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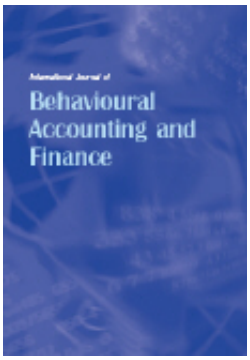


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# Gender diversity, country norms and capital markets post-COVID-19

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# Gender diversity, country norms and capital markets post-COVID-19

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**Abstract:** Gender norms – that is, the prevailing attitudes toward women's right to earn an income, women's access to education, and society's prevailing opinions regarding women's abilities to be effective business or political leaders – substantially differ across countries. In the presence of the exogenous shock from the COVID-19 lockdown and social distancing, countries with a less favourable view of women in the workforce experience lower losses. We also find that the association between gender norms and shares of domestic investment in a country's equity market is further amplified in countries associated with greater levels of mutual trust perceived by their citizens. Our findings underscore the crucial role of the female population in market development around the world.

**Keywords:** gender norms; women's rights; trust; capital market development; COVID-19.

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**Biographical notes:** Dobrina Jandik is a Finance Professor at the Sam M. Walton College of Business at the University of Arkansas. Prior to that she was an Assistant and subsequently Associate Professor of Finance at the University of St. Thomas, Minnesota. Her research is focused on international finance, empirical corporate finance and the role of social networks.

## 1 Introduction

The main goal of this research is to analyse the role of gender inequality and country gender attitudes on the stock market reaction during and preceding the COVID-19 crisis of 2020. We highlight country gender norms as determinants of the market reactions to COVID. Countries around the world had different reactions to the news of the new virus and the pandemic that started in spring 2020.

Countries with female leadership had better responses and management of the crisis, possibly explained by their "proactive and coordinated response". New Zealand and Germany had significantly fewer deaths compared to countries with male leaders. Lockdowns in female-led countries started earlier and thus they experienced fewer cases

and deaths – as much as six times fewer (European Centre for Disease Prevention and Control).

While the standard expectations of the role of formal and informal institutions are well defined and studied in the literature, COVID-19 presented an external shock that changed the dynamics of decisions making for households and corporations. Unambiguously, the literature has established that female participation in leadership leads to improved corporate decision-making, better return on portfolio investments, and optimal development of capital markets (Daugherty and Jandik, 2020; Ding et al., 2020). However, the impact of COVID may change these outcomes.

Under these unusual and uncertain circumstances, there were losses. With this research, we identify the magnitude of these losses. On one hand, immediately after the announcement of the lockdown, stock markets and indexes were depressed. For countries with lower female participation in leadership (which leads to bigger losses already), we expect the incremental losses due to COVID-19 to be lower (due to the already depressed values). We study the role of female participation in economic activities in unusual settings. Under normal settings, we expect countries with reduced female participation to experience losses. However, under the unusual circumstances of COVID-19, decreasing female participation in business activities (that is, reducing the exposure to infection of the female population – relatively half of the general demographics) may be beneficial or at least reduce the losses. Ultimately, reducing women's participation in the labour force during the pandemic facilitated social distancing.

We hypothesise that the behaviour of the dealers in times of uncertainty and the reaction of the market participants to unpredictable events are determined by the norms and attitudes of the country. In particular, we focus our attention on country-specific gender norms and generally accepted paradigms about the role of women in society and their respective contributions within the family. Our main variables of interest are perceptions toward women's right to earn an income higher than men, their right to access education, and their perceived ability to be political or business leaders. Consequently, these gender attitudes determine the behaviour of both male and female market participants and, therefore, the return of the market index in times of distress.

Prior research shows that country attitudes and gender norms determine the size of capital markets and the magnitudes of investor participation (Daugherty and Jandik, 2020). This issue has been the subject of several studies in recent years. The most important impact on the development of capital markets in existing research has been the role of formal institutions (for this research, legal constructs are 'formal' institutions while culture, country norms, and perceptions are 'informal, institutions). Several papers show that stronger formal institutions lead to better developed and more transparent capital markets, minority shareholder protection, and investor confidence as well as improved corporate governance (Brown et al., 2017; Djankov et al., 2008; Johnson et al., 2000; La Porta et al., 2002; Rajan and Zingales, 1998; Giannetti and Koskinen, 2010).

In addition to formal institutions, capital market development is dependent on informal institutions. There are various measures of cultural norms, traditions, and perceptions used in the finance literature. Research suggests that cultural differences play a role in investors' decisions to invest internationally (Ahern et al., 2015; Lee et al., 2009; Karoyi, 2016: Stulz and Williamson, 2003). Cultural distance between countries determines the willingness of managers to engage in cross-border cooperation (Chakrabarti, 2008), religion is known to impact the development and functioning of

credit markets, and culture impacts a household's desire to invest in local markets (Guiso et al., 2008).

We also study the tendency of people to trust or expect strangers to be trustworthy and the role that plays in the market. The key to social behaviour during the COVID-19 quarantine is trust. Social distancing relies on citizens' trust in authority and in the other members of society to follow the social contract and distancing rules. Social distancing only works if everybody believes in it and follows the rules. The other key component of quarantine is the desire for compliance; in this paper, we study the role of a nation's perception of teaching obedience when raising children. Countries with individualistic characteristics would tend to question authority and make independent decisions while countries with a collectivistic mentality and countries that highly value obedience would have a greater level of protection during pandemics; therefore, their financial market may experience fewer losses.

