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Sustainable growth rate, corporate value of US firms within capital and labor market distortions: The moderating effect of institutional quality

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Keywords: *factor market distortion; capital and labor market distortions; corporate value; institutional quality; corporate sustainable growth rate; micro-level analysis*

Abstract

Research background: Understanding how distortions in capital and labor markets affect corporate value and sustainable growth is crucial in today's economy. These distortions can disrupt resource allocation and economic sustainability. Additionally, the role of institutional quality in shaping these dynamics requires thorough exploration.
Purpose of the article: We quantify the effect of capital and labor market distortions on corporate value and sustainable growth rate (SGR) and how this association is moderated by institutional quality.
Methods: Stemming from the sample criteria, we calibrated a final sample of 1971 United States-listed manufacturing firms for 2012–2022. This research offers insights into market inefficiencies and institutional effects. Progressing towards objectives, we use advanced techniques like feasible generalized least squares and generalized methods of moments. These methods help us rigorously analyze complex relationships among study variables.
Findings & value added: Three key findings emerge: first, capital and labor market distortions have a negative and significant influence on corporate value and sustainable growth. Our primary finding implies that increasing distortions significantly reduce sustainable growth's value and potential. Second, we find institutional quality has a positive significant effect on corporate value and sustainable growth. Third, institutional quality positively moderates the association between capital and labor market distortions, corporate value, and sustainable growth. Findings suggest that institutional quality, as a potential mechanism, improves the efficiency of resource allocation and optimizes the sustainable economic system to lessen the negative effect of factor market distortions on corporate value and SGR. Besides, we conduct robustness checks to validate our findings. Finally, we offer policymakers and stakeholders actionable insights.

Introduction

Corporate sustainable growth rate (SGR) and value are essential strategic tools to determine a company's sustainability. It has garnered global attention recently. Several factors contribute to the SGR and corporate value. Coupled with the increasing complexity and competitiveness of the business environment has led management, investors, and owners to keep tabs

on the factors that contribute to SGR and corporate value. Of them factor market distortions that can impact corporate value and SGR due to misallocation of resources. Managers are primarily responsible for maximizing the company's value to its shareholders and achieving SGR. Besides, the industrial output largely drops due to market distortions that impede the free flow of the production process. A growing body of emerging literature has shed light on quantifying resource misallocation across firms and its impact on the aggregate. However, there is still no agreement on the deriving factors of corporate value and SGR and the potential mechanism that reduces the inhibitory effect of factor market distortions on corporate value and SGR. We fill this gap in the incumbent literature by demonstrating the link between factor market distortions and corporate value and SGR (Ouyang & Sun, 2015; Ouyang *et al*., 2018; Qiao *et al*., 2021a) and how this association is moderated by institutional quality (Buckley & Tian, 2017) in the context of United States publicly traded manufacturing firms as the manufacturing sector contributes significantly to the country's overall economic output as shown in Figure (1).

Past studies have examined factor market distortions at the macro level, including impacts on productivity, investment, and financial structure (Cheng *et al*., 2020; Da-Rocha *et al*., 2023; Gabler & Poschke, 2013; Restuccia & Rogerson, 2008; Uras, 2014; Zhang *et al*., 2022). Effective resource allocation is crucial for organizational prosperity, with factor markets playing a key role in determining productivity, profitability, and performance (Bai & Cheng, 2016). However, governmental policies, imperfections, and information asymmetry can introduce distortions, influencing firm decisions (Yang *et al*., 2018). Recent micro-level studies show resource misallocation causes market distortions (Alam, 2020). Other work finds environmental regulations can mitigate distortion impacts on growth (Tao *et al*., 2022), Institutional theory suggests government quality significantly impacts performance (Jouida *et al*., 2017; La Porta *et al*., 1999; Wu *et al*., 2019) by shaping firm attitudes and sustainable strategy adoption (DiMaggio & Powell, 1983; Rahi *et al*., 2023; Vatn, 2020). In summary, past research analyzes market distortion impacts, mostly at the macro level. Recent micro-level studies suggest distortions affect firm outcomes, and institutions may play a moderating role, but further investigation is needed. This study aims to address these gaps.

Against the background, there is a lack of studies on the effect of factor market distortions on corporate value and sustainable growth at the micro-

level in the context of U.S. manufacturing firms. Second, there is a lack of potential mechanisms to improve resource allocation efficiency and optimize the sustainable economic system to lessen the negative effect of factor market distortions on corporate value and SGR. Based on this discussion, the first aim of this study is to quantify how factor market distortions affect corporate value and sustainable growth in U.S. listed manufacturing companies. Second, recent scholarly works indicate that institutional quality might play a moderating role in determining the influence of factor market distortions on firms' performance (Buckley & Tian, 2017). Institutional quality, characterized by transparent and predictable laws, can protect business value from market distortions. Firms in nations with higher institutional quality were better able to overcome regulatory obstacles and maximize resource allocation, making them more resilient to factor market distortions (She *et al*., 2023; Wu *et al*., 2019). So, the second aim of this paper is to quantify the direct effect of intuitional quality on corporate value and sustainable growth. The third aim of this study is to demonstrate the moderating impact of intuitional quality in the relationship between factor market distortions and corporate value and sustainable growth.

This study seeks to address the issue of how factor market distortions affect US manufacturing firms' value and sustainable growth prospects. Distortions in capital and labor markets caused by policies, regulations, or imperfections can lead to resource misallocation and undermine corporate performance. However, the impacts of these distortions are complex and unclear, especially given variations in countries' institutional environments. The practical problem is that managers, investors, and policymakers lack robust evidence on how factor market distortions influence firm outcomes under different institutional conditions. This knowledge gap makes it difficult to develop effective strategies and reforms. Firms may struggle to adapt their strategies to mitigate distortions. Investors cannot accurately evaluate risks and opportunities. Policymakers may implement counterproductive regulations if impacts are unknown. By determining the effects of capital and labor distortions on firm value/sustainable growth and testing how institutional quality moderates this relationship. The results can guide managers in tactical decisions to boost resilience. Investors can incorporate findings into valuation models and country risk analysis. Policymakers can design balanced reforms that ease distortions while strengthening institutions.

In summary, the practical problem is the lack of micro-level evidence on distortion impacts under varying institutional contexts. This knowledge is essential for firms, investors, and governments to make informed choices. By offering rigorous empirical analysis, this study aims to fill a critical information gap and enable stakeholders to respond effectively to market inefficiencies. The findings have direct relevance for real-world decision making. Stemming from the sample criteria, we refine and calibrate a final sample of 1971 United States-listed manufacturing firms for 2012–2022. Advancing towards objectives, we apply feasible generalized least squares and generalized methods of moments for quantitative analysis. Our key results are summarized: first, capital and labor market distortions negatively and significantly influence US-listed manufacturing enterprises' value and sustainable growth. Our primary finding is that increasing distortions significantly reduce sustainable growth's value and potential. Second, we find institutional quality has a positive significant effect on corporate value and sustainable growth. Third, institutional quality positively moderates the association between capital and labor market distortions, corporate value, and sustainable growth. Findings suggest that institutional quality, as a potential mechanism, improves the efficiency of resource allocation and optimizes the sustainable economic system to lessen the negative effect of factor market distortions on corporate value and SGR.

We contribute to the incumbent literature in the following ways. First, to the best of our knowledge, this article is a first effort to investigate how factor market distortions affect corporate value and sustainable growth, particularly capital and labor market distortions in the context of the world's largest economy's manufacturing sector, by narrowing the research field from the macro to the micro level. Second, we create an institutional quality index (IQI) by combining six different characteristics of institutional quality into a composite index using a method known as principal component analysis (PCA). The dimensions are (1) control of corruption, (2) Government effectiveness, (3) Political Stability, (4) Absence of violence/Terrorism, (5) regulatory quality rule of law, and (6) voice and Accountability and then we examine the direct effect of institutional quality on corporate value and sustainable growth (Khan *et al*., 2020). Third, we extend the same analytical framework by introducing the moderating influence of institutional quality as a potential mechanism and quantify how this inclusion improves the efficiency of resource allocation and optimizes the sustainable economic system to lessen the negative effect of factor mar-

ket distortions on corporate value and sustainable growth. Thus, introducing a moderating channel is one of the most exciting considerations of this exercise. Past empirical studies rely on ordinary least squares approach. We use feasible generalized least squares and generalized methods moments to improve modeling precision. Our findings are robust under different measurements and estimators. Finally, our results will offer policymakers, businesses, and investors valuable insights. Understanding how IQI may mitigate or exacerbate the effects of factor market distortions on firms' value and growth prospects can inform policymakers in designing effective measures to promote market efficiency and economic growth. For firms, the research will shed light on the importance of adapting strategies to cope with market distortions within specific institutional environments, potentially enhancing resilience and long-term success.

As we proceed through the paper, next sections contain a theoretical framework and hypotheses, data and methodology, and empirical findings; a discussion ends with a summary and policy implications.

Literature review

The literature on the impact of factor market distortion on firm value and sustainable growth is broad and multifaceted. Scholars from various disciplines, including economics, finance, and management, have explored the complex interactions between factor markets, institutional quality, and firm performance. This section summarizes key findings and insights from relevant studies in the field.

Since the 1960s, scholars have observed and studied the phenomena of factor market distortions (Bhagwati *et al*., 1969; Johnson, 1966). However, the notion of a perfectly competitive market, while an ideal theoretical model, has been challenged due to information asymmetry, leading to distortions in the factor market (Johnson, 1966). As a result, real-world factor markets are often subject to imperfections and inefficiencies (Qiao *et al*., 2021b). According to Lach (2002), the extent of capital market distortions (DisctorK) and labor market distortions (DistorL) varies significantly across different industries. As the factor marketization reform progresses, the degree of DisctorK and DistorL tends to widen in various sectors. It is imperative to fix the existing distortions to improve total factor productivity (TFP) (Yang *et al*., 2018).

