0.0126	-1.11
Executive constraints					-0.0124	-2.08			-0.0158	-1.79
Participation competitiveness							-0.0479	-5.74	-0.0499	-5.80
Offer size	-0.0371	-9.40	-0.0372	-9.43	-0.0371	-9.39	-0.0373	-9.44	-0.0373	-9.43
Profitability	0.0083	0.57	0.0077	0.53	0.0087	0.59	0.0065	0.44	0.0056	0.38
Leverage	-0.0454	-4.46	-0.0450	-4.42	-0.0456	-4.48	-0.0464	-4.55	-0.0460	-4.50
Market-to-book	0.0009	1.27	0.0009	1.27	0.0009	1.28	0.0009	1.22	0.0008	1.21
IPO age	0.0075	3.54	0.0074	3.48	0.0079	3.70	0.0087	4.09	0.0083	3.89
Equity carve-out	-0.0094	-1.28	-0.0098	-1.33	-0.0095	-1.28	-0.0070	-0.95	-0.0072	-0.97
IPO commitment	-0.0104	-1.21	-0.0128	-1.52	-0.0127	-1.50	-0.0117	-1.40	-0.0109	-1.24
Bookbuilding	-0.0256	-2.69	-0.0250	-2.62	-0.0261	-2.74	-0.0232	-2.44	-0.0221	-2.33
Shares issued	0.0276	9.97	0.0279	10.06	0.0274	9.88	0.0271	9.82	0.0274	9.88
Underwriter	0.0507	4.87	0.0511	4.91	0.0508	4.87	0.0497	4.74	0.0499	4.76
Big 4 auditor	-0.0157	-2.43	-0.0155	-2.40	-0.0157	-2.44	-0.0142	-2.20	-0.0139	-2.16
VC back	0.0070	0.85	0.0072	0.87	0.0065	0.79	0.0055	0.66	0.0062	0.75
IPO activity	0.0100	0.14	-0.0135	-0.19	0.0038	0.05	-0.0365	-0.51	-0.0466	-0.63
Market return	0.1731	6.70	0.1715	6.65	0.1725	6.68	0.1740	6.75	0.1736	6.73
GDP per capita	0.0260	1.24	0.0194	0.92	0.0224	1.07	0.0806	3.36	0.0825	3.47
GDP growth	-0.2821	-1.58	-0.2593	-1.46	-0.2449	-1.38	-0.2883	-1.61	-0.3209	-1.78
Market size	0.0163	3.91	0.0155	3.74	0.0166	3.91	0.0166	4.00	0.0156	3.68
Market liquidity	0.0406	5.14	0.0405	5.13	0.0423	5.37	0.0429	5.46	0.0410	5.16
Country FE	Yes		Yes		Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes		Yes	
Observations	14,606		14,606		14,606		14,606		14,606	
Adjusted R^2	0.0909		0.0910		0.0904		0.0929		0.0935	

Table 5

Democracy and IPO Underpricing: Robustness Tests.

This table presents results of robustness tests for the relation between institutional democracy and IPO underpricing. For brevity, the table reports only the coefficients of *Democracy* and additional controls. Our sample consists of 23,050 IPOs across 45 countries from 1990 to 2020. Panel A reports the results for alternative proxies of democracy. Panel B reports the effect of democracy on different measures of IPO underpricing. Panel C reports robustness of the findings after including additional controls variables. Panel D reports results for the country-level analysis. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity and clustered at the country level. Control variables, constant, industry fixed effects based on Fama–French 12-industry classification, and year of listing fixed effects are included in all regressions. Variable definitions and sources are presented in Appendix A.

Panel A: Alternative proxies of institutional democracy				
(1) Polity from the Polity V Project (2018)				
Dependent variable:	IPO underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Polity	-0.0160	-20.69	23,050	0.1284
(2) Democracy from Freedom House				
Dependent variable:	IPO underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy_FH	-0.1482	-21.51	22,894	0.1313
(3) Democracy from Acemoglu et al. (2019)				
Dependent variable:	IPO underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy_ANRR	-0.1434	-14.48	21,768	0.1274
(4) Democracy from Boix et al. (2013)				
Dependent variable:	IPO underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy_BMR	-0.1484	-12.29	13,265	0.1149
(5) Democracy from Cheibub et al. (2010)				
Dependent variable:	IPO underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy_CGV	-0.1377	-10.36	13,472	0.1248
(6) Autocracy from Polity V Project (2018)				
Dependent variable:	IPO underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Autocracy	0.0431	22.67	23,050	0.1317
(7) Reversal autocracy from Acemoglu et al. (2019)				
Dependent variable:	IPO underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Reversal autocracy	0.0125	1.79	21,768	0.0980