Our study stands at the intersection of three different strands of literature that explain the role of cross-border country norms in finance.

The first area is household finance. If a country develops gender norms that are inclusive to women in business and political leadership as well as financial literacy, that will lead to increased household investments in capital markets and therefore greater developments of these markets. This can be achieved through education (Karamoko et al., 2017), especially in developing countries where the challenges on the road to education often surpass the disadvantages of the lack of education. Several studies – Campbell (2006), Van Rooij et al. (2011) and Brown et al. (2019) – point to the link between household finance and financial market development.

The second area to position our research is from the perspective of social networks. Education is a gateway to social networking and allowing women to actively participate significantly increases the degree of connectedness of half of the population of the world. The importance of forming a social network is already extensively studied in the literature. From a financial viewpoint, one of the greatest advantages of social networks is the improved information exchange, which reduces information asymmetry (Nhapiet and Ghosal, 1998; Brass and Labianca, 2006; Burt, 2005; Newman, 2010).[1] Ultimately, the reduction of the information asymmetry would, through social networks, lead to more trust in the markets and greater stock market participation by households.

The third intersection area of our study is the issue of gender inequality and inclusion. Existing research documents low participation of female employees in leadership positions in the workforce (Adams and Kirchmaier, 2016). Including women in the workforce and providing education opportunities leads to greater awareness of investments in households and nationally, and therefore more active participation in the stock markets and higher returns. Interestingly, there is academic research on the role of female children in a family and the corporate behaviour of fathers of girls – female firm managers or male managers who are fathers of daughters are more likely to create inclusive, corporate socially-responsible (CSR) environments in their firms (Tate and Yang, 2015; Cronqvist and Yu, 2017). The reverse also holds true – a lack of interaction with female role models during formative years can lead to suboptimal investment allocation decisions by male firm executives (Duchin et al., 2019). Recent finance research shows that investors positively value firm engagement in CSR activities, as CSR-intensive firms are perceived to be more trustworthy by investors (Lins et al., 2017). All of these factors will impact the willingness of women in particular to invest in financial markets and subsequently will lead to greater liquidity and higher returns.

Research suggests that female participation in leadership will increase firm values (Bennouri et al., 2018; Campbell and Minguez-Vera, 2008). Female fund managers have shown the potential to outperform male fund managers when everything else is equal (Barber and Odean, 2001).

Data for country norms and attitudes come from The World Values Survey (WVS; http://www.worldvaluessurvey.org). The WVS covers over 400,000 respondents living in nearly 100 countries (over six survey waves spanning from 1981 to 2014) and provides answers to more than 250 survey questions focused on social values and attitudes, societal well-being, social capital and trust, economic values, corruption, migration, science, religion, security, ethical values and norms, politics, and demography. We assess the attitudes toward women's right to earn income by the extent of agreement with the following statements: "When jobs are scarce, men should have more right to a job than women", and "It is a problem if women earn more income than men". We evaluate the attitudes toward women's right to access education by the extent of participants' agreement with the statement, "A university education is more important for a boy than a girl". We judge the attitudes toward the perceived abilities of women to be political or business leaders by the extent of agreement with the statement, "On the whole, men make better business executives than women", and "On the whole, men make better political leaders than women". It should be noted that high agreement with any of the above statements (asserting that women do *not* have the right to earn income, the right to gain education, or the ability to be leaders) is indicative of a society where the female population is disadvantaged and/or marginalised. We study the role of country gender norms and attitudes and the overall level of trust and obedience – these are the informal institutions. We also control for the role of the formal institutions' "modified anti-director rights" (La Porta et al., 2006) to control for the quality and development of the country's legal system. The dependent variable in our study is stock market returns between January and March 2020.

The results of our study suggest that country norms and attitudes toward gender had a significant effect on the index return of the country in the months prior to the COVID pandemic and lockdown. Similarly, the country's level of trust and people's focus on teaching obedience to their kids helped determine the returns on the market index of a particular country. Given that the official rules and the rules of the "unwritten" social contract are based on trust and obedience, we find that in countries with more positive attitudes toward women, the citizens exhibit more trust in each other (as measured by higher levels of perceived 'trust' by the country's citizens) and the participation effect in equity markets is stronger. We also look at the single effect of the country's attitude toward including women in society, which we measured by education, the ability for corporate and political leadership, and fair earning potential. Interestingly, we find that the less friendly gender attitudes toward women do not lead to significant losses in index returns. A possible explanation is that during the unpredictable and challenging times of COVID, the traditional explanation of the variables shifts in the opposite direction. Also, countries with a less friendly attitude toward women have already experienced losses in the financial markets (due to less gender inclusion in decision making, leadership, and general networks) so the losses due to these attitudes in the time of COVID are reduced.

We measure the country's less friendly attitude toward women (also defined as *negative* attitudes) as the right to earn income, gain education, or be effective leaders being associated with *lower* participation by investors in the country's equity market and with a *less* important role in a country's capital markets (measured by the smaller number

of listed firms, smaller number of IPOs, and lower value of country's stock market capitalisation). Attitudes were measured by assessing survey participants' agreement or disagreement with the following statements: "When jobs are scarce, men should have more right to a job than women", "A university education is more important for a boy than a girl", "On the whole, men make better business executives than women", and "On the whole, men make better political leaders than women".