Factor market distortion and corporate value

Capital market distortions refer to imperfections and inefficiencies that affect the allocation of financial resources in the economy (Bai & Cheng, 2016). These distortions can arise due to government regulations, barriers to entry into the financial sector, restricted access to credit, and information asymmetry between borrowers and lenders. Such distortions can hinder the efficient flow of capital to productive investments, leading to suboptimal allocation of financial resources (Da-Rocha *et al*., 2023; Tao *et al*., 2022). Capital market distortions can impact firm value in several ways. First, restricted access to credit or high borrowing costs can limit firms' ability to fund expansion projects, invest in research and development, or undertake mergers and acquisitions. This lack of financial flexibility may hamper growth prospects and reduce the firm's overall value. Second, capital market distortions may lead to suboptimal investment decisions (Alam, 2020). When firms face constraints in accessing capital, they may be forced to undertake projects with lower expected returns or forgo potentially profitable investments, resulting in reduced profitability and value creation (Ouyang *et al*., 2018). Empirical studies have shown that capital market distortions can adversely affect firm value. A study by Rajan and Zingales (1998) found that firms in countries with more remarkable financial market development and fewer capital market distortions exhibited higher valuations and more significant growth opportunities. Capital market distortions can misallocate financial resources within firms, making it difficult for them to invest in profitable projects or expand operations optimally (Qiao *et al*., 2021b). Similarly, labor market distortions can result in mismatches between labor supply and demand, leading to suboptimal utilization of human resources. These inefficiencies reduce overall firm productivity (Qiao *et al*., 2021b) and its value.

Labor market distortions arise when there are inefficiencies in the allocation of labor resources (Banerjee & Munshi, 2004; Kong *et al*., 2021) due to factors such as minimum wage laws, labor union power, information asymmetry between employers and employees, and regulations that restrict the mobility of labor (Qiao *et al*., 2021b). These distortions can affect wage levels, labor supply, and employment decisions within firms. Furthermore, labor market distortions may affect firms' ability to attract and retain skilled workers. When there is an information asymmetry between employers and employees, firms may struggle to hire the most qualified

individuals, affecting productivity and competitiveness. Empirical studies have also shown the significance of labor market distortions on firm value. Research by Hsieh and Klenow (2009) found that firms in countries with more flexible labor markets and fewer distortions experienced higher productivity levels and more significant value creation.

Both capital and labor market distortions are often associated with an adverse regulatory environment, including complex rules, bureaucratic red tape, and uncertain legal frameworks. Such an environment can lead to increased uncertainty and risk for firms, dampening their valuation in the eyes of investors. Capital and labor market distortions can lead to weaker corporate governance practices in firms. This may result in mismanagement, agency problems, and poor decision-making, ultimately diminishing firm value (Bartelsman *et al*., 2013; Tao *et al*., 2022). Based on the above discussion, our first hypothesis is that market distortions (capital market distortions, DisctorK, and labor market distortions, DistorL) have a significant association with firm value.

Factor market distortion and sustainable growth

The concept of SGR (Sustainable Growth Rate) conceptually delineates the maximum growth rate achievable by a firm specifically, the maximum rate of sales increase without necessitating additional external financing and effort (Chen *et al*., 2021; Olson & Pagano, 2005). SGR is fundamental to a company's sustainable development policy, success, and longevity (Higgins *et al*., 2009; Tao *et al*., 2022), representing the maximum internal resource-driven growth without external capital (Afzal *et al*., 2022; Klein & Belt, 1994; Platt *et al*., 1995; Soppe, 2004; Van Horne & Wachowicz Jr, 2005; Xu *et al*., 2020). Some scholars argue that the primary value of corporate strategy is contingent on sustainable growth in the future (de Andrés *et al*., 2017). Within our analysis, we have employed the well-established Higgins model, recognized for its extensive utilization in empirical research. Additionally, within the framework of the prevalent sustainable development agenda in this study, we have considered a company's long-term financial growth capability, measured by SGR. SGR functions as a metric to assess a company's potential for long-term growth (Chen *et al*., 2021; Higgins *et al*., 2009; Olson & Pagano, 2005; Tao *et al*., 2022; Van Horne & Wachowicz Jr, 2005; Xu *et al*., 2020).

The relationship between capital market distortions (DisctorK) and labor market distortions (DistorL) on firm sustainable growth is critical to understanding the impact of market inefficiencies on firms' long-term development and viability. Capital market distortions arise due to various factors, such as limited access to credit, information asymmetry, regulatory barriers, and financial sector inefficiencies. These distortions can result in suboptimal allocation of financial resources, affecting firms' investment decisions, innovation, and ability to pursue growth opportunities (Tao *et al*., 2022).

Distortions in capital markets can hinder firms' access to financing, restricting their ability to undertake valuable projects and investments. A lack of adequate funding may limit firms' capacity to invest in research and development, expand operations, or acquire new technologies. As a result, firms miss opportunities for sustainable growth and face challenges in remaining competitive over time (Dai & Cheng, 2016).

Labor market distortions can affect firms' sustainable growth by influencing labor-related decisions. For instance, wage distortions or hiring restrictions may lead to a less skilled workforce, reducing overall productivity and hindering the firm's ability to innovate and compete effectively. Inflexible labor regulations can also impede firms' ability to adapt to changing market conditions and adjust their workforce as needed, hampering sustainable growth. Tao *et al.* (2022) explored the effect of factor market distortions on SGR. Their study found that firms facing limited access to capital investment opportunities experienced lower sustainable growth rates. Moreover, Kong *et al.* (2021) investigated the relationship between factor market distortions and firms' capacity for investment and productivity and found a negative association.

Based on theoretical arguments and empirical evidence, we can hypothesize that there is a negative relationship between both types of market distortions (capital market distortions, DisctorK, and labor market distortions, DistorL) and firm sustainable growth. In other words, as capital and labor market distortions increase, firms will likely experience reduced sustainable growth potential. This hypothesis suggests that reducing market distortions in both capital and labor markets could lead to enhanced firm sustainable growth, improved competitiveness, and long-term success.

Based on the above discussion, our second hypothesis is that market distortions (capital market distortions, DisctorK, and labor market distortions, DistorL) are significantly associated with firm value.

Institutional quality, firm value, and sustainable growth

The application of institutional theory as a theoretical framework to analyze the behavior of firms in various institutional contexts has been extensive and prevalent. A substantial body of scholarly work has been dedicated to investigating the impact of the institutional environment on corporate performance (Karmani & Boussaada, 2021; Wu *et al*., 2019). Proponents of institutional theory posit that their institutional environment influences the behavior of firms, as these institutions play a significant role in shaping the values, preferences, and range of actions of companies. Furthermore, they argue that institutions also influence firms' rational decision-making processes concerning adopting sustainable strategies (DiMaggio & Powell, 1983; Rahi *et al*., 2023; Vatn, 2020). Certain scholars posit that the institution's quality is a significant explanatory factor for performance and growth (Glaeser *et al*., 2004; Jouida *et al*., 2017; La Porta *et al*., 1999; Wu *et al*., 2019).

She *et al.* (2023); Wu *et al.* (2019) highlighted that institutional quality, characterized by transparent and predictable regulations, can act as a buffer against the adverse effects of market distortions on firm value. They found that firms operating in countries with higher institutional quality exhibited greater resilience to factor market distortions, as they were better equipped to navigate regulatory challenges and optimize resource allocation. Scholars concentrated on the moderator role of institutional quality in a firm's operations and considered the direct impact of institutional quality (Buckley & Tian, 2017). The result of institutional quality and education quality in developing countries, including the effects and transmission channels (Fomba *et al*., 2023). Based on this discussion, the third and fourth hypotheses are as follows; in the third hypothesis, we expect institutional quality to have a significant association between market distortion, corporate value, and sustainable growth. And in the fourth hypothesis, we expect institutional quality significantly moderate the association between market distortion corporate value and sustainable growth.

Theoretical framework

In summary, although studies on factors distortions, policy distortions, institutional environment, business performance, financial development, and growth have been studied extensively at the micro and macro levels

(Karmani & Boussaada, 2021; Khan *et al.*, 2020; Kutan *et al.*, 2017; Wu *et al.*, 2019). However, as noted in the literature, (1) there are few studies on the micro-level effects of factor market distortions on corporate value and sustainable growth in U.S. manufacturing enterprises. (2) lack studies on how intuitional quality affects business value and sustainable growth. (3) there are no methods to increase resource allocation efficiency and optimize the sustainable economic system to reduce the negative impact of factor market distortions on corporate value and sustainable growth.

This study examines how institutional quality moderates the effects of factor market distortions on corporate value and sustainable growth in U.S. manufacturing enterprises. This article discusses methodological setting, formal empirical analysis, conclusion, and policy implications. We present literature-highlighted factors, and Figure (2) illustrates the study's theoretical framework.

Research methods

We employed a stratified random sampling technique to ensure a representative and balanced selection of U.S. manufacturing firms. The entire population, consisting of 8,700 U.S. firms from Thomson Reuters Asset4 Refinitiv Eikon, was divided into strata based on specific characteristics. First, we excluded financial institutions from consideration. Then, we categorized the remaining firms based on their industry classification codes (SIC codes 2000–3999). Within each stratum, we applied our criteria: excluding businesses with negative equity and assets, removing organizations lacking adequate indicators, and including dysfunctional firms to account for survivorship bias. This approach allowed us to select a sample of 1,971 U.S. manufacturing firms, ensuring that our analysis considered a diverse range of companies while maintaining the integrity of the study's findings. We used Worldscope and data stream Eikon Refinitiv databases, corporate value, sustainable growth, and market distortions. Besides, WGI and ICRG for IQI, and WDI for economy-wide factors to compute control variables. The list of variables[1] and their measurement and sources are presented in Table (1).

[1] We used a 1% flattening factor on both the top and bottom of our variables to prevent extreme outliers.