Panel B: Alternative measures of IPO Underpricing				
(1) IPO return over one week after listing				
Dependent variable:	One-week Underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy	-0.0320	-14.86	18,053	0.2298
(2) IPO return over two weeks after listing				
Dependent variable:	Two-week Underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy	-0.0265	-15.24	18,057	0.2258
(3) IPO return over four weeks after listing				
Dependent variable:	Four-week Underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy	-0.0191	-12.14	18,057	0.1699

Panel C: Additional controls		
Dependent variable:	IPO Underpricing	
	Coeff.	t-stat.
Democracy	-0.0275	-10.85
Oversubscription	-0.0833	-4.69
IPO float	0.0045	0.64
Asset turnover	0.2267	2.67
Free cash-flow	0.0002	0.13
Advertising intensity	0.2127	3.69
Price revision	0.4943	3.68
Hot issue market	-0.0160	-0.97
Political stability	0.0166	0.66
Observations	9,636	
Adjusted R Sq.	0.2003	

Panel D: Alternative model specification - Country-level analysis				
Dependent variable:	IPO Underpricing			
	Coeff.	t-stat.	Observations	Adjusted R^2
Democracy	-0.0110	-3.36	1,011	0.1309

Table 6

Democracy and IPO Underpricing: Instrumental Variable Analysis.

This table presents results for the instrumental variable estimation. Our sample consists of 23,050 IPOs across 45 countries from 1990 to 2020. The analysis is performed using instrumental variable (IV) analysis, with t-statistics computed using standard errors robust to heteroscedasticity and clustered at the country level. Model 1 includes IPOs for all 45 countries, while Model 2 is restricted to only those 21 countries that experienced at least one change in Democracy over the sample period. Constant, country fixed effects (depending upon the model), industry fixed effects based on Fama–French 12-industry classification, and year of listing fixed effects are included in the regressions. Variable definitions and sources are presented in Appendix A.

	Model 1				Model 2			
Dependent Variables	Democracy		Underpricing		Democracy		Underpricing	
	Stage 1		Stage 2		Stage 1		Stage 2	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Regional democratization	5.7856	8.75			1.9076	1.76		
Regional unrest	-0.1973	-2.06			-0.3148	-2.65		
Fitted democracy			-0.0266	-12.07			-0.1448	-2.78
Offer size	0.0490	3.66	-0.0540	-14.97	-0.0559	-4.26	-0.0437	-6.47
Profitability	-0.2099	-5.96	0.0407	3.20	0.0005	0.02	0.0223	1.40
Leverage	0.2801	6.90	-0.0308	-3.07	0.0258	0.76	-0.0421	-3.65
Market-to-book	-0.0049	-2.52	0.0053	6.86	-0.0012	-0.70	0.0010	1.35
IPO age	-0.0091	-1.00	0.0168	8.81	-0.0121	-1.40	0.0064	2.39
Equity carve-out	-0.0539	-1.66	-0.0149	-2.42	0.0672	2.28	-0.0041	-0.41
IPO commitment	-0.1472	-4.75	0.0347	5.71	0.2387	6.39	0.0270	1.15
Bookbuilding	-0.1906	-5.58	-0.0093	-1.34	0.0731	2.12	-0.0125	-1.03
Shares issued	-0.2595	-21.43	-0.0063	-2.71	0.0623	4.05	0.0360	5.81
Underwriter	-0.3655	-11.14	0.0523	5.38	-0.0033	-0.12	0.0442	3.82
Big 4 auditor	0.2158	9.04	0.0017	0.25	0.0243	1.40	-0.0098	-1.35
VC back	-0.4062	-14.26	0.0664	7.49	-0.0266	-1.61	-0.0027	-0.31
IPO activity	-10.9869	-25.10	-0.2028	-3.54	-0.9965	-2.42	0.0908	0.72
Market return	0.2269	1.98	0.1861	7.16	0.3148	2.40	0.1844	4.30
GDP per capita	0.2119	10.13	0.0207	7.65	1.5505	10.49	0.2591	1.79
GDP growth	-23.3111	-18.30	1.3661	6.48	6.4595	5.81	0.2317	0.40
Market size	-0.3393	-8.38	-0.0625	-9.50	-0.1939	-4.56	0.0502	2.50
Market liquidity	-0.1091	-4.03	0.0491	9.77	-0.0646	-1.36	0.0125	0.90
Country FE	No		No		Yes		Yes	
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
Observations	21,768		21,768		13,324		13,324	
Adjusted R^2	0.7768		0.1264		0.8176		0.0874	
Excluded IV Test								
F-Statistics	2475.71				124.23			
Probability	0.000				0.000			
Hansen-Sargan Test								
Chi-square Statistics	0.676				0.268			
Probability	0.411				0.605			

Table 7

Democracy and IPO Underpricing: Moderating Effect of IPO-Level and Country-Level Characteristics.