The rest of the paper is organised as follows: the role of gender norms in finance and testable hypotheses are discussed in Section 2. Section 3 introduces the data. Results are presented in Section 4 and Section 5, we summarise our conclusions.

## 2 Literature review and research hypotheses

### *2.1 Household finance*

Household finance literature suggests that financial literacy impacts the development of capital markets and therefore returns. For example, Dutch investors with poor knowledge of finance (such as the difference between bonds and stocks or diversification) are less likely to invest in stocks and therefore will not contribute to high market liquidity and returns (Van Rooij et al., 2011). People who grew up in underprivileged areas demonstrate financial illiteracy and reluctance to invest in stock markets (Brown et al., 2019).

Empirical research suggests that men tend to trade a lot more actively than women, which is possibly explained by their high confidence (Barber and Odean, 2011). They also show that portfolios managed by women often outperform those managed by men, with increased trading reducing men's net returns by 2.65% points, while the reduction is only 1.72% points for portfolios managed by women. By allowing women access to education, we can improve investment outcomes, especially in household stock investments (Browning et al., 2014).

### *2.2 Network effects*

Social networks are associated with the flow of hard and soft information about the economy, firms, and individuals. Social science research has documented that communication within networks aids in gathering and disseminating information and reduces the cost of obtaining new information (Burt, 2005; Jackson, 2010). Social networks also allow efficient screening and filtering of information, so information sent or received is more likely devoid of noise (Burt, 2005). Dense networks also enhance overall trust – a cultural dimension found to significantly impact financial transactions (Guiso et al., 2007; Ahern et al., 2015) – because networks boost reputational effects through sanctioning negative behaviour that deviates from accepted norms (Nahapiet and Ghosal, 1998; Burt, 2005; Brass and Labianca, 2006). As a result, past research has associated large, more dense networks with substantial information-driven benefits (Hanneman and Riddle, 2005; Jackson and Rogers, 2007; Jackson, 2010; Banerjee et al., 2013).

Inclusive gender norms should allow women to be

a more informed

b more respected active participants of a country's overall investor social network.

As a result, the country's investor network should become larger and denser – leading to an improved flow of quality information throughout the network and a reduction of overall information asymmetry. This should lead to a greater willingness of investors to participate in the country's stock markets (both because of the information effects and the greater overall trust perceived by members of larger and denser networks) and to the improved functioning of the country's stock markets in general.

### *2.3 Overall economic development*

Countries can increase their overall economic growth by supporting greater numbers and more active participation of women in the workforce. Reuben et al. (2014) document that women have technical skills that are on par with men, even though discrimination causes women to be under-represented in mathematics and science careers. Adams and Kirchmaier (2016) further show that the lower representation of women extends to many leadership roles in STEM and related finance sectors. These exclusions have real economic consequences. Bennouri et al. (2018) show that a higher proportion of females as directors of French firms are associated with higher firm ROEs and ROAs. Campbell and Minguez-Vera (2018) report the economic benefits of gender diversity for firms in Spain. In US, Duchin and Sosyura (2019) show that CEOs who grew up in male-dominated families (the father was the only income earner or was more educated than the mother), attended all-male high schools, or grew up in neighbourhoods with greater gender inequality tend to sub-optimally allocate more capital to a male rather than female-run division. These investment inefficiencies ultimately decrease the value of firms managed by such CEOs. On the other hand, Cronqvist and Yu (2017) show that US CEOs who are fathers of daughters tend to implement more CSR policies at their firms – aimed at improved diversity, better pro-social practices related to the environment, and improved employee relations.[2] Recent finance research (e.g., Lins et al., 2017), in turn, documents that engagement in CSR activities tends to be value-enhancing for the firms. CSR-friendly firms are considered more trustworthy by investors and thus are more likely to withstand economic crises.

Rossi et al. (2017) point out that there is a link between gender diversity and financial and operational performance based on a sample of firms listed in Italy. In particular, the authors highlight the positive relationship between composition of the board and financial performance and as well as top management and operational performance. The results suggest that an increase in the percentage of women on boards will lead to better financial performance of the company. Gordini and Rancati (2017) study the link between gender diversity and financial performance in a sample of Italian firms. The study is valuable because it provides analysis in light of gender quota law. The results suggest that diversified board have a positive impact on Tobin's Q. The authors point out that it is not the presence of at least one woman on board but rather the right mix of men and women on boards that impact financial performance.

Brammer et al. (2007) study the role of gender and ethnic diversity in UK Corporate boards. The authors highlight that gender and ethnic diversity is not prevalent and this

trend is even stronger in executive positions. Their study suggest that board diversity is higher when there is a closer proximity to the final consumer. Although the authors find differences in gender diversity among industries, the industry's workforce does not play as significant role on the board diversity.