Variables description

We used corporate value and sustainable growth as dependent variables. Tobin's Q, is an essential metric in corporate finance and investment analysis, stands as a superior measure in contrast to simple market value due to its comprehensive assessment of a company's value. Unlike the basic market value, Tobin's Q takes into account a firm's total assets, providing a more thorough understanding of its overall worth. This approach offers a wider perspective on a company's financial position, considering future growth prospects and evaluating investment efficiency. Tobin's ratio (TQR) has been widely used to determine a company's value. This ratio, known as the Q ratio, serves as a crucial indicator linking a company's market value and book value/replacement cost, offering insights into its development potential. However, calculating the Q ratio poses challenges due to its denominator: "the replacement cost of a firm's assets," which often lacks specificity. Estimating this value becomes particularly difficult due to the absence of active markets for various assets (Butt *et al*., 2023). To address this complexity, Chung and Pruitt (1994) proposed a simplified approximation for Tobin's q, where the book value of total assets stands in as the replacement cost, given the inherent difficulty in directly measuring replacement cost. Following a similar approach as (Chung & Pruitt, 1994).

For corporate sustainable growth, we used sustainable growth rate (SGR) to measure a company's long-term growth potential (Anderson, 1960; Olson & Pagano, 2005; Tao *et al*., 2022). Conceptually, SGR is defined as the maximum firm's growth rate (maximum rate of increase in sales) without acquiring additional outside financing and effort (Chen *et al*., 2021; Olson & Pagano, 2005). There are many models available in the literature to compute SGR[2] we compute the SGR Higgins model, which is represented by the equation (1) and is extensively utilized.

$$\mathrm{H\_SGR_{i,t}} = \frac{\mathrm{NP_{i,t}}}{\mathrm{TS_{i,t}}} * \frac{\mathrm{TS_{i,t}}}{\mathrm{TA_{i,t}}} * \left(\frac{\mathrm{TA_{i,t}}}{\mathrm{E_{i,t}}} * \mathrm{RR_{i,t}}\right) \quad (1)$$

[2] Namely Boston Consulting Group: Zakon, Sparkman, Ulrich and Arlow, Johnson, Higgins, Lewellen and Kracaw, Firer and Ross and Van Horn model. We used two models to calculate sustainable growth rate (1) Higgins models for main analysis, and (2) Van Horn model for robustness check.

Where, $NP_{i,t}$ calculated as (net profit/total assets) and represents % of the profit margin of (i) firms and (t) time, $TS_{i,t}/TA_{i,t}$ (total sales /total assets) represents assets turnover rate, $TA_{i,t}$ divided by $E_{i,t}$ (total assets/beginning of the period equity) E designates leverage factor, $RR_{i,t}$ (beginning retained earnings minus net income or loss minus dividend) represents the % of earnings retained by firms.

The study's explanatory variables are factor market distortions. We employ the Cobb-Douglas production function to quantify factor market distortions. Where Y Factor market distortion in year t. K is the total equity shareholders hold, a measure of capital, and L is the total headcount[3], which symbolizes businesses' investment in human labor. Input the following values into the production function we followed (Kong *et al*., 2021; Tao *et al*., 2022; Yang *et al*., 2018) to construct the factor market distortion.

$$Y_{i,t} = A.L_{i,t}^{\alpha} K_{i,t}^{\beta} \tag{2}$$

Taking the logarithm equation can be written as

$$\ln Y_{i,t} = c + \alpha \ln L_{i,t} + \beta \ln K_{i,t} + \mu_{i,t} \tag{3}$$

$$\begin{aligned} MPL_{i,t} &= \alpha \frac{Y_{i,t}}{L_{i,t}} \\ MPK_{i,t} &= \beta \frac{Y_{i,t}}{K_{i,t}} \end{aligned} \tag{4}$$

The partial differentiation of capital L and labor K leads to DistorL and DistorK:

$$DistorK_{i,t} = \alpha \frac{MPK_{i,t}}{interest_{i,t}} \tag{5}$$

$$DistorL_{i,t} = \alpha \frac{MPL_{i,t}}{wage_{i,t}} \tag{6}$$

[3] Wage indicates the labour wages and salary while interest indicates weighted average loan interest rate during the year announced by the Federal Reserve.

Institutional quality is our moderating variable. Institutional quality is multifaceted and challenging to define (Bernardelli *et al*., 2021; Diaz Tautiva *et al*., 2023; Němečková & Hayat, 2022). Some studies used the Institutional quality index based on five indicators from the International Country Risk Guide's Political Risk Service. However, following recent literature, we created an institutional quality index [4]by combining five different characteristics of institutional quality into a composite index using a method known as principal component analysis (PCA). This index serves as a single proxy. The dimensions are (1) control of corruption, (2) Government effectiveness, (3) Political Stability, (4) Absence of violence/Terrorism, (5) regulatory quality rule of law, and (6) voice and Accountability (Khan *et al.*, 2020). In addition, we used a set of control variables comprised of macroeconomic and firm-specific variables, such as enterprise size, leverage, sales growth, assets tangibility, cash flow, and the Kaplan-Zingales index[5] (Schauer *et al*., 2019) to measure financial constraints, inflation, gross domestic product, and population growth.

Econometrics' models setting and empirical strategy

We employed a generalized method of moments mode to achieve the study's objectives because of the following two features, our main technique. First, endogenous sustainable growth and value. Second, we tested panel data. Based on these two reasons, the generalized method of moments works well for panel data analysis (Arellano & Bond, 1991). The GMM predictions have more precise and reliable outcomes. The endogeneity is eliminated, and instrumental variables are created automatically in GMM (Bougatef & Nejah, 2022). The following is a synopsis of the precise 2-step GMM models in Step 1: We used equations 7–10 to test the effect of factor market distortion (capital and labor market distortion) on company value and sustainable growth without and with control variables. Step 2: We used equations 11–18 to test the moderating influence of institutional quality on factor market distortion (capital and labor market distortion) on corporate value and sustainable growth without and with control variables.

[4] The outcome of the institutional quality index constructed by using principal component index (PCA) method is presented in table 11

[5] KZ Index = -1.001909 x Cash Flows / K + 0.2826389 x Q + 3.139193 x Debt / Total Capital + '-39.3678 x Dividends / K + -1.314759 x Cash / K

Where: K = PP&Et-1 and Q = (Market Capitalization t + Total Shareholder's Equity t - Book Value of Common Equity t - Deferred Tax Assets) / Total Shareholder's Equity.

$$\mathrm{TQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{TQR}_{i,t-2} + \beta_2 \mathrm{DISTORK}_{i,t} + \beta_3 \mathrm{DISTORL}_{i,t} + \\ + \mathrm{V_I} \sum firm/year + \varepsilon_{i,t} \tag{7}$$

$$SGR_{i,t} = \alpha_0 + \beta_1 \mathrm{SGR}_{i,t-2} + \beta_2 \mathrm{DISTORK}_{i,t} + \beta_3 \mathrm{DISTORL}_{i,t} + \\ + \mathrm{V_I} \sum firm/year + \varepsilon_{i,t} \tag{8}$$

$$\mathrm{TQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{TQR}_{i,t-2} + \beta_2 \mathrm{DISTORK}_{i,t} + \beta_3 \mathrm{DISTORL}_{i,t} + \\ + \delta Con_{i,t} + \mathrm{V_I} \sum firm/year + \varepsilon_{i,t} \tag{9}$$

$$SGR_{i,t} = \alpha_0 + \beta_1 \mathrm{SGR}_{i,t-2} + \beta_2 \mathrm{DISTORT}_{i,t} + \beta_3 \mathrm{DISTORL}_{i,t} + \\ + \delta Con + + \mathrm{V_I} \sum firm/year + \varepsilon_{i,t} \tag{10}$$

$$\mathrm{TQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{TQR}_{i,t-2} + \beta_2 \mathrm{DISTORK}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 (\mathrm{DISTORK}_{i,t} \times \mathrm{IQI}_t) + \mathrm{V_I} \sum Industry/year + \varepsilon_{i,t} \tag{11}$$

$$\mathrm{SQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{SGR}_{i,t-2} + \beta_2 \mathrm{DISTORK}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 (\mathrm{DISTORK}_{i,t} \times \mathrm{IQI}_t) + \mathrm{V_I} \sum Industry/year + \varepsilon_{i,t} \tag{12}$$

$$\mathrm{TQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{TGR}_{i,t-2} + \beta_2 \mathrm{DISTORL}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 (\mathrm{DISTORL}_{i,t} \times \mathrm{IQI}_t) + \mathrm{V_I} \sum Industry/year + \varepsilon_{i,t} \tag{13}$$

$$\mathrm{SQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{SGR}_{i,t-2} + \beta_2 \mathrm{DISTORL}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 (\mathrm{DISTORL}_{i,t} \times \mathrm{IQI}_t) + \mathrm{V_I} \sum Industry/year + \varepsilon_{i,t} \tag{14}$$

$$\mathrm{TQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{TQR}_{i,t-2} + \beta_2 \mathrm{DISTORK}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 \mathrm{DISTORK}_{i,t} \times \mathrm{IQI}_t + \delta Con_{i,t} + \mathrm{V_I} \sum firm\ /year + \varepsilon_{i,t} \tag{15}$$

$$\mathrm{SGR}_{i,t} = \alpha_0 + \beta_1 \mathrm{SGR}_{i,t-2} + \beta_2 \mathrm{DISTORK}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 \mathrm{DISTORK}_{i,t} \times \mathrm{IQI}_t + Con_{i,t} + \sum firm\ /year + \varepsilon_{i,t} \tag{16}$$

$$\mathrm{TQR}_{i,t} = \alpha_0 + \beta_1 \mathrm{TQR}_{i,t-2} + \beta_2 \mathrm{DISTORL}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 \mathrm{DISTORL}_{i,t} \times \mathrm{IQI}_t + \delta Con_{i,t} + \mathrm{V_I} \sum firm\ /year + \varepsilon_{i,t} \tag{17}$$

$$\mathrm{SGR}_{i,t} = \alpha_0 + \beta_1 \mathrm{SGR}_{i,t-2} + \beta_2 \mathrm{DISTORL}_{i,t} + \beta_3 \mathrm{IQI}_t + \\ + \beta_4 \mathrm{DISTORL}_{i,t} \times \mathrm{IQI}_t + Con_{i,t} + \sum firm\ /year + \varepsilon_{i,t} \tag{18}$$

In the aforementioned econometric modelling, we use TQR=Tobin's Q ratio and SGR=sustainable growth rate to quantify company value and sustainable growth. It is important to note that both TQR_ (i, t-1) and SGR (i, t-1) are lagged dependent variables. DISTORL= capital market distortion

and DISTORL=Labor market distortion are our independent variables for gauging factor market distortions. Our moderating variable is the Institution Quality Index (IQI). In addition, we incorporated macroeconomic and firm-specific variables, such as E_SIZE = enterprise size, LEV = leverage, S_GRO = sales growth, AS_T = assets tangibility, C_FLW = cash flow, and KZ_IND = Kaplan-Zingales index. Gross domestic product (GDPG), inflation (INFL), and population growth (POPG) are abbreviations. Along with the time and year represented by i and t, the Con_ (i, t) control variables, the V_I firm and year fixed effect, and the _ (i, t) error term are all indicated. Besides, we carried out several endurances checks to validate our main findings.

