Samaneh Raiss Shaghaghi

Does globalisation help China in fighting corruption? A PLS-SEM model

Samaneh Raiss Shaghaghi, PhD candidate, University of Szeged, Hungary
Email: raiss.shaghaghi.samaneh@o365.u-szeged.hu

Corruption is considered one of the substantial challenges to economic growth and development worldwide. This study uses partial least squares structural equation modelling (PLS-SEM) techniques to integrate globalisation related, socio-economic and corruption determinants in assessing causal relationships between them and their effects on anti-corruption in China during President Xi's launch of the anti-corruption campaign. The results of the authors' analysis show that the determinants of globalisation have an indirect effect on the anti-corruption and socio-economic determinants and a direct effect on corruption. The negative effect of corruption's latent construct on the socio-economic latent variable supports the 'sand the wheels theory.

Globalisation, defined as worldwide interconnections and interpersonal relationships, has grown exponentially in the last two decades, most notably in the developing world. It is a multi-dimensional notion envisioned as a process of developing intra- or multi-continental networks of linkages among streams of capital, information, ideas and images via the movement of commodities and people *(Clark, 2000; Norris, 2000)*. As a result, the dissolution of national borders and the integration of national economies, cultures, technologies, institutions and governance arrangements have resulted in establishing a single continent characterised by complex interdependencies *(Dreher et al., 2008)*. Globalisation, which binds countries together, will undoubtedly and considerably impact emerging countries' economic progress.

Both developed and developing countries have been impacted by globalisation – socially, politically and economically. In the case of China, its economic development started in the late 1970s by opening to the world's economy *(NBC News, 2019)*. China has since become the world's second economic power after overtaking Japan in 2010. Some economists predicted that China's economy will

surpass the US economy around 2030. China has become a hub for global manufacturing as a result of integration, reaping enormous benefits. GDP per capita has risen from less than 5% of that of the United States in 1990 to nearly 30% today *(Capital Economics, 2022)*. However, when considering the different standards of living across countries, also known as adjusting to purchasing power parity, the Chinese economy has been the world's largest since 2014, according to the World Bank. After entering the market economy, however, the corruption rate in China has also grown. Growth accelerated in the years after that, averaging approximately 10% before slowing down to an average of 7.1% under the current president Xi. However, a study released in March by the Brookings Institute estimated that China may have overstated its GDP growth from 2008 to 2016 by 1.7 percentage points.

Corruption impedes long-term economic development and growth, and causes social problems. Corruption in China post-1949 refers to the abuse of political power for private ends that was typical of members of the Chinese Communist Party that holds power in the People's Republic of China. Cadre corruption in China has been subject to substantial media attention since Communist Party Secretary and current president Xi Jinping announced his anti-corruption campaign following the 18th National Congress in November 2012 *(Welsh, 2015)*. The disciplinary campaign consists of the investigation, examination, determination and sanctions of conduct that violates party discipline. However, corruption prevention has been a common and important issue at all times and in all countries. With China's anti-corruption campaign, economic growth has begun to stagnate, dropping an average of 1.3% *(Araral et al., 2017)*.

Official corruption is of special importance in China because its political system of socialism with Chinese characteristics relies heavily on virtuous government officials. Moreover, the People's Republic of China's constitution enshrines a leading role of the Communist Party of China.

The motivation behind conducting this research on China is driven by various paradoxes that characterise China's political economy: China is ruled by a communist party, yet it is capitalist, and the regime has a meritocracy, yet it is also corrupt *(Ang, 2019)*. Another reason for examining corruption in China is that many scholars attribute China's economic growth slowdown to President Xi's anti-corruption campaign. This article intends to demonstrate the impact of globalisation on corruption, socio-economic development and anti-corruption efforts during the first 10 years of Xi's anti-corruption campaign. Despite the study's limitations, it attempts to address some of the gaps left by the limitations of previous studies on anti-corruption and globalisation.