### *2.4 Testable hypotheses*

The country and population response to COVID is largely determined by cultural norms, herd mentality, and trust that the other members of society will follow the social contract. Therefore, countries with greater trust values during COVID will experience positive returns in their financial markets:

> *H1: Countries with high levels of "trust" should experience positive index returns in the months just prior to the announcement of the COVID pandemic and lockdown.*

Inclusive country gender norms should positively affect investor participation in country stock markets, as well as the overall development of those markets. However, during the unprecedented events surrounding COVID, we expect the losses to be smaller. Furthermore, the lockdown and social distancing would be more beneficial if half of the population had less participation in the workforce:

> *H2: Countries with positive [negative] attitudes toward women's right to earn income, women's right to gain education, and abilities of women to be effective leaders should be associated with lower[higher] losses.*

Investor participation in country stock markets should be greater if investors perceive lower information asymmetry. In addition, as information exchange in social networks that include women should be more valuable if network participants trust each other, our third hypothesis is:

> *H3: The positive association between inclusive country gender norms and investor participation in country equity markets should be more significant in countries where citizens tend to trust each other.*

## 3 Data and methodology

### *3.1 Country gender norms*

We obtain data on country attitudes toward the rights of women and women's abilities from The World Value Survey (WVS; http://www.worldvaluessurvey.org). According to Karolyi (2016), the WVS has become one of the primary databases for the assessment of country culture used in finance research. During six survey waves spanning the years 1981–2014, the WVS interviewed over 400,000 people living in nearly 100 countries. More than 250 survey questions covered the following areas:

- social values, attitudes, and stereotypes
- societal well-being
- social capital, trust, and organisational membership
- economic values
- corruption
- migration
- post-materialist index
- science and technology
- religious values
- security
- ethical values and norms
- political interest and political participation
- political culture and political regimes
- demography.

We use the extent of agreement with the following statement to assess the prevalent attitude of a country's citizens toward women's right to be educated:

> "A university education is more important for a boy than a girl."

We use the extent of agreement with the following two statements to assess the prevalent attitude of a country's citizens toward women's right to earn income:

> "It is a problem if women have more income than men." And
>
> "When jobs are scarce, men should have more right to a job than women."

We use the extent of agreement with the following statement to assess the prevalent attitude of a country's citizens regarding women's perceived abilities to be effective business leaders:

> "On the whole, men make better business executives than women."

We use the extent of agreement with the following statement to assess the prevalent attitude of a country's citizens regarding women's perceived abilities to be effective political leaders:

> "On the whole, men make better political leaders than women."

Naturally, agreement with any of the above statements is indicative of a society with negative attitudes toward the rights and abilities of women, and thus likely describes countries where the female population is disadvantaged and/or marginalised.

Gender norms differ substantially across countries. For example, less than 5% of the population agree that university education is more important for men than women in countries like Sweden, Australia, and the Netherlands, while the agreement exceeds 40% in countries like Malaysia, Nigeria, or Pakistan. Similarly, less than 10% of the population see women making more income than men as a problem in the Netherlands,

Australia, and New Zealand, while more than 45% of the population agree with this statement in Turkey, Nigeria, Ghana, and Uzbekistan. And while less than 12% of the population do not see women as effective business leaders in the Netherlands, Sweden, or the US, the significant majority (over 70%) of the population does not accept female business leaders in countries like Nigeria, Jordan, Pakistan, or Egypt. Disagreement regarding the abilities of women to be effective politicians is even higher – over 80% in a number of countries. The data summary is presented in Table 1.

The main methodology for our regression results is heteroscedastic consistent standard errors linear regression. The error terms in this regression are computed using the asymptotic covariance matrix rather than the traditional assumption of normal distribution of the error terms. With this option, the point estimates of the regression model are the same as a regular OLS regression, but the model is augmented under the hypothesis of heteroscedasticity. We use this regression model because the standard errors computed from the asymptotic covariance matrix are considered more robust than traditional OLS regression and addresses the concerns with normality and heteroscedasticity.

We use two regression models. The general description of the models is:

$$Y = \text{alpha} + \text{Beta}^{*}X + \text{error term}$$

$Y$ is the dependent variable and in our model this is the stock index returns in the 2 months prior to COVID-19 pandemic. Alpha is the intercept. $X$ is a vector of independent variables – Proportion of population that agrees with non-inclusive gender statement, Country's Trust, Revised anti-director index, LN(GDP). The gender norm data and the measure of country's Trust come from the World Values Survey. "High Trust" is a dummy variable equal to one if country's population's assessment of high trustworthiness of their country's citizens is above the sample median. Revised anti-director index and Stock market capitalisation to GDP are from La Porta et al. (2006). Heteroskedasticity consistent standard errors are reported at the end.

In the second model, our dependent variable $Y$ is the same however the vector of independent variables consists of – Proportion of population that agrees with non-inclusive gender statement, Proportion of population that agrees with non-inclusive gender statement*High Trust, Country's Trust, Revised anti-director index, LN(GDP). In comparison with the first model we added the interaction term of "proportion of population that agrees with non-inclusive gender statement" multiplied by 'trust' dummy variable. This newly defined interactive term variable is necessary because the positive or negative association between gender norms and investor participation captured in the first model could be stronger in countries with stronger mutual trust among its citizens, as measured by our 'trust' variable.

## 4 Results

In this section, we present the results of a regression analysis of determinants of domestic investor participation in domestic stock market returns. The main independent variable is the return on the major stock index in each country for the period January–March 2020. We follow the approach of Giannetti and Koskinen (2010). They include a *revised anti-director rights* index (from La Porta et al., 2006) to control for the overall quality of a country's institutions. Following Guiso et al. (2008), we also control for the expected

positive role of the cultural concept of trust on investor investment participation. The measure of trust is obtained from The World Value Survey.