Results

Descriptive statistics

Table (2) provides the standard summary of descriptive statistics for the relevant variables. The study dependent variables, corporate value and sustainable growth as measured by Tobin's Q ratio (TQR) and sustainable growth rate (SGR) of U.S. listed manufacturing sector firms, have average values of 2.411 and -0.031, respectively, during the sample period, with extremes of 6.790 and 0.261, and standard deviations of 0.474 and 0.217. Capital market distortions (DISTORK) and labor market distortions (DISTORL) are two measures of market distortions that serve as our independent variable; their respective mean values are 0.058 and 9.248, with maximum (highest) values of 9.320 and 47.54 with a standard deviation of 0.345 and 9.491, respectively. Similarly, the mean average, minimum, and standard deviation of firm-level and economy-wide factors are also summarized in Table 1.

Correlation matrix and Variance inflation factor (VIF)

Table (3) provides correlation and variance inflation factors (VIF) estimation matrices between our explanatory variables. A lack of multicollinearity in the Table indicates that the data can be used for further statistical analysis and testing. According to the VIF estimation outcomes, no multicollinearity problem exists between the explanatory variables. According to

the guidelines, a VIF value greater than 5 indicates collinearity among the explanatory variables. According to this measure, none of our independent variables are significantly correlated.

Regression analysis

We first evaluate the effect of factor market distortions on corporate value and sustainable growth, and the impact of institutional quality moderates this association. Before starting, we conduct the panel's unit root tests, and the results are presented in Table (4). In our panel units' [6]estimations, we employ Levin, Lin, Chu, Im, Pesaran, and Shin's first-generation unit-root tests for symmetrical panel data. The second-generation Pesaran (2007) test resolves cross-sectional data issues. This Table shows the conclusions based on the assumption that cross-section units are unrelated (Choi, 2001).

After fulfilling fundamentals' regression assumptions in the second, we conduct ordinary least square (OLS) estimations and fixed effect as benchmark-regression for basic understanding and the findings of Includes discussion of results. The OLS and fixed effect results[7] indicate that factor market distortion has a negative and significant effect on corporate value and sustainable growth, and the impact of institutional quality moderates this association. Fixed effect with robust function, in contrast to OLS, considers serial/autocorrelation and heteroskedasticity but does not consider cross-sectional dependency. As a result, rather than continuing with the aforementioned fixed effect robust OLS-based strategy, we opted for models with greater flexibility. We use a more sophisticated framework called Feasible generalized least squares (FGLS) (Shen *et al*., 2020). This framework takes into account (1) serial/autocorrelation, (2) heteroskedasticity issues, and (3) cross-sectional dependence. To overcome these problems, we apply this framework. Table (5) provides feasible generalized least square direct effect results. At the same time, Table (6) encloses moderating effect of institution quality without including control variables in conjunction with our main independent variables. In Table (5), column 1–2 presents the excluding control variables, and column 1–4 with controls varia-

[6] The variables under investigation are stationary, and they share the same integration.

[7] We conduct ordinary least square for basic understanding or relationship among the variables and fixed effect and results are available upon requests, to conserve space OLS and fixed effect fallouts are not presented in our discussion of empirical results section.

bles FGLS results indicate that factor market distortion measured by capital distortion (DISTORK) and labour market (DISTORL), have a negative and significant effect on corporate value and sustainable growth' measured by Tobin's ratio and SGR respectively.

Table (6) presents the direct and moderating effect of institutional quality. In moderation analysis, we first used the institutional quality index to check the immediate effect of institutional quality on SGR and TQR. Columns 1–2 and 1–4, excluding control variables, and columns 1–4 with controls variables FGLS results indicate that institution quality positively and significantly affects corporate value and sustainable growth' measured by Tobin's ratio and SGR, respectively. Next, this study introduces institutional quality as a moderator quantified by the institutional quality index (IQI). Table (6) column displays the moderating effect of the institutional quality index in the relationship between factor market distortions, including controls on the association between factors market distortions and corporate value and sustainable growth. The results imply that the intuitional quality index positively moderates the association between factors of market distortion and corporate value and sustainable growth in all FGLS specifications.

Endogeneity concerns: Generalized method of moments projected results

Our empirical estimates allow for endogeneity and reverse causality. This study uses several control variables, yet our models may be endogenous. The extent to which micro-level factors like firm level-market and business risk and behavioral factors, such as investor sentiments, affect both factor markets distortion and firms value and sustainable growth may have been overlooked in our initial analysis. The generalized two-step moments approach can handle endogeneity even if our first estimations are skewed GMM (Bougatef & Nejah, 2022). GMM automatically constructs instrumental variables and eliminates endogeneity/reeves-causality (Arellano & Bond, 1991). In Table (**7**), we present the direct and moderating effect of institutional quality generated from the two-step dynamic system generalized method of moments. Columns 1–2 excluding control variables and column 3–4 with controls variables. The GMM results indicate that the institutional quality index positively and significantly affects corporate value and sustainable growth' measured by Tobin's ratio and SGR, respectively. Next, we provide GMM estimation to test the moderating effect of

the institutional quality index (IQI). Table (8) Colman displays the moderating influence of the intuitional quality index in the relationship between factor market distortions (including and excluding controls) corporate value and sustainable growth. The results imply that both interaction terms (capital market distortion (DISTORK) *intuitional quality index (IQI) and (labor market distortion (DISTORL) *intuitional quality index (IQI) positively moderate the relationship between corporate value and sustainable growth' measured by Tobin's ratio and SGR respectively in our all GMM models specification after accounting for endogeneity concern. In Two-Step GMM, the autocorrelation or serial correlation is tested using the Arellano-Bond test; if the AR (1) p-value is 0.000, then the presence of first-order serial correlation is demonstrated, and the null hypothesis of no first difference autocorrelation in the model is rejected; if the AR (2) p-value is insignificant, then there is no second-order serial correlation between the level of regression and the error term. To rule out the possibility of over-identifying or reorganizing model instrumental factors, the p-value of the Sargan test is more than the 0.05 threshold value, and the test is also robust.

Robustness check

To validate our primary results, we conducted some robustness checks. First, we replace our preliminary analysis estimator with an alternative regression technique and apply the fixed effect with Driscoll-Kraay standard error keeping the same proxies' measures of our principal analysis. Table (9) shows the fixed effect with Driscoll-Kraay standard error results. Second, to address endogeneity, we employed a generalized approach of moments by using alternative proxied of our dependent variables following Tao *et al*. (2022); according to him, earning price per share (EPS) can also replace corporate value and sustainable growth, according to most researchers. We also replaced our created IQI with ICRG Table (10) provides moderate examination. We apply the fixed effect with Driscoll-Kraay standard error to our primary study while maintaining the same measures for our proxies. Table (10) displays Driscoll-Kraay's formal error estimates for fixed effects. Second, we used a generalized technique of moments to deal with endogeneity by replacing our dependent variables with other proxies, as suggested by Tao *et al*. (2022). According to finance studies, earnings price per share (EPS) can represent company value and sustainable growth. We compute the SGR through an alternative model created by

the Van Horn model, epitomized by the equation (19), and the constituents of the Van Horn model models are presented in a footnote[8]. Results omitting and incorporating control variables are unchanged in our all-alternative specifications.

$$V\_SGR_{i,t} = \frac{\frac{N.P._{i,t}}{T.S._{i,t}} * T.S._{i,t}/T.A._{i,t} * (\frac{T.A._{i,t}}{E_{i,t}} * R.R._{i,t})}{1 - \frac{N.P._{i,t}}{T.S._{i,t}} * \frac{T.S._{i,t}}{T.A._{i,t}} * (\frac{T.A._{i,t}}{T.S._{i,t}} * R.R._{i,t})} \quad (19)$$

Figure (3) presents the main summary of our empirical findings in a compressive manner, where we first give the direct effect of both factor markets distortions (capital market distortion and labor market distortion) on SGR and TQR. Then, we present the immediate and moderating effect of IQI in the association between factors and market distortions on SGR and TQR.

Discussion

The findings from this study make several important contributions to the literature on factor market distortions, institutional quality, firm value, and sustainable growth.

First, capital and labor market distortions negatively and significantly impact the value and sustainable growth of US-listed manufacturing enterprises, aligning with (Tao *et al*., 2022). Increasing distortions substantially reduce corporate value and growth potential. Second, institutional quality positively and significantly affects corporate value and sustainable growth. Third, institutional quality moderates the relationship between capital and labor market distortions and corporate value/sustainable growth. Institutional quality may improve resource allocation efficiency and optimize sustainable economic systems, lessening the negative impacts of distortions.