This study is divided into four sections. The introduction presents the study's topic of anti-corruption and the effects of globalisation on it, providing insights

into China's situation in terms of corruption, economic growth and anti-corruption efforts over the last 10 years. Section 1 provides an overview and theoretical framework for the literature on corruption and anti-corruption in China and globalisation. Section 2 comprises data description and modelling. The data analysis and a comprehensive explanation of the findings are presented in Section 3. Finally, Section 4 concludes and makes recommendations for future studies.

1. Literature Review

1.1 Corruption and anti-corruption

Defining corruption is one of the barriers to studying it. While it may appear to be a matter of semantics, how corruption is defined actually ends up determining what is modelled and measured. Although agreeing on a precise definition is difficult, there is a consensus that corruption refers to acts in which the power of a public office is used for personal gain in a manner that contravenes the rules of the game *(Sparling, 2019)*. Certain illegal acts, such as fraud, money laundering, drug trades and black-market operations, do not constitute corruption in and of themselves because they do not involve the use of public power *(Shelley 1998)*.

However, people who undertake these activities must often involve public officials and politicians if these operations are to survive; hence, these activities seldom thrive without widespread corruption *(Naylor 1987)*. Moreover, these acts can influence government policies even in their simplest forms. Public officials, bureaucrats, legislators and politicians use the powers delegated to them by the public to further their own economic interests at the expense of the common good. If discovered, these activities would, at worst, be considered illegal and, at best, entail strong public disapproval.

According to *Philp (2006, p. 45),* there is some consensus in the literature that a case of corruption exists when: a public official (A), acting for personal gain, violates the norms of public office and harms the interests of the public (B) to benefit a third party (C) who rewards A for access to goods or services that C would not otherwise obtain. The key components of this definition are as follows *(Sampford et al., 2006):*
1. A conception of public office with rules and norms for the conduct of that office, which is defined in terms of the public interest it serves, and that may run counter to the personal interests of the officeholder.

2. A view that corruption involves the distortion of the exercise of public office so that it meets private rather than public interests, so that some individuals gain who should not, and others lose who should not.

3. The idea that three actors are normally involved or affected by corrupt activity: the occupant of the public office (A), the intended beneficiary of that office (B) and the actual beneficiary of the particular exercise of that office (C) *(Sampford et al., 2006, p. 45)*.

There are several reasons for the persistence of corruption in China, some of which have cultural origins or have traditionally existed. For example, the low salaries of civil servants were a major cause of corruption during the Ming Dynasty (1368–1644) *(Quah, 2015)*. In his book, 'Hunting the Corrupt 'Tigers' and 'Flies' in China: An Evaluation of XI Jinping's Anti-corruption Campaign', *Quah (2015)* explains that the six major causes of corruption in China are low salaries, red tape, little probability of detection and punishment, decentralisation, *guanxi* and gift-giving. He posits that China's current anti-corruption mainly focuses on fighting the symptoms of corruption, not the underlying causes, which weakens the campaign *(Quah, 2015, p.64)*.

Compact networks of interpersonal obligations or *guanxi* (关系, lit. 'connections') are factually and culturally deep-rooted parts of doing business in China *(Lin et al., 2016)*. *Guanxi* is commonly translated as a Chinese version of 'social connections', 'particularistic ties' or 'personal networks'; however, these translations are not accurate because of the complex and rich meaning of the word *(King, 1991, p. 68)*. *Guanxi* may be classified into two varieties based on expressive and instrumental linkages *(Hwang, 1987, pp. 949–953)*. *Guanxi* can be favour-seeking, on the one hand, and rent-seeking on the other. Each type involves a network of interrelated interactions that serve distinct purposes. This distinction between favour-seeking and rent-seeking *guanxi* is critical; failing to recognise the distinction can lead to considerable confusion *(Qi, 2013)*. The term does not signify venality; developing connections is a standard and acceptable part of doing business in China and everywhere *(Gold–Guthrie, 2002)*. However, *guanxi* can morph into particular relations for trading favours, a socially corrosive corruption that has recently been an increasing concern in China *(Wedeman, 2012)*.