**Table 1** Gender norms

| | *Gender norm area / Gender norm non-inclusive statement* | | | | |
|---|---|---|---|---|---|
| | *Women's right to get an education* | *Women's right to earn income* | | *Women's ability to assume leadership positions* | |
| | *University education is more important for men than women* | *Problems occur if women have more income than men* | *When jobs are scarce, men should have more right to a job than women* | *Men make better business executives than women* | *Men make better political leaders than women* |
| Albania | 0.125 | | 0.409 | 0.315 | 0.398 |
| Algeria | 0.324 | 0.375 | 0.414 | 0.592 | 0.687 |
| Andorra | 0.022 | 0.072 | 0.035 | 0.099 | 0.107 |
| Argentina | 0.159 | 0.128 | 0.209 | 0.210 | 0.279 |
| Armenia | 0.221 | 0.386 | 0.574 | 0.621 | 0.527 |
| Australia | 0.061 | 0.052 | 0.132 | 0.142 | 0.204 |
| Austria | 0.086 | | 0.137 | 0.135 | 0.096 |
| Azerbaijan | 0.308 | 0.376 | 0.645 | 0.689 | 0.493 |
| Bangladesh | 0.474 | 0.294 | 0.661 | 0.665 | 0.448 |
| Belarus | 0.257 | 0.221 | 0.321 | 0.527 | 0.471 |
| Bolivia | 0.216 | 0.258 | 0.304 | 0.188 | 0.110 |
| Bosnia and Herzegovina | 0.202 | | 0.352 | 0.266 | 0.303 |
| Brazil | 0.137 | 0.230 | 0.233 | 0.267 | 0.309 |
| Bulgaria | 0.128 | | 0.287 | 0.286 | 0.458 |
| Burkina Faso | 0.331 | | 0.253 | 0.652 | 0.576 |
| Burma (Myanmar) | 0.525 | 0.281 | 0.816 | 0.694 | 0.350 |
| Canada | 0.048 | | 0.095 | 0.110 | 0.188 |
| Chile | 0.270 | 0.232 | 0.272 | 0.268 | 0.366 |
| China | 0.188 | 0.164 | 0.409 | 0.341 | 0.478 |
| Colombia | 0.125 | 0.289 | 0.235 | 0.201 | 0.282 |
| Croatia | 0.157 | | 0.275 | 0.123 | 0.231 |
| Cyprus | 0.126 | 0.187 | 0.344 | 0.281 | 0.315 |
| Czech Republic | 0.234 | | 0.264 | 0.302 | 0.279 |
| Denmark | 0.022 | | 0.022 | 0.116 | 0.043 |
| Dominican Republic | 0.173 | | 0.071 | | 0.181 |
| Ecuador | 0.228 | 0.253 | 0.261 | 0.215 | 0.164 |

**Table 1** Gender norms (continued)

| | *Gender norm area / Gender norm non-inclusive statement* | | | | |
|---|---|---|---|---|---|
| | *Women's right to get an education* | *Women's right to earn income* | | *Women's ability to assume leadership positions* | |
| | *University education is more important for men than women* | *Problems occur if women have more income than men* | *When jobs are scarce, men should have more right to a job than women* | *Men make better business executives than women* | *Men make better political leaders than women* |
| Egypt | 0.340 | 0.326 | 0.879 | 0.797 | 0.860 |
| El Salvador | 0.138 | | 0.135 | | 0.170 |
| Estonia | 0.187 | 0.242 | 0.200 | 0.323 | 0.374 |
| Ethiopia | 0.120 | 0.230 | 0.271 | 0.274 | 0.312 |
| Finland | 0.075 | | 0.091 | 0.147 | 0.168 |
| France | 0.063 | | 0.148 | 0.118 | 0.162 |
| Georgia | 0.226 | 0.255 | 0.525 | 0.548 | 0.633 |
| Germany | 0.113 | 0.113 | 0.156 | 0.167 | 0.153 |
| Ghana | 0.259 | 0.541 | 0.342 | 0.673 | 0.787 |
| Greece | 0.080 | 0.134 | 0.377 | 0.240 | 0.130 |
| Guatemala | 0.173 | 0.191 | 0.211 | 0.173 | 0.256 |
| Haiti | 0.597 | 0.606 | 0.194 | 0.625 | 0.187 |
| Hong Kong | 0.212 | 0.179 | 0.268 | 0.296 | 0.320 |
| Hungary | 0.166 | #DIV/0! | 0.263 | 0.298 | 0.397 |
| Iceland | 0.008 | #DIV/0! | 0.806 | 0.034 | 0.026 |
| India | 0.345 | 0.341 | 0.398 | 0.495 | 0.493 |
| Indonesia | 0.278 | 0.188 | 0.602 | 0.517 | 0.628 |
| Iran | 0.461 | 0.251 | 0.693 | 0.638 | 0.638 |
| Iraq | 0.386 | 0.249 | 0.753 | 0.653 | 0.811 |
| Italy | 0.101 | | 0.234 | 0.157 | 0.187 |
| Japan | 0.190 | 0.076 | 0.285 | 0.229 | 0.307 |
| Jordan | 0.320 | 0.353 | 0.825 | 0.665 | 0.789 |
| Kazakhstan | 0.248 | 0.189 | 0.470 | 0.481 | 0.380 |
| Kuwait | 0.364 | 0.295 | 0.310 | 0.596 | 0.379 |
| Kyrgyzstan | 0.408 | 0.307 | 0.550 | 0.629 | 0.477 |
| Latvia | 0.257 | | 0.124 | | 0.305 |
| Lebanon | 0.231 | 0.243 | 0.512 | 0.387 | 0.343 |
| Libya | 0.315 | 0.385 | 0.344 | 0.691 | 0.373 |
| Lithuania | 0.167 | | 0.260 | 0.359 | 0.301 |
| Macau | 0.233 | 0.141 | 0.252 | 0.317 | 0.170 |
| Macedonia | 0.145 | | 0.402 | 0.406 | 0.311 |
| Malaysia | 0.417 | 0.179 | 0.511 | 0.523 | 0.653 |