This table presents regression results for the effects of certification and disclosure specificity (Panel A), principal–agent conflict (Panel B), development of country-level institutional setup (Panel C), country-level minority shareholder protection characteristics (Panel D), and investor sentiment and domestic economic policy uncertainty (Panel E) on the relation between democracy and IPO underpricing. Our sample consists of 23,050 IPOs across 45 countries from 1990 to 2020. The regressions are performed by OLS, with *t*-statistics computed using standard errors robust to heteroskedasticity and clustered at the country level. Control variables, constants, industry fixed effects based on Fama–French 12-industry classification, and year of listing fixed effects are included in all regressions. Variable definitions and sources are presented in Appendix A.

Panel A: Moderating Effect of Certification and Disclosure Specificity						
Dependent Variable	IPO Underpricing					
	Model 1		Model 2		Model 3	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Democracy	-0.0257	-19.55	-0.0240	-18.30	-0.0255	-17.02
Democracy * Big 4 auditor	0.0235	8.33				
Big 4 auditor	-0.2256	-0.50				
Democracy * VC back			0.0075	3.95		
VC back			0.0102	0.64		
Democracy * Proceed use					0.0047	2.64
Proceed use					0.0576	3.43
Control Variables	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Observations	23,050		23,050		23,050	
Adjusted R^2	0.1274		0.1255		0.1366	

Panel B: Moderating Effect of Principal – Agent Conflict										
Dependent Variable	IPO Underpricing									
	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Democracy	-0.0197	-11.95	-0.0211	-14.87	-0.0260	-15.93	-0.0231	-15.54	-0.0239	-16.37
Democracy * Free cash-flow	-0.0116	-2.93								
Free cash-flow	0.3467	9.46								
Democracy * Operating expense			-0.0171	-2.32						
Operating expense			0.2923	4.49						
Democracy * Asset turnover					0.0039	3.11				
Asset turnover					-0.0223	-1.93				
Democracy * Asset utilization							0.0031	1.72		

Asset utilization				-0.0337	-2.01	
Democracy * Return on assets					0.0146	1.90
Return on assets					-0.0857	-1.05
Control Variables	Yes	Yes	Yes	Yes	Yes	
Industry FE	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	
Observations	21,505	19,564	23,050	15,695	23,008	
Adjusted R^2	0.1546	0.1269	0.1257	0.1506	0.1245	

Panel C: Moderating Effect of Development of Country-Level Institutional Setup

Dependent Variable	IPO Underpricing					
	Model 1		Model 2		Model 3	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Democracy	-0.0393	-13.45	-0.0693	-17.25	-0.0913	-12.79
Democracy * Financial freedom	0.0443	8.32				
Financial freedom	-0.7230	-15.44				
Democracy * Institutional quality			0.0857	13.62		
Institutional quality			-1.0744	-17.99		
Democracy * Corruption perception					0.1117	9.82
Corruption perception					-1.3638	-10.89
Control Variables	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Observations	23,050		23,050		23,050	
Adjusted R^2	0.1384		0.1354		0.1310	

Panel D: Moderating Effect of Country-Level Minority Shareholder Protection

Dependent Variable	IPO Underpricing											
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Democracy	-0.0639	-25.20	-0.0760	-14.88	-0.0888	-18.14	-0.0458	-7.27	-0.0141	-8.41	-0.0120	-6.63
Democracy * Shareholder rights	0.0130	19.75										
Shareholder rights	-0.0840	-17.56										
Democracy * Security law			0.0234	10.09								
Security law			-0.2575	-12.64								
Democracy * Insider trading restrictions					0.0161	14.79						

Insider trading restrictions			-0.1380	-14.64		
Democracy * Earnings opacity					-0.0091	-10.02
Earnings opacity					0.1322	15.8
Democracy * Civil law						
Civil law						
Democracy * Emerging						
Emerging						
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,050	23,050	22,926	22,642	23,050	23,050
Adjusted R^2	0.1402	0.1308	0.1337	0.1418	0.1405	0.1346

Democracy * Earnings opacity						
Earnings opacity						
Democracy * Civil law	-0.0116	-5.59				
Civil law	0.2163	12.23				
Democracy * Emerging			-0.0384	-15.84		
Emerging			0.2203	10.44		
Control Variables	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Observations	23,050		23,050		23,050	
Adjusted R^2	0.1405		0.1346		0.1346	

Panel E: Effect of Investor Sentiment and Economic Policy Uncertainty

Dependent Variable	IPO Underpricing			
	Model 1		Model 2	
	Coeff.	t-stat.	Coeff.	t-stat.
Democracy	-0.0129	-4.88	-0.0134	-1.84
Democracy * High CCI	-0.0072	-3.62		
High CCI	0.0737	4.09		
Democracy * EPU			-0.0030	-1.98
EPU			-0.0003	-0.02
Control Variables	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Observations	16,926		17,835	
Adjusted R^2	0.1745		0.1555	