These results align with institutional theory — high-quality institutions provide a stable, transparent environment that enables trust, investment, and economic development. Firms in countries with better institutions

[8] V_SGR represents Van Horn model of firm's sustainable growth rate, $NP_{i,t}$ calculated as (net profit/total assists and represents) % of profit margin of (i) firms and (t) time, $TS_{i,t}/TA_{i,t}$ (total sales /total assets) represents assets turnover rate, $TA_{i,t}/TS_{i,t}$ (total assets/end of the period equity) designates leverage factor, $RR_{i,t}$ (begininng retained earnings minus net income or loss minus dividend) represents the % of earnings retained by a firms).

benefit from governance, contract enforcement, and property rights protections, enhancing performance (Chang, 2023). Institutional quality is a critical external factor shaping firms' responses to market distortions. Strong institutions can mitigate distortions' adverse effects by providing legal protections, financial access, and skilled labor. Firms in higher institutional quality countries are more resilient to market inefficiencies (Jouida *et al*., 2017; La Porta *et al*., 1999; Wu *et al*., 2019).

The negative relationship between capital and labor market distortions and corporate value/sustainable growth also aligns with previous international theoretical and empirical research. For example, (Banerjee & Duflo, 2005) argue factor market imperfections constrain firm growth in developing countries. Similarly, (Dollar *et al*., 2006) finds labor regulations that increase hiring and firing costs reduce productivity and investment. Our results provide additional evidence using firm-level data and multiple estimation techniques.

However, a recent study by Tao *et al.* (2022) looking specifically at Chinese renewable energy enterprises found different impacts of capital versus labor market distortions. Tao found capital market distortions had a greater negative effect on growth for state-owned enterprises, while labor regulations hindered both state-owned and private firms. This contrasts with our findings of similar effects across distortion types and suggests industry and ownership structure mediate the relationships.

This study goes beyond past work by incorporating the moderating role of institutional quality. While institutions are hypothesized to matter, few studies have explicitly tested this interaction. We find institutional quality significantly dampens the negative impacts of factor market frictions, consistent with theories on the complementarity between institutions and markets (Acemoglu *et al*., 2005). Compared to cross-country studies such as (Dollar *et al*., 2006), our use of firm-level panel data allows more robust identification of these effects. The findings highlight the need to consider country-specific conditions when evaluating the impacts of factor market policies. Our results differ from research finding limited effects of labor regulations on efficiency, such as (Besley & Burgess, 2004). This may reflect our focus on traded manufacturing firms with high labor intensity and global competition. It suggests reforms in sectors employing mostly informal workers may have different impacts compared to modern industries. Overall, this study provides stronger evidence institutions and factor market distortions interact in shaping firm outcomes. Policy and managerial

decisions should account for this complementarity. Easing distortions may generate fewer benefits in weak institutional environments compared to broader governance reforms.

Conclusions

This study examined the impact of capital and labor market distortions on corporate value and sustainable growth rate and explored how this relationship is influenced by institutional quality. Based on the specified criteria, we selected and adjusted a final sample of 1971 manufacturing firms listed in the United States from 2012 to 2022. To achieve our goals, we utilized feasible generalized least squares and generalized methods of moments for quantitative analysis. The main findings of our study can be summarized as follows: Capital and labor market distortions have a negative and significant impact on the value and sustainable growth of manufacturing enterprises listed in the United States. The primary detection of our study is that the presence of distortions has a substantial negative impact on both the value and the potential for sustainable growth. Furthermore, our analysis reveals a positive and statistically significant relationship between institutional quality, corporate value, and sustainable growth. The results obtained from the fixed effects and generalized method of moments (GMM) models consistently demonstrate a negative association between improved labor market distortions and Tobin's Q, as well as sustainable growth rate (SGR). This finding indicates that constraints within the labor market directly impede both corporate value and sustainable growth, underscoring the adverse impact of labor market rigidities. Additionally, the positive moderating influence of institutional quality remained robust across various econometric specifications, including OLS, fixed effects, FGLS, and GMM models. This underlines the critical role of strong governance and regulatory frameworks in mitigating the detrimental effects of factor market distortions, emphasizing the importance of effective institutional mechanisms in safeguarding corporate value and sustainable growth. Thus, high-quality institutions enhance the relationship between capital and labor market distortions, corporate discounts, and sustainable development. The findings indicate that institutional quality can improve resource allocation efficiency and optimize a sustainable economic system. This helps mitigate the negative impact of factor market distortions on

corporate value and SGR. Besides, we apply alternative techniques, and our main findings holp up.

The core contribution of our study lies in the comprehensive analysis of the detrimental impact of capital and labor market distortions on corporate value and sustainable growth rate in the context of U.S. manufacturing firms. Our research not only uncovers the negative effects of these distortions, but also highlights the crucial role of institutional quality in mitigating these impacts. The results show institutional quality can lessen the negative impacts of capital and labor market distortions. This suggests policies aimed at improving institutional quality could help offset distortions and promote growth. By providing empirical evidence of these relationships, our study advances the existing literature in a substantial way. We emphasize that our findings underscore the critical need for policymakers and practitioners to address these distortions and prioritize institutional quality in order to foster sustainable economic development. This unique perspective adds substantial depth to the current body of knowledge and positions our research as a foundational reference in future scholarly discussions and policymaking decisions.

Our research has the following policy ramifications due to our empirical findings. The first, as our primary finding, is that both capital and labor market distortions are detrimental for SGR and corporate value. Cross subsidies should be diminished, and the price controls on raw materials, electricity, oil, and natural gas should be relaxed. Institutional quality, as a potential mechanism, improves the efficiency of resource allocation and optimizes the sustainable economic system to lessen the negative effect of factor market distortions on corporate value and SGR. Given the rampant distortion in the factor market, policymakers should prioritize the control of corruption, the efficiency of government, the absence of violence and terrorism, the quality of regulation, the rule of law, and the voices and responsibilities of those in authority.

A robust institutional framework plays a crucial role in fostering an environment that motivates businesses to make investments, drive innovation, and engage in healthy competition. This, in turn, contributes to enhanced economic prosperity. Then, governments should boost their policy backing of financial, technological, and human resources. In addition, it has to optimize and improve the industrial structure by harnessing the development potential of manufacturing businesses through technological innovation to achieve the sustainable development of the manufacturing sector.

This paper has limitations that can guide future research. We focus solely on capital and labor market distortions without addressing the different types of distortions in factor markets and the potential for sustainable growth in profitable enterprises in U.S. manufacturing firms. Second, our research only included publicly traded US-based manufacturing companies, so the results may not be applicable to businesses in other sectors or locations. Market dynamics and institutional settings can vary widely across industries and nations. Third, we employ the Cobb-Douglas production function to quantify factor market distortions at the micro-level. While this is commonly used in literature, this measuring approach may lead to measurement error. The various production tasks include the production Function of Leontief and the function for Producing CES.

In the end, there is potential for developing a comprehensive evaluation index that assesses factor market distortions and their implications on the profitability and sustainability of firms. This study examines explicitly a single possible channel regarding the relationship between factor market distortions and the sustainable growth of manufacturing firms. Institutional quality is a complex concept that can be measured in different ways, leading to potentially different outcomes. Subjective measures may introduce bias. The study does not consider external factors, such as economic downturns or technological disruptions, that could impact firm value and growth. In the future, it will be crucial to take into account various factors, including environmental, social, and governance performance, marketization, green innovation, entrepreneurial ownership, science and technology competitiveness, and test the effect of factors markets on firms' growth option value and sustainable growth.

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Annex

Table 1. Variable measurement, description and data sources

Variable	Acronym	Variables' description	Sources
Explained Variables			
Corporate value	TQR	Dividing the market value of equity by the sum of the book value and the market value of the common shares to get the TQR ratio.	World scope and Data Stream Eikon Refinitiv databases
Sustainable Growth Rate	SGR	Equation (1)	
Explanatory variable			
Capital market Distortions	DISTORTK	Equation (4)	
Labor market Distortions	DISTORTL	Equation (5)	
Moderating variable			
Institutional quality Index	IQI	Composite Institutional quality index based on six dimensions from WGI using PCA approach	World governance indicators (WGI)
Firms' specific factors			
enterprise size	E_SIZ	$\text{Enterprise size}_{i,t} = \text{natural logarithm of the total assets}_{i,t}$	
leverage	LEV	$\text{Debit} - \text{to} - \text{Equity}_{i,t} = \text{Total debt Total debt}_{i,t} + \text{Total Equity}_{i,t}$	
Sales growth	S-GRW	Annual growth in sales /revenue	
assets tangibility	AST	Fixed assets /total assets	
Cash flow	CFLOW	$\text{Total Cash Inflow}_{i,t} - \text{Total cash Inflows}_{i,t}$	Worlds scope and Data Stream Eikon Refinitiv database.
Kaplan-Zingales index	KZ_IND	KZ Index = -1.001909 x Cash Flows / K + 0.2826389 x Q + 3.139193 x Debt / Total Capital + '-39.3678 x Dividends / K + -1.314759 x Cash / K Where: K = PP&Et-1 and Q = (Market Capitalization + Total Shareholder's Equity - Book Value of Common Equity - Deferred Tax Assets) / Total Shareholder's Equity	
Macro-economic fundamental			
Inflation	INFO	Annual inflation	
Gross domestic product growth	GDPG	Growth annual GDP	World bank data base
Population growth	POPG	Annual growth	
Robustness check			
Sustainable Growth Rate	SGR	Van Horn model equation (19)	World scope and Data Stream Eikon Refinitiv databases
Corporate value	EPS	Earnings per share	
Institutional quality Index	IQI	Institutional quality index	ICRG

Source: Own calculations based on study variables analyzed in Stata 17.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
TQR	16318	2.411	0.474	0.051	6.790
SGR	15143	-0.031	0.217	-0.021	0.261
DISTORK	16906	0.058	0.345	0.000	9.320
DISTORL	16408	9.248	9.491	0.140	47.54
E_SIZE	16318	16.03	2.201	12.98	25.84
LEV	16312	0.269	0.691	0.000	0.765
S_GRO	15171	-0.071	0.211	-1.19	62.83
AS_T	16318	3.167	0.161	-1.034	5.967
C_FLW	16321	0.087	0.395	-0.410	0.434
KZ IND	14690	5.647	2.084	-4.350	13.28
GDPG	16321	1.714	0.737	0.120	3.160
INFL	16321	1.788	1.523	-2.770	2.950
POPG	16321	0.704	0.130	0.460	0.960

Note: Table (1) shows the dataset's statistical characteristics. SGR=sustainable growth rate to quantify company value and sustainable growth, respectively, in the aforementioned calculations. DISTORL= capital market distortion and DISTORL=Labor market distortion are our independent variables for gauging factor market distortions. Our moderating variable is the Institution Quality Index (IQI). In addition, we incorporated macroeconomic and firm-specific variables, such as E_SIZE = enterprise size, LEV = leverage, S_GRO = sales growth, AS_T = assets tangibility, C_FLW = cash flow, and KZ_IND = Kaplan-Zingales index. Gross domestic product (GDPG), inflation (INFL), and population growth (POPG).