According to *Lin et al.* [2016], official corruption in China may take all three forms: grease, toll and private rewards. (1) Non-SOE enterprises pay bribes (grease) to obtain official approvals and authoritarian forbearances. (2) Authorities can also devise economically ineffective restrictions or bureaucratic delays to waive in order to establish or repay liabilities (tolls collection). (3) Government officials in charge of SOEs can utilise their enterprises' resources to compel other authorities to provide them with 'private perks', such as career promotions, benefits for

families or favours to bestow on members of their patronage networks (Lin et al., 2016, p. 10).

Since 1982, China has seen at least six considerable anti-corruption efforts to combat the corruption that has followed economic growth brought on by market-oriented economic change *(Gong, 2002; Manion, 2004; Wedeman, 2004)*. In addition, Xi Jinping initiated an anti-corruption campaign in 2012, shortly after becoming the general party secretary, China's highest leadership position.

The most recent anti-corruption drive has focused on high-profile corruption perpetrated by 'big tigers', or senior officials. For example, by the end of 2015, 161 officials at or above the provincial/ministerial level had been arrested, compared with 151 provincial/ministerial level officials arrested between 1993 and 2012 *(Tencent, 2016)*. Furthermore, to demolish corrupt kingdoms that have been a substantial threat to central authorities, the new initiative has targeted 'mega tigers' or high-ranking national officials such as Zhou Yongkang, Ling Jihua and Guo Boxiong. Moreover, Wang Qishan, named as the president of the Chinese Discipline Inspection Commission (CCDI) in 2012, has used an iron hand in upholding discipline in the campaign. Under Wang, the CCDI has tightened control over its local branches *(Fu, 2015)*. In addition, the CCDI's inspection teams have now been revitalised to expose misconduct and supervise the enforcement of discipline by increasing the number of teams and the pace of inspections. All these interventions have contributed to the party centre's united leadership and the centralisation of available capital to carry out anti-corruption measures. The new anti-corruption drive in China has shown, both quantitatively and qualitatively, that it is more rigorous than previous efforts *(Manion, 2004)* China's anti-corruption campaign has generated a variety of reactions. Although the majority of ordinary Chinese are thought to accept it, there are some concerns among the nation's legal profession. The campaign has received extensive journalistic coverage, most of which has speculated on the campaign's goals and potential political and economic consequences. A political purge is one of them, *The Economist (2014)* notes, as 'it is hard not to see corruption allegations as the latter-day weapon of choice in the winner-takes-all power struggles that the party has always suffered.' He Pin, editor of the Chinese news website Boxun in the United States, compared Zhou Yongkang, Bo Xilai, Ling Jihua and Xu Caihou to a modern-day 'Gang of Four', whose primary crime was scheming to steal power rather than engage in corruption *(Fang, 2012)*. However, some Chinese-language media outlets rejected the idea that the anti-corruption effort should be compared with a political cleansing, labelling this idea as simplistic and too pessimistic. According to DuoWei Times *(Mao, 2014)*, the campaign is a component of a larger plan for systemic reform that aims to re-establish the legitimacy of the CCP's right to rule, which was severely weakened in the previous decades by pervasive

corruption, a widening gap between the rich and the poor, social injustice and an excessive emphasis on material wealth. According to this perspective, the campaign is compatible with previous social justice measures launched by Xi, such as advancing legal reform, banning re-education via labour and criticising local officials for interfering with court procedures.

While exploring the sources of regime support in China, *Yang and Tang (2010)* and *Dickson (2016)* differentiate institutional support by separating it into various political institutions representing different government functions. Following this approach, the anti-corruption agencies are mainly the CCDI and the Discipline Inspection Commission from the provincial to county levels that implement the campaign in practice, for example by conducting investigations, arresting officials and inspecting government departments. In addition to the concrete anti-corruption actors, public support for formal rules and laws regulating corruption has also been examined in the long run. The efficacy of the law and regulations largely relies on public confidence in their effectiveness, self-enforced compliance and respect for the rules by those who are ruled *(Weingast, 1997)*. Given that campaigns often circumvent legal institutions, it is worth investigating how the public perceives the formal laws that, in the long term, sustain the success of transient campaigns.