**Table 1** Gender norms (continued)

| | *Gender norm area / Gender norm non-inclusive statement* | | | | |
|---|---|---|---|---|---|
| | *Women's right to get an education* | *Women's right to earn income* | | *Women's ability to assume leadership positions* | |
| | *University education is more important for men than women* | *Problems occur if women have more income than men* | *When jobs are scarce, men should have more right to a job than women* | *Men make better business executives than women* | *Men make better political leaders than women* |
| Mali | 0.474 | | 0.306 | 0.793 | 0.750 |
| Mexico | 0.245 | 0.321 | 0.251 | 0.204 | 0.306 |
| Moldova | 0.231 | | 0.329 | 0.430 | 0.569 |
| Morocco | 0.326 | 0.389 | 0.494 | 0.544 | 0.575 |
| Netherlands | 0.046 | 0.047 | 0.084 | 0.118 | 0.133 |
| New Zealand | 0.052 | 0.053 | 0.081 | 0.093 | 0.126 |
| Nicaragua | 0.209 | 0.220 | 0.262 | 0.194 | 0.126 |
| Nigeria | 0.413 | 0.387 | 0.615 | 0.673 | 0.601 |
| Norway | 0.059 | | 0.083 | 0.149 | 0.127 |
| Pakistan | 0.435 | 0.359 | 0.757 | 0.749 | 0.523 |
| Peru | 0.173 | 0.170 | 0.187 | 0.139 | 0.205 |
| Philippines | 0.393 | 0.173 | 0.619 | 0.435 | 0.464 |
| Poland | 0.165 | 0.170 | 0.304 | 0.232 | 0.372 |
| Puerto Rico | 0.101 | 0.199 | 0.215 | 0.079 | 0.145 |
| Qatar | 0.276 | 0.348 | 0.347 | 0.590 | 0.427 |
| Romania | 0.211 | 0.140 | 0.380 | 0.383 | 0.469 |
| Russian Federation | 0.275 | 0.192 | 0.377 | 0.495 | 0.569 |
| Rwanda | 0.321 | 0.308 | 0.223 | 0.457 | 0.472 |
| Saudi Arabia | 0.597 | | 0.344 | | 0.354 |
| Singapore | 0.207 | 0.225 | 0.200 | 0.390 | 0.315 |
| Slovakia | 0.326 | | 0.379 | 0.464 | 0.375 |
| Slovenia | 0.118 | 0.168 | 0.152 | 0.187 | 0.280 |
| South Africa | 0.234 | 0.340 | 0.269 | 0.448 | 0.471 |
| South Korea | 0.297 | 0.166 | 0.404 | 0.465 | 0.521 |
| Spain | 0.111 | 0.138 | 0.167 | 0.125 | 0.170 |
| Sweden | 0.041 | 0.115 | 0.034 | 0.068 | 0.117 |
| Switzerland | 0.084 | | 0.195 | 0.122 | 0.138 |
| Taiwan | 0.155 | 0.145 | 0.453 | 0.249 | 0.336 |
| Tajikistan | 0.517 | 0.235 | 0.631 | 0.664 | 0.373 |
| Tanzania | 0.153 | | 0.130 | | 0.215 |

**Table 1** Gender norms (continued)

| | *Gender norm area / Gender norm non-inclusive statement* | | | | |
|---|---|---|---|---|---|
| | *Women's right to get an education* | *Women's right to earn income* | | *Women's ability to assume leadership positions* | |
| | *University education is more important for men than women* | *Problems occur if women have more income than men* | *When jobs are scarce, men should have more right to a job than women* | *Men make better business executives than women* | *Men make better political leaders than women* |
| Thailand | 0.291 | 0.146 | 0.310 | 0.419 | 0.497 |
| Trinidad and Tobago | 0.069 | 0.466 | 0.175 | 0.194 | 0.237 |
| Tunisia | 0.247 | 0.290 | 0.679 | 0.529 | 0.434 |
| Turkey | 0.292 | 0.298 | 0.576 | 0.538 | 0.600 |
| Uganda | 0.231 | | 0.202 | | 0.336 |
| Ukraine | 0.272 | 0.201 | 0.239 | 0.460 | 0.516 |
| UK | 0.054 | | 0.153 | 0.125 | 0.146 |
| US | 0.091 | 0.075 | 0.092 | 0.134 | 0.221 |
| Uruguay | 0.093 | 0.249 | 0.187 | 0.165 | 0.204 |
| Uzbekistan | | 0.600 | 0.296 | 0.669 | 0.378 |
| Venezuela | 0.170 | | 0.210 | | 0.253 |
| Viet Nam | 0.236 | 0.236 | 0.462 | 0.413 | 0.545 |
| Yemen | | 0.504 | 0.377 | 0.735 | 0.417 |
| Zambia | | | 0.163 | 0.444 | 0.480 |
| Zimbabwe | 0.161 | 0.382 | 0.391 | 0.383 | 0.381 |

This table shows the average for each variable based on the available data from the six waves for the World Value Survey.