Source: Own calculations based on study variables analyzed in Stata 17.

Table 3. Pairwise matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) DISTORK	1.000										
(2) DISTORL	0.103*	1.000									
(3) E_SIZE	-0.173*	-0.683*	1.000								
(4) LEV	0.093*	-0.301*	0.397*	1.000							
(5) S_GRO	0.018	0.122*	-0.073*	-0.052*	1.000						
(6) AS_T	-0.009	-0.361*	0.263*	0.220*	-0.005	1.000					
(7) C_FLW	-0.035*	-0.178*	0.376*	0.071*	-0.002	0.084*	1.000				
(8) KZ_IND	-0.149*	-0.602*	0.904*	0.270*	-0.057*	0.102*	0.390*	1.000			
(9) GDPG	-0.014	-0.079*	-0.008	-0.036*	-0.053*	0.002	0.005	-0.037*	1.000		
(10) INFL	-0.020*	-0.091*	-0.026*	-0.034*	-0.043*	0.012	0.007	-0.044*	0.133*	1.000	
(11) POPG	0.020*	0.017	0.015	-0.022*	0.004	0.006	-0.012	0.006	-0.325*	-0.646*	1.000
Mean VIF											

Note: This table contains the correlations and VIF estimations employed to test multicollinearity issues. * Shows significance at $p<0.05$.

Table 4. Panel unit-root test results

Variables	LL&C	Pesaran (2007)	ADF-Fisher	PP-Fisher	Order
TQR	-49.56***	-38.65***	505.26***	598.22***	I (0)
SGR	-5.213***	-38.21***	557.28***	658.96***	I (0)
DISTORK	-0.801***	-10.93***	212.06***	244.97***	I (0)
DISTORL	-14.70***	-19.47***	255.52***	303.09***	I (0)
E_SIZE	-72.30***	-3.33***	348.50***	445.70***	I (0)
LEV	-34.18***	-15.20***	364.68***	419.14***	I (0)
S_GRO	-0.330***	-75.30***	826.50	992.14	I (0)
AS_T	-18.68***	-12.12***	383.51***	453.94***	I (0)
C_FLW	-26.42***	-23.386***	489.55***	561.27***	I (0)
KZ IND	-54.63***	-19.64 ***	358.48***	454.94***	I (0)
GDPG	-57.79***	-17.52***	420.71***	431.68***	I (0)
INFL	-12.71***	-13.95***	558.14***	503.37***	I (0)
POPG	-42.12***	-29.57***	580.04***	616.70***	I (0)

Note: Table shows Levin, Lin, Chu, Im, Pesaran, and Shin's first-generation unit-root tests for symmetrical panel data. The second-generation Pesaran (2007) test is used to resolve cross-sectional data issues. It shows the conclusions based on the assumption that cross-section units are unrelated.

Table 5. Feasible Generalized least square results: Direct Effect

FGLS estimation	Excluding control variables		Including control variables	
	(1)	(2)	(3)	(4)
VARIABLES	TQR	SGR	TQR	SGR
DISTORK	-0.092**	-0.077***	-0.019*	-0.018**
	(0.047)	(0.007)	(0.010)	(0.009)
DISTORL	-0.017*	-0.010***	-0.013***	-0.008*
	(0.009)	(0.004)	(0.002)	(0.005)
E_SIZE			-0.041***	0.045***
			(0.012)	(0.001)
LEV			-0.077***	-0.077***
			(0.025)	(0.003)
S_GRW			-0.444***	-0.021***
			(0.036)	(0.004)
AS_T			-1.802***	0.072***
			(0.114)	(0.013)
C_FLW			0.000***	0.000***
			(0.000)	(0.000)
KZ_IND			-0.025***	-0.031***
			(0.002)	(0.011)
GDPG			-0.201***	0.017***
			(0.022)	(0.003)
INFL			-0.184***	0.014***
			(0.015)	(0.002)
POPG			-1.525***	0.253***
			(0.168)	(0.019)
CONSTANT	2.193***	0.029***	4.587***	-0.503***
	(0.021)	(0.003)	(0.183)	(0.021)
A number of obs.	16,321	16,321	16,321	16,321
Number of ids.	1,971	1,971	1,971	1,971
Wald	313.85	389.91	422.45	583.79
Prob > chi2	0.000	0.000	0.000	0.000

Note: This table provides results generated from the Feasible Generalized least square method. Models 1-2 display a direct effect excluding control variables, and models 3-4 present a direct effect including control variables. Corporate value and sustainable growth are dependent variables measured by Tobin's Ratio (TQR) and sustainable growth rate (SGR). Standard errors in () ***Significant at *** p<.01, ** p<.05, * p<.1.

Source: Own calculations based on study variables analyzed in Stata 17.

Table 6. Feasible generalized least square results: Institutional quality as moderator

FGLS	Moderating effect excluding controls				The moderating effect, including controls			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	TQR	SGR	TQR	SGR	TQR	SGR	TQR	SGR
DISTORK	-0.082**	-0.027***			-0.044**	-0.013**		
	(0.041)	(0.001)			(0.023)	(0.006)		
DISTORL			-0.026***	-0.010*			-0.014*	-0.005*
			(0.002)	(0.005)			(0.008)	(0.003)
IQI	0.240***	0.195***	0.095**	0.021***	0.033***	0.043***	0.050**	0.034**
	(0.018)	(0.024)	(0.046)	(0.003)	(0.006)	(0.010)	(0.025)	(0.017)
DISTORK*IQI	-0.120**	-0.021***			-0.124**	-0.022***		
	(0.060)	(0.002)			(0.056)	(0.002)		
DISTORL*IQI			-0.016**	-0.011*			-0.026***	-0.027***
			(0.008)	(0.006)			(0.013)	(0.003)
E_SIZ					-0.013	-0.056***	-0.093***	-0.048**
					(0.051)	(0.012)	(0.001)	(0.023)
LEV					-0.066***	-0.068***	-0.073	-0.079***
					(0.024)	(0.025)	(0.053)	(0.003)
S-GRW					-0.376***	-0.084**	-0.026***	-0.020**
					(0.034)	(0.042)	(0.004)	(0.010)
AST					-0.945	-1.798***	0.136***	-0.072
					(0.807)	(0.114)	(0.013)	(0.053)
CFLOW					0.000***	0.000***	-0.000***	0.000**
					(0.000)	(0.000)	(0.000)	(0.000)
KZ_IND					-0.014***	-0.021***	-0.019***	-0.022**
					(0.006)	(0.004)	(0.006)	(0.0011)
GDPG					-0.209***	-0.190***	0.022***	0.016***
					(0.023)	(0.024)	(0.003)	(0.003)
INFL					-0.178***	-0.169***	0.021***	0.013***
					(0.019)	(0.021)	(0.002)	(0.002)
POPG					-0.140	-1.360***	0.150***	0.245***
					(0.107)	(0.216)	(0.124)	(0.025)
CONSTANT	2.532***	2.244***	-0.066***	0.022***	4.995***	4.463***	-0.686***	-0.500***
	(0.016)	(0.022)	(0.002)	(0.003)	(0.202)	(0.228)	(0.024)	(0.026)
Observations	16,321	16,321	16,321	16,321	16,321	16,321	16,321	16,321
Number of Ids.	1,971	1,971	1,971	1,971	1,971	1,971	1,971	1,971
Wald Test	191.95	527.24	638.97	957.14	621.58	558.14	318.99	885.26
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: This table provides moderation analysis generated from s Feasible Generalized least square results. Models 1-4 illustrate moderation effects without control variables, and Models 5-7 with them. A company's value and sustainable growth are determined by Tobin's Q Ratio (TQR) and Sustainable Growth Rate (SGR). Institutional Quality (IQI) is moderating variable. Standard errors in () ***Significant at *** p<.01, ** p<.05, * p<.1.

Source: Own calculations based on study variables analyzed in Stata 17.