1.2 Theoretical background

1.2.1 Institutionalism theory

The research and literature on institutional theory are large *(DiMaggio–Powell, 1983; Tolbert–Zucker, 1996; Scott, 2001).* However, the state and professions have replaced the competitive market as the rationale for corruption study. When it comes to the isomorphic process, *DiMaggio and Powell (1983)* identified three strategies, namely coercive, mimetic and normative, that might impact organisations' willingness to change. When an authority figure makes a political choice, it causes an organisational change, which is referred to as coercive isomorphism. Public institutions frequently put new regulations launched by government into effect. Mimetic isomorphism describes how companies emulate others as a result of unclear environments and ambiguous aims. According to normative isomorphism, organisations and professions undergo change because of peer pressure. According to *Tolbert and Zucker (1996)*, people blindly accept and adhere to social standards without giving them any thought or pushback if it serves their interests. For instance, those who are exposed to a corrupt atmosphere are more likely to act corruptly because they accept it as normal.

1.2.2 Grease vs. sand in the wheels

According to *Jensen et al. (2010),* corruption impacts globalisation and/or the development of a country, considering it a negative force. According to this 'sand in the wheels' viewpoint, corruption is most strongly connected with undermining a country's potential to grow *(Jensen et al., 2010; Mauro, 1995),* primarily by constraining the investment climate and quality *(Habib–Zurawicki, 2002).*

According to *Rose-Ackerman (1978),* institutions such as the World Bank and the International Monetary Fund are hesitant to encourage investment in corrupt nations. According to this viewpoint, corruption is an extra tax that increases transaction costs *(Mauro, 1995).* As a result, a country's potential to both globalise and expand is severely harmed. This viewpoint is also debatable; however, some research claim that, under certain situations, corruption may actually promote growth and globalisation. This perspective is known as greasing the wheels. *Nye (1967)* found early on how corruption facilitates the disposition of public advantages, such as acquiring private finance for capital development, reducing red tape and creating pathways to entrepreneurship. *Krammer (2017)* discovered that corruption has a favourable influence on the establishment of new businesses in environments with numerous national-level restrictions. According to this viewpoint, corruption acts as an efficiency-enhancing mechanism in weak institutional systems *(Yi et al., 2019).*

1.3 Empirical results

Aïssaoui and Fabian (2022) examined the role of globalisation in economic development and corruption. They studied the stage of economic development (low, lower-middle, upper-middle and high) and the globalisation dimension (economic, social and political) to reconcile competing findings, drawing on resource dependence and institutional theory, demonstrating that these two contingencies considerably explain when and what type of globalisation can improve a country's economy and affect corruption by utilising a cross-lagged panel design. They found that the formal dimensions of globalisation benefit low-income countries' GDP and corruption the most. Countries with greater wealth are more responsive to the legitimacy conferred by the informal dimensions of globalisation, at the expense of economic efficiency for high-income countries. Including China in their research as a lower-middle income country the authors demonstrated that corruption may increase the grease-the-wheels activities, where corruption may be utilised to fill institutional gaps. They also found that social globalisation models are highly substantial, primarily in connection to corruption.

Despite the fact that corruption appears to favour development, their findings indicate that social globalisation has a negative impact on corruption. This could be a sign of a transitional phase as domestic players start to push for and create the institutions needed to combat corruption in response to their increased awareness due to social globalisation *(Tihanyi–Hegarty, 2007)*.

Using cross-sectional data from 127 countries, *Lalountas et al. (2011)* investigated the presence of links between globalisation and corruption. The estimated findings showed a positive relationship between corruption and globalisation in the linear model, but there appears to be no meaningful influence of globalisation on corruption when linearity is removed. Their research shows that linearity is only a good approximation for middle- and high-income countries. Nevertheless, they concluded that globalisation is an effective anti-corruption weapon mainly for medium- and high-income nations, whereas it has little effect on corruption in low-income countries.