### *4.1 COVID-19 and trust*

Table 2 presents the results of the analysis of the determinants of stock index returns in the two months prior to the COVID-19 pandemic. The results show that the variable *trust* is highly significant in all models at the 1% level. Indeed, living in a culture of trust enhances trust in the markets and therefore the overall willingness to invest, create liquidity, and generate high returns through mass participation. These results support *Hypothesis 1*.

### *4.2 COVID-19, index returns, and gender norms*

Our results regarding country gender norms support Hypothesis 2 by suggesting that countries with positive [negative] attitudes regarding women's rights and abilities are associated with lower losses from the index return. This is because, in countries with lower involvement of women, markets are already depressed, so the decline due to

COVID-19 is smaller and the losses are lower. In addition, due to COVID-19, the lower participation of women (comprising half of the population) in the workforce could be beneficial for the financial market in these unusual times.

**Table 2** Gender norms, trust, and stock index return

| *Dependent variable: Country stock index return* | | | | | |
|---|---|---|---|---|---|
| | *Gender norm area / Gender norm non-inclusive statement* | | | | |
| | *Women's right to get an education* | *Women's right to earn income* | | *Women's ability to assume leadership positions* | |
| | *University education more important for men than women* | *Problems occur if women have more income than men* | *When jobs are scarce, men should have more right to a job than women* | *Men make better business executives than women* | *Men make better political leaders than women* |
| *Model* | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* |
| Intercept | –0.3953<br>(0.0904) | –0.41037<br>(0.1066) | –0.40957<br>(0.0320) | –0.62872<br>(0.0098) | –0.37323<br>(0.1007) |
| Proportion of population that agrees with non-inclusive gender statement | 0.16454<br>(0.1914) | 0.20099<br>(0.2205) | 0.10851**<br>(0.0368) | 0.19711**<br>(0.0327) | 0.10374**<br>(0.1761) |
| Country's trust | 0.22669***<br>(0.0017) | 0.30387***<br>(0.0071) | 0.20705***<br>(0.0028) | 0.24861***<br>(0.0007) | 0.24861***<br>(0.0015) |
| Revised anti-director index | –0.00208<br>(0.7827) | –0.00502<br>(0.6133) | –0.00423<br>(0.5428) | –0.00583<br>(0.1906) | –0.00442<br>(0.5273) |
| LN(GDP) | 0.00698<br>(0.7380) | 0.00686<br>(0.7393) | 0.00968<br>(0.5894) | 0.02762<br>(0.1906) | 0.0057<br>0.7718) |
| Adj. $R^2$ | 0.1914 | 0.1817 | 0.1879 | 0.2106 | 0.1664 |
| F Value | 3.66** | 2.72** | 3.66** | 4.41*** | 3.29** |

This table presents the analysis of determinants of the country's stock index return. The gender norm data and the measure of the country's trust come from the World Values Survey. "High Trust" is a dummy variable equal to one if the population's assessment of the trustworthiness of their country's citizens is above the sample median. Revised anti-director index and stock market capitalisation to GDP are from La Porta et al. (2006). Heteroskedasticity consistent standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3 presents the results of the test of Hypothesis H3. The independent variables are identical to those utilised in Table 2 and we also added the interaction term between trust and gender attitudes. The results suggest that the positive or negative association between

gender norms and investor participation documented in Table 2 will be stronger in countries with stronger mutual trust among their citizens. In addition to measures of gender norms and other control variables presented in Table 2, we now include the interaction between each individual gender norm measure and a "High Trust" dummy variable equal to one for countries with a level of trust above the sample median (the dummy variable for high trust is entered separately). Our findings show that the interactive coefficient between 'High Trust' and each individual gender norm measure is significantly (at a 5% significance level or better) negatively associated with domestic investor participation in a country's equity market. Thus, our results support Hypothesis H3 and suggest that high trust magnifies the association between a country's gender norms (both favourable and unfavourable toward women) and investor willingness to participate in the domestic equity market.