Table 7. Generalized method of moments estimated results: Direct effect

GMM estimates	**Excluding controls**		**Including controls**	
	(1)	**(2)**	**(3)**	**(4)**
Variables	**TQR**	**SGR**	**TQR**	**SGR**
L.TQR	0.467***		0.565***	
	(0.037)		(0.041)	
L.SGR		0.316***		0.339***
		(0.037)		(0.034)
DISTORK	-0.166**	-0.073***	-0.172**	-0.052***
	(0.083)	(0.025)	(0.086)	(0.014)
DISORTL	-0.009***	-0.006***	-0.012***	-0.002***
	(0.002)	(0.000)	(0.002)	(0.000)
E_SIZ			-0.028**	0.036***
			(0.014)	(0.003)
LEV			-0.092***	-0.068***
			(0.029)	(0.006)
S-GRW			-0.079	-0.071***
			(0.053)	(0.007)
AST			-0.569***	0.047**
			(0.151)	(0.018)
CFLW			0.000	0.000
			(0.000)	(0.000)
KZ_IND			-0.103***	0.009***
			(0.016)	(0.002)
GDPG			-0.159***	0.007***
			(0.014)	(0.002)
INFL			-1.285***	0.125***
			(0.155)	(0.022)
Constant	1.150***	0.008**	2.667***	-0.346***
	(0.081)	(0.003)	(0.225)	(0.031)
Number of ids.	1,867	1,779	1,691	1,599
AR (1) test	0.046	0.004	0.000	0.000
AR (2) test (Pr > z)	0.807	0.998	0.082	0.119
Sargan test (P-value)	0.661	0.541	0.469	0.091

Notes: This table provides results generated from a generalized method of moments. Models 1-2 display a direct effect excluding control variables, and models 3-4 present a direct effect including control variables. Corporate value and sustainable growth are dependent variables measured by Tobin's Ratio (TQR) and sustainable growth rate (SGR). This Table also contains the R (2) test and Sargan tes.t (P-value). Standard errors in () ***Significant at *** p<.01, ** p<.05, * p<.1.

Table 8. Generalized method of moments estimated results: Moderation analysis

GMM estimates	Moderating effect excluding control variables				The moderating effect, including control variables			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	TQR	SGR	TQR	SGR	TQR	SGR	TQR	SGR
L.TQR	0.456***		0.351***		0.591***		0.350***	
	(0.035)		(0.035)		(0.037)		(0.033)	
L.SGR		0.464***		0.311***		0.577***		0.339***
		(0.037)		(0.037)		(0.041)		(0.033)
DISTORK	-0.123**	-0.010***			-0.086*	-0.024**		
	(0.060)	(0.002)			(0.052)	(0.012)		
DISTORL			-0.070***	-0.006***			-0.031***	-0.002***
			(0.019)	(0.000)			(0.010)	(0.000)
IQI	0.041**	0.064**	0.012***	0.010***	0.072***	0.088***	0.001***	0.005**
	(0.017)	(0.032)	(0.002)	(0.003)	(0.018)	(0.019)	(0.000)	(0.003)
DISTORK*IQI	-0.031***	-0.013***			-0.045***	-0.011***		
	(0.017)	(0.002)			(0.020)	(0.002)		
DISTORL*IQI			-0.014*	-0.001**			-0.016*	-0.023***
			(0.008)	(0.000)			(0.009)	(0.011)
E_SIZ					-0.026***	-0.039***	-0.043***	-0.037***
					(0.010)	(0.013)	(0.003)	(0.003)
LEV					-0.079***	-0.072**	-0.063***	-0.070***
					(0.027)	(0.028)	(0.005)	(0.005)
S_GRW					-0.103**	-0.082	-0.071***	-0.071***
					(0.050)	(0.053)	(0.006)	(0.007)
AS_T					-0.492***	-0.557***	0.069***	0.045**
					(0.134)	(0.148)	(0.019)	(0.018)
C_FLW					0.000*	0.000	-0.000	0.000
					(0.000)	(0.000)	(0.000)	(0.000)
KZ_IND					-0.375***	-0.094**	-0.026***	-0.030**
					(0.094)	(0.052)	(0.084)	(0.015)
GDPG					-0.123***	-0.123***	0.010***	0.008***
					(0.016)	(0.017)	(0.002)	(0.002)

Table 8. Continued

GMM estimates	Moderating effect excluding control variables				The moderating effect, including control variables			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**TQR**	**SGR**	**TQR**	**SGR**	**TQR**	**SGR**	**TQR**	**SGR**
INFL					-0.186***	-0.186***	0.008***	0.006***
					(0.014)	(0.016)	(0.002)	(0.002)
POPG					-1.549***	-1.468***	0.107***	0.116***
					(0.160)	(0.165)	(0.022)	(0.023)
Constant	1.278***	1.164***	-0.037***	0.007**	2.828***	2.919***	-0.401***	-0.343***
	(0.083)	(0.080)	(0.004)	(0.003)	(0.200)	(0.221)	(0.029)	(0.032)
Number of ids.	1,844	1,755	1,650	1,597	1,676	1,615	1,650	1,597
AR (1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR (2) test (Pr > z)	0.621	0.786	0.861	0.9931	0.092	0.113	0.071	0.104
Sargan test (P-value)	0.126	0.290	0.439	0.115	0.557	0.196	0.138	0.070

Notes: This table provides moderation analysis results generated from the generalized method of moments. Models 1-4 display moderating effects excluding control variables, and models 5-8 present moderating effects including control variables. Corporate value and sustainable growth are dependent variables measured by Tobin's Ratio (TQR) and sustainable growth rate (SGR). Institutional Quality (IQI) is moderating variable. This Table also contains R (2) test Second order serial correlation among the term and Sargan tes.t (P-value). Standard errors in () ***Significant at *** p<.01, ** p<.05, * p<.1.

Table 9. Fixed effect with Driscoll-Kraay standard error and GMM estimations: Direct effect

	Fixed effect with Driscoll-Kraay		**Generalized method of moments**	
	(1)	**(2)**	**(3)**	**(4)**
Variables	**TQR**	**SGR**	**EPS**	**EPS**
DISTORK	-0.100**	-0.090***	-0.061***	-0.016***
	(0.040)	(0.032)	(0.008)	(0.005)
DISORTL	-0.013	-0.009*	-0.020*	-0.002***
	(0.006)	(0.005)	(0.011)	(0.001)
E_SIZ		-0.267***		0.070***
		(0.065)		(0.004)
LEV		-0.150***		-0.089***
		(0.019)		(0.004)
S-GRW		-0.177***		-0.046***
		(0.025)		(0.006)
AST		-1.473***		-0.189***
		(0.201)		(0.018)
CFLW		0.000***		0.000***
		(0.000)		(0.000)
KZ_IND		-1.468***		0.116***
		(0.165)		(0.023)
GDPG		-0.163**		0.014***
		(0.064)		(0.003)
INFL		-0.137***		0.014***
		(0.015)		(0.002)
POPG		-0.751***		0.148***
		(0.195)		(0.028)
Constant	2.456***	5.442***	-0.074***	-0.595***
	(0.055)	(0.509)	(0.010)	(0.035)
No. of ids.	1971	1971	1,634	1,667
F Test	41.86***	63.83***		
AR (1) test			0.003	0.000
AR (2) test (Pr > z)			0.182	0.203
Sargan test (P-value)			0.169	0.361

Notes: Table shows the results of the robustness assessment (1) using the fixed effect with the Driscoll-Kraay standard error method by including control variables both with and without control variables, is shown in examples 1-2. Second, we employed an additional method of moments to account for the endogeneity problem; the findings, both with and without the inclusion of the control variables, are shown in columns 3-4. besides, scholars, for the most part, believe that earnings per share (EPS) can serve as a suitable substitute for corporate value and sustainable. We also replaced our created IQI with ICRG. Standard errors in () ***Significant at *** p<.01, ** p<.05, * p<.1.

Table 10. Fixed effect with Driscoll-Kraay standard error and GMM estimations: Direct and moderation analysis

	Driscoll-Kraay method: Moderating effect				GMM estimations: Moderating effect with alternative measures			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**TQR**	**SGR**	**TQR**	**SGR**	**EPS**	**EPS**	**EPS**	**EPS**
DISTORK	-0.432***		-0.059***		-0.067***		-0.095***	
	(0.165)		(0.009)		(0.009)		(0.034)	
DISTORL		-0.034*		-0.073***		-0.068*		-0.072***
		(0.018)		(0.034)		(0.036)		(0.024)
IQI	0.045***	0.031***	0.043***	0.053***	0.026***	0.064***	0.060**	0.095*
	(0.014)	(0.009)	(0.016)	(0.016)	(0.012)	(0.022)	(0.030)	(0.048)
DISTORK*IQI	-0.149***		-0.134**		-0.024***		-0.076***	
	(0.016)		(0.056)		(0.007)		(0.033)	
DISTORL*IQI		-0.051***		0.025***		-0.031*		-0.021***
		(0.012)		(0.012)		(0.016)		(0.003)
E_SIZ			0.160***	0.175***			0.227***	0.262***
			(0.020)	(0.022)			(0.014)	(0.015)
LEV			-0.067***	-0.064***			-0.270***	-0.284***
			(0.009)	(0.011)			(0.020)	(0.015)
S-GRW			-0.058***	-0.064***			-0.066***	-0.079***
			(0.012)	(0.010)			(0.016)	(0.015)
AST			-0.408***	-0.345***			-0.801***	-0.712***
			(0.045)	(0.049)			(0.072)	(0.080)
CFLOW			0.000***	0.000***			0.000***	0.000***
			(0.000)	(0.000)			(0.000)	(0.000)
KZ_IND			-0.013*	-0.020***			-0.018*	-0.030***
			(0.007)	(0.006)			(0.010)	(0.009)
GDPG			0.022***	0.031***			0.030***	0.046***
			(0.005)	(0.007)			(0.005)	(0.006)
INFL			0.258***	-0.015			0.370***	0.401***
			(0.049)	(0.031)			(0.054)	(0.083)
POPG			-0.141	0.025			0.150***	0.205***
			(0.107)	(0.037)			(0.124)	(0.015)

Table 10. Continued

	Driscoll-Kraay method: Moderating effect				GMM estimations: Moderating effect with alternative measures			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**TQR**	**SGR**	**TQR**	**SGR**	**EPS**	**EPS**	**EPS**	**EPS**
CONSTANT	3.530***	2.001***	1.096***	-0.035	-1.066***	2.022***	-1.083***	-1.501***
	(0.195)	(0.002)	(0.202)	(0.231)	(0.032)	(0.403)	(0.124)	(0.136)
Number of Ids.	1,971	1,971	1,971	1,971	1,971	1,971	1,971	1,971
AR (1) test					0.000	0.000	0.000	0.000
AR (2) test (Pr > z)					0.132	0.113	0.071	0.091
Sargan test (P-value)					0.059	0.104	0.233	0.053