Globalisation, in the author's view, is assisting China in its battle against corruption. China is trying to increase its credibility through economic and political globalisation to present a positive image to the west. Furthermore, the survey conducted in 2013 shows that the greatest worry of the Chinese people is political corruption, described as a very large problem by more than half (53%) of respondents *(PEW Research Center, 2013)*. Based on these, the Chinese government could have taken measures against corruption. In this study, by using the PLS-SEM model, the author examined if globalisation has a positive or a negative effect on anti-corruption, corruption and socio-economic variables (Table 1).

2. Methodology and Data Analysis

2.1 Methodology and data collection

Based on the PLS estimation method, this section describes the variables and explains how globalisation, corruption and socio-economic variables relate to anti-corruption measures. The study's main variables are globalisation (globalisation index, *de jure* cultural globalisation index, *de jure* political globalisation index, *de jure* economic globalisation index and *de jure* social globalisation), socio-economic factors (GDP per capita, human development index, average wage of employed persons in public management, in social security and social organisations [in Chinese yuan], investment freedom, gender inequality and

financial freedom), corruption (arrests of criminal suspects and defendants under public prosecution for corruption and bribery, number of cases of dereliction of duty and torts that the people's procuratorate decides to prosecute) and anti-corruption (control of corruption).

The globalisation index is divided into two measurement groups: *de jure* and *de facto* globalisation. While measures of *de facto* globalisation include variables that represent flows and activities, *de jure* measures include those that represent economic policies that, in principle, orient flows and activities *(Gygli et al., 2019; Leal et al., 2021)*. This categorisation uses *de facto* or *de jure* measures of globalisation, resulting in systematically different conclusions regarding the association between globalisation and economic growth *(Quinn et al.,2011)*.

The distinction between *de jure* and *de facto* variables also helps in understanding the pragmatism of economic policies and institutions in the field of we draw on previous studies such as *Aïssaoui and Fabian (2022)*, who included economic, social and political aspects of globalisation in addition to the globalisation index. We included cultural globalisation in this study as it involves variables such as gender parity in education, civil liberties[1] and the human capital index[2]. To assess the rent-seeking validity in corruption in China, we incorporated the average wage of people employed in the public sector in the socio-economic construct. GDP per capita variable is also included in the socio-economic construct, serving as an indicator for economic growth. In addition, investment freedom and financial freedom were included in the socio-economic variable as market openness indicators to determine whether corruption is the cause of China's economic growth. Banking efficiency measures as well as freedom from governmental oversight and meddling in the financial sector mean financial freedom. Banks and other financial institutions owned by the state, such as insurers and capital markets, tend to have less competition and offer fewer services overall. Independent central bank supervision and regulation of financial institutions are restricted to contract enforcement and fraud prevention in an ideal banking and financial system where there is a minimum amount of governmental intrusion *(Heritage Research, n.d)*. Investment freedom demonstrates how individuals and companies would be free to engage in and withdraw from certain activities both domestically and internationally. In practice, the majority of nations have a variety of limitations on investments. Some countries have distinct laws governing domestic and international investment; others place limits on payments, transfers

---

[1] Quantification of aspects on freedom of expression and belief, associational and organisational rights, rule of law and personal autonomy and individual rights *(Freedom House, 2022)*.
[2] Human capital index based on the average years of schooling and an assumed rate of return to education *(Feenstra et al., 2015)*.

and capital transactions; and still others forbid foreign investment in some sectors of the economy. The flexibility that investors have in a market can also be impacted by labour laws, fraud, bureaucracy, poor infrastructure and political and security situations. Finally, the gender inequality and human development index are included in the socio-economic construct meant to assess China's social and economic development. Regarding the corruption construct, the variables are the number of cases of dereliction of duty and torts that the people's procuratorate decides to prosecute and the number of arrests of criminal suspects and defendants under public prosecution for corruption and bribery (as dereliction of duty of an officer is deemed corruption under the law). For the anti-corruption construct, the variable of control of corruption was included.