**Table 3** Gender norms, trust, and stock index return with interaction term

| *Dependent variable: Country stock index return* | | | | | |
|---|---|---|---|---|---|
| | *Gender norm area / Gender norm non-inclusive statement* | | | | |
| | *Women's right to get an education* | *Women's right to earn income* | | *Women's ability to assume leadership positions* | |
| | *University education more important for men than women* | *Problems occur if women have more income than men* | *When jobs are scarce, men should have more right to a job than women* | *Men make better business executives than women* | *Men make better political leaders than women* |
| *Model* | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* |
| Intercept | –0.5335* (0.07314) | –0.45597* (0.0665) | –0.45935 ** (0.0152) | –0.73508*** (0.0013) | –0.42081** (0.0402) |
| Proportion of population that agrees with non-inclusive gender statement | 0.3133*** (0.0005) | 0.30194* (0.0681) | 0.15152** (0.0224) | 0.27652** (0.0026) | 0.14957** (0.0343) |
| Proportion of population that agrees with non-inclusive gender statement * High Trust | –0.1766*** (0.005) | –0.20067** (0.0239) | –0.05526 (0.22173) | –0.09491* (0.0987) | –0.0626 (0.2262) |
| High Trust | 0.27542*** (0.005) | 0.20873*** (0.002) | 0.23504*** (0.0028) | 0.28878*** (0.005) | 0.25467*** (0.0014) |

**Table 3** Gender norms, trust, and stock index return with interaction term (continued)

| | *Dependent variable: Country stock index return* | | | | |
|---|---|---|---|---|---|
| | *Gender norm area / Gender norm non-inclusive statement* | | | | |
| | *Women's right to get an education* | *Women's right to earn income* | | *Women's ability to assume leadership positions* | |
| | *University education more important for men than women* | *Problems occur if women have more income than men* | *When jobs are scarce, men should have more right to a job than women* | *Men make better business executives than women* | *Men make better political leaders than women* |
| *Model* | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* |
| Revised anti-director index | –0.0015<br>(0.8251) | –0.04237<br>(0.1844) | –0.0034<br>(0.6031) | –0.005<br>(0.4721) | –0.0044<br>(0.513) |
| Ln(GDP) | 0.0178*<br>(0.3045) | 0.0079**<br>(0.2300) | 0.01307<br>(0.4525) | 0.03574<br>(0.0661) | 0.00909<br>(0.6046) |
| Adj. $R^2$ | 0.2353 | 0.2227 | 0.1818 | 0.2618 | 0.1657 |
| F Value | 3.77*** | 2.66*** | 3.04** | 4.05*** | 2.83** |

This table presents the analysis of determinants of the country's stock index return. The gender norm data and the measure of the country's trust come from the World Values Survey. "High Trust" is a dummy variable equal to one if the population's assessment of the trustworthiness of their country's citizens is above the sample median. Revised anti-director index and stock market capitalisation to GDP are from La Porta et al. (2006). Heteroskedasticity consistent standard errors are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

## 5 Conclusion

During the last few decades, finance research has studied many cross-country determinants of the size and overall importance of capital markets, as well as the willingness of investors to participate in these markets. Quality of institutions – such as the efficiency of laws, protection of investors, informative disclosure requirements, etc. – has been associated with more developed, larger, and faster-growing capital markets. Similarly, culture, language, and religion appear to affect the function of a country's markets. Notably, a high level of mutual trust perceived by a country's citizens positively facilitates both the function of capital markets as well as the willingness of the country's population to invest in their capital markets.

We are among the first papers studying the role of a country's gender norms – a set of general attitudes shared by a country's population regarding women's rights and the role of women in society – in finance. Our results are interesting because, due to the unpredictable and unusual external shock of COVID-19, trust and gender norms contribute to the explanation of the market reaction. We predict that there are at least three reasons why gender norms should affect the function of capital markets and the trust of the domestic population to invest in capital markets. First, from a household

finance point of view, educated, workforce-active, and respected women are likely to improve the financial literacy of their households, leading to more efficient and informative household decisions and greater willingness to invest. Second, from a social network point of view, inclusive gender norms are likely to allow women to play an important role in the whole country's social network of investors, leading to improved information flow and lower information asymmetry throughout the bigger and denser investor network. This increased information flow improves the function of the country's capital markets as well as indicates a greater willingness of investors to participate in these markets. Third, from a workforce development point of view, more educated and respected women are likely to be an integral part of the country's workforce. A bigger workforce with higher overall quality has the potential to spur economic growth, which is financed by larger, better-functioning capital markets.

Interestingly, due to COVID-19, we see that a negative attitude toward women in certain countries led to lower losses because the markets in these countries were already depressed; this is also because during social distancing, reducing women's participation in economic activities might lead to lower losses. We further show that the association between a country's gender norms and investor participation in their equity markets is stronger in countries with greater mutual trust felt by the country's population – consistent with improved information flow in a large investor network built on trust among its participants.

Overall, our results demonstrate the crucial potential of the female population in market development around the world as well as the need to establish positive and inclusive country gender norms to free this potential, especially during the unpredictability of COVID-19 events.

The implications of our paper are in multiple areas. First, our paper could be used as a guide by policy makers and regulators. Greater gender diversity and inclusion contribute to better development of capital markets and investor returns. Second, our study has implications for household finance, as including women as active participants in the society and markets contributes to better financial gains. Third, our study has academic contributions because it links gender and country culture norms to the outcome of capital markets development around the world. Our empirical results and statistically and economically significant and this is the first study to quantify the role of country cultural norms on market returns.

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## Notes

[1]Several studies document the positive impact of creating a rich social network – Hanneman and Riddle (2005), Jackson and Rogers (2007), Jackson (2010) and Banerjee et al. (2013).

[2]Similarly, Tate and Yang (2017) document more inclusive hiring policies at firms run by women.

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