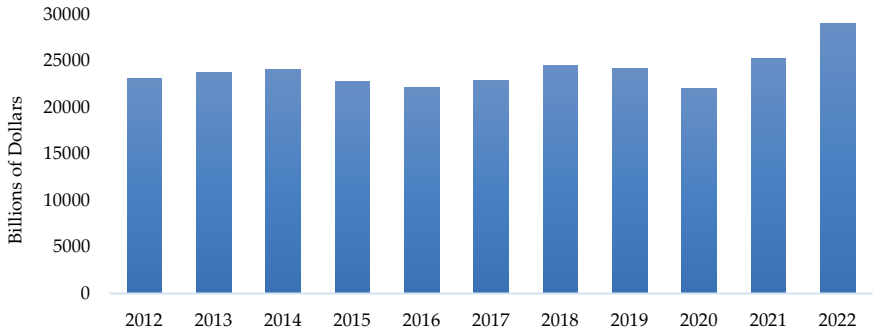
Notes: This table provides moderation analysis (1) Driscoll-Kraay standard error results columns 1-2 display moderating effect excluding control variables and 3-4 include control variables while similar fashion, columns 5-6 display and GMM estimation to check the moderating effect institutional quality index t excluding control variables and model 7-8 presents moderating effect including control variables. Besides, in GMM estimation, we use earnings per share (EPS) to serve as a suitable substitute for corporate value and sustainable growth. We also replaced our created IQI with ICRG IQI. Sargan tes.t (P-value). Standard errors in () ***Significant at *** p<.01, ** p<.05, * p<.1.

Table 11. Principal component analysis: Institutional quality index

Control Of Corruption	Government Effectiveness	Political Stability and Absence of Violence	Regulatory Quality	Rule Of Law	Voice And Accountability	I.Q. Index
84.762	91.866	60.664	91.866	92.417	85.782	1.671
84.834	91.469	64.455	91.943	91.080	86.385	0.463
89.100	90.521	66.351	87.678	91.549	87.793	0.887
88.152	91.469	66.825	86.730	90.610	84.038	0.039
89.423	89.423	65.714	88.942	89.904	81.773	-0.600
89.904	89.423	67.143	85.577	90.385	84.237	-0.165
90.385	91.346	59.524	91.827	91.346	84.237	0.703
88.942	92.789	57.143	92.789	91.827	81.281	1.138
88.462	92.789	60.377	92.789	89.904	79.710	-0.600
85.096	91.346	52.830	88.942	89.904	76.329	-0.600
82.692	87.019	48.113	87.500	88.942	72.947	-1.468
83.654	88.462	47.642	90.385	88.942	74.879	-1.468

Notes: This table reports the principal component: The institutional quality index.

Figure 1. Gross Output by US manufacturing Sector 2012–2022



Source: U.S. Bureau of Economic Analysis.

Figure 2. Theoretical framework of the study

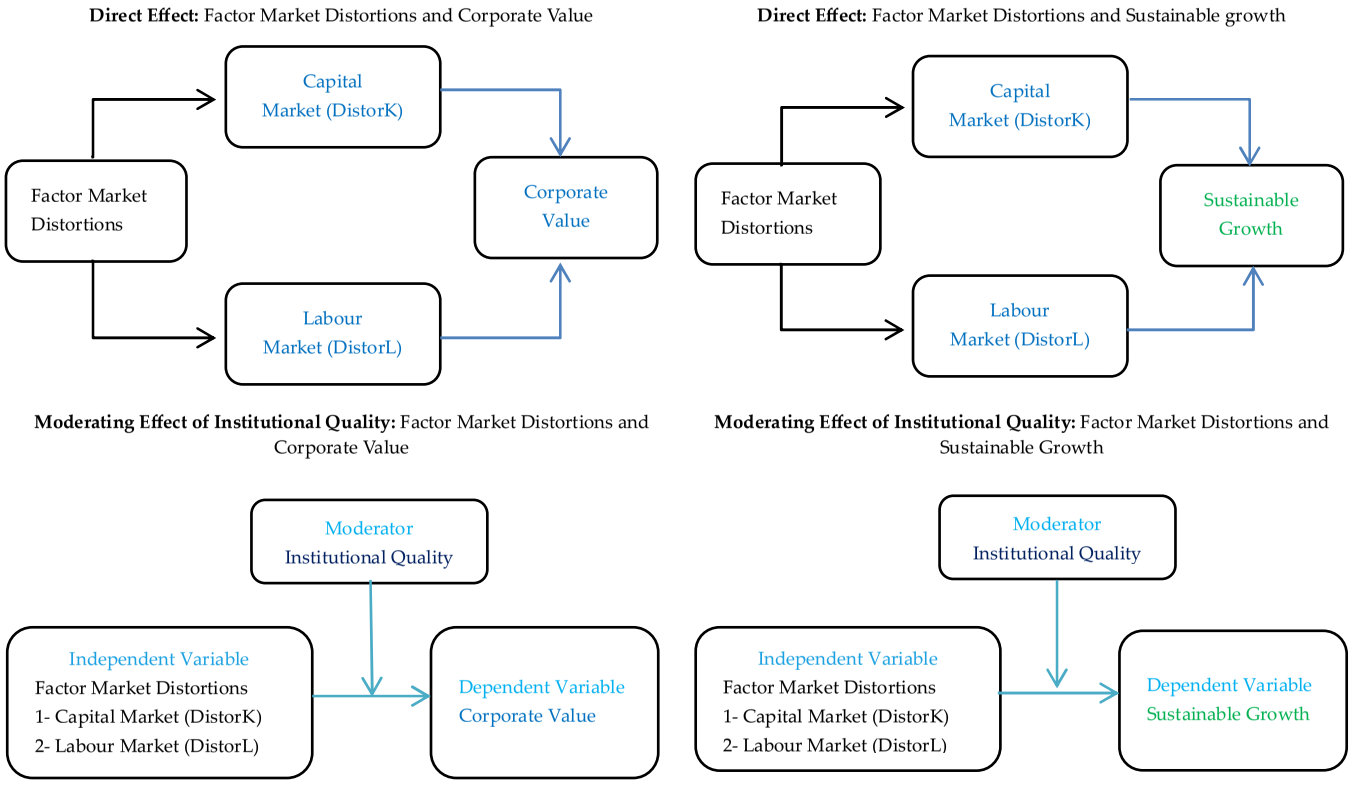
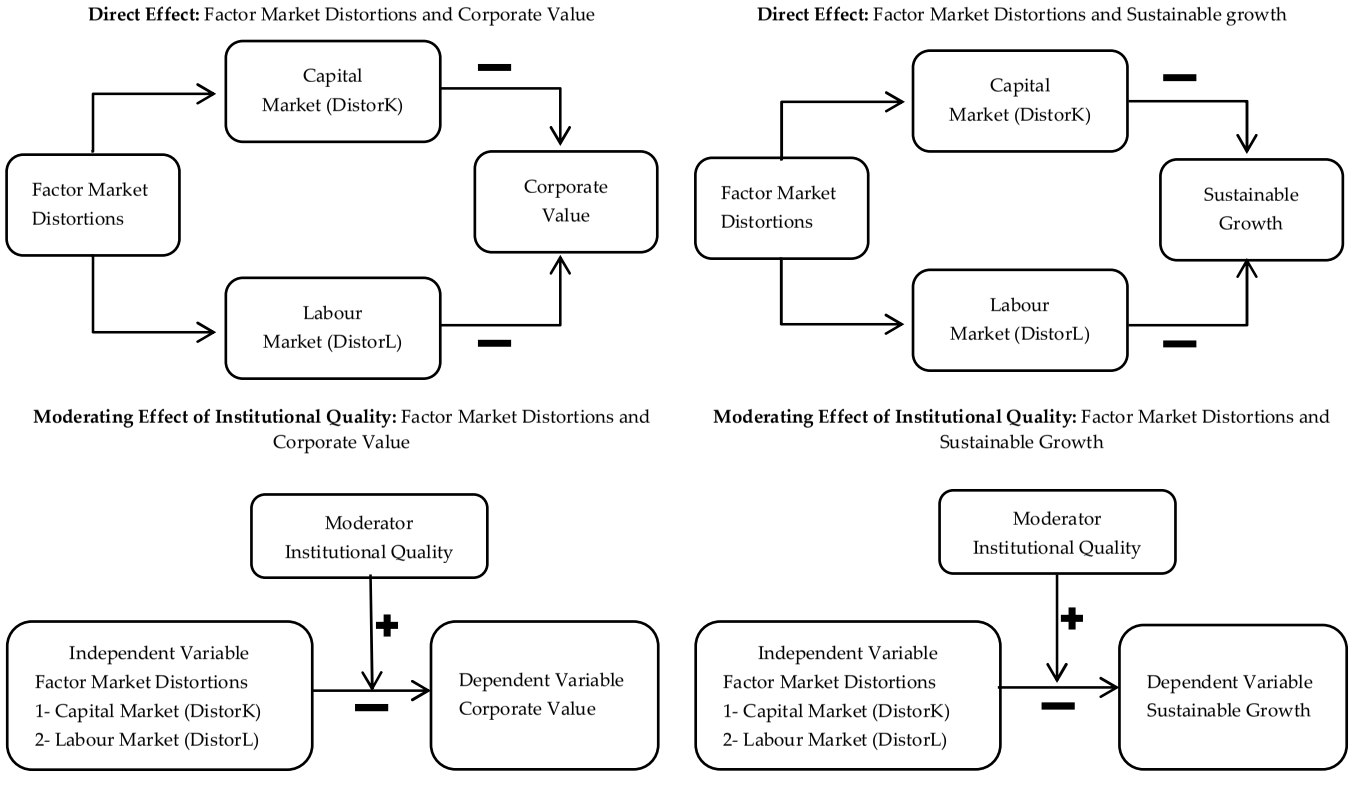


Figure 3. Visual summary of main empirical findings



Source: Visual presentation of results tables 5-8.