The analysis relies heavily on secondary data from the World Bank (World Development Indicators), the National Bureau of Statistics of China, the KOF Swiss Economic Institute (for statistics on globalisation variables) and from Heritage Research. Before being utilised in the research, the dataset was cross-checked for consistency with other sources and proved to be consistent. The dataset included information from 2010 to 2020 (see more in appendix A1).

Table 1

Latent and manifest variables

Latent variable	Manifest variable
Globalisation variables	Globalisation index (KOFGI)
	Cultural globalisation index, de jure (KOFCuGIdj)
	Political globalisation index, de jure (KOFPoGIdj)
	Economic globalisation index, de jure (KOFEcGidj)
	Social globalisation index, de jure (KOFEcGidj)
Socio-economic variables	GDP per Capita (Annual; GDPpCap)
	Average Wage Of Employed Persons In Public Management, Social Security And Social Organisation (yuan; Av.Wage.PP)
	Gender Inequality (Gen.In)
	Human Development Index (HDI)
	Investment Freedom (Invest.Fr)
	Financial Freedom (Finan.Fr.)
Corruption variables	Number of cases of dereliction of duty and tort that the people's procuratorate decides to prosecute (Del.dutyCase)
	Number of Arrests of Criminal Suspects and Defendants under Public Prosecution for Corruption and Bribery (Corrup.Bribe)
Anti-corruption variable	Control of Corruption (Control. Corruption)

The PLS path modelling comprises simultaneous regression and factor estimations, pointing to latent variables' indirect and direct impacts. Because this

technique is highly adaptable to both small and large sample sizes as well as non-normally distributed datasets of variables, it was selected as a necessary component of the demonstration *(Hair et al., 2012)*. The PLS approach helps in establishing a connection between the variables and the constructs' related indicators. The structural connections between the construct measurements of variables should be specified as well. The inner reliability of the PLS model is determined by the composite reliability (*CR*) test while its convergence validity is evaluated by means of discriminant validity (based on the average variance explained [*AVE*]) and indicator reliability. The coefficient of determination (R^2) and the correlation coefficient (*R*) are used to assess the structural model's explanatory power, which determines the variance in each of the endogenous constructs; f^2 indicates the variables' effect size.
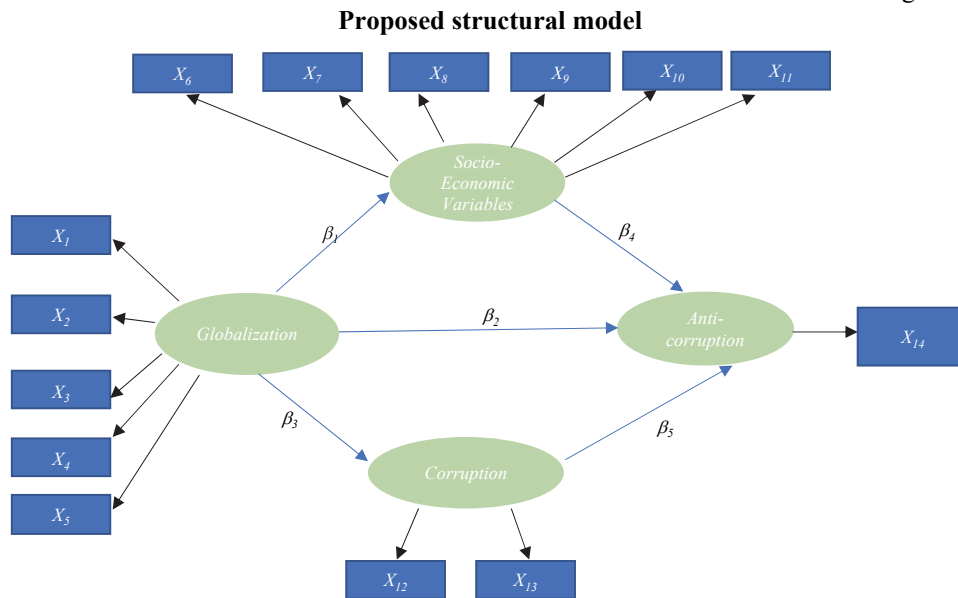
Figure 1

Proposed structural model

Figure 1 shows that variables X_1–X_{14} are the construct or manifest variables. The path coefficients (*β*) demonstrate the causal relations between the key variables.

3. Data Analysis and Results

PLS calculations assist in determining the structural path that connects variable constructs as well as the cause-and-effect relationship between a variable construct and the associated indicators . The validity of the structural route modelling is evaluated using R^2, which calculates the variations in the dependent variable that the independent variables explain. As a result, it is a representation of the modified path model's quality. The analysis demonstrates that 62.4% of the variation is predicted by the anti-corruption variable, 65.6% by the socio-economic variable and 64.9% by the corruption variable (Figure 2). According to *Cohen*'s *(1988)* classification of the effect size, R^2 values are as follows: $R^2 < 0.02$ is very weak, $0.02 \leq R^2 < 0.13$ is weak, $0.13 \leq R^2 < 0.26$ is moderate and $R^2 \geq 0.26$ is substantial. According to these results, the endogenous latent variables, anti-corruption and socio-economic factors considerably impact the model.

Figure 2

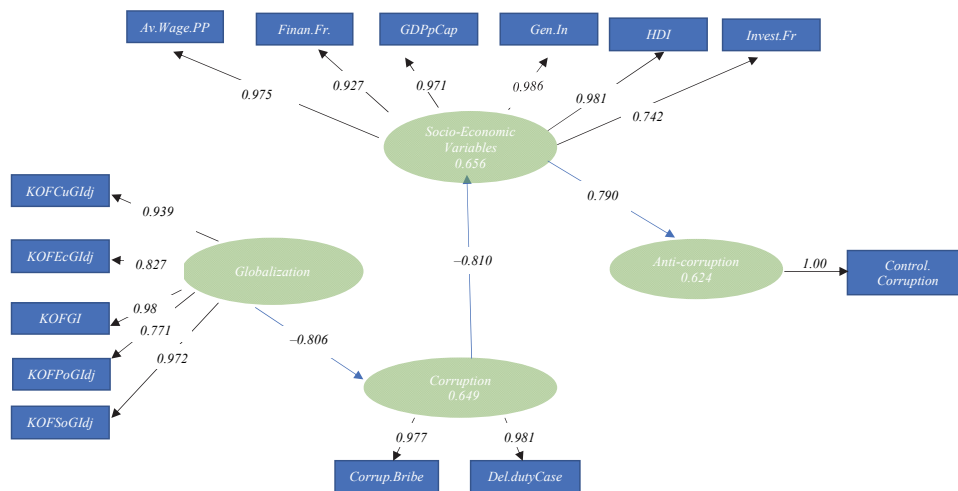**Model depicting the path analysis and the interactive relationships of variables**

Table 2 reveals that the predictive validity of the explained latent anti-corruption variable (Q^2) is 0.561, the socio-economic variable is 0.543 and the corruption variable is 0.596; these are all greater than 0, validating the model's predictive validity.

The data also show, when correcting the model, that the value of f^2 used to measure the importance of the construct variables predicts a substantial impact size for the globalisation latent construct variable (1.849), corruption (1.907) and socio-economic status (1.662).

Table 2

Indicator validity and effective predictive size

Latent variables	Validity (Q^2)	Effect size (f^2)
Anti-corruption	0.561	–
Corruption	0.596	1.907
Globalisation	–	1.849
Socio-economic	0.543	1.662

These findings show that the corruption, socio-economic and anti-corruption factors may all have a substantial impact on the model modification, which is consistent with *Hair et al.*'s *(2014)* evaluation criteria: Q^2 values should be more than zero; and *f^2* values greater than 0.02, 0.15 and 0.35 represent modest, medium and large impact sizes.

The model's adjustment quality is evaluated using *CR*, R^2 and *AVE*. Internal consistency (construct reliability) is measured by *CR* while convergent validity is demonstrated by AVE. Table 3 shows that the *CR* values are more than 0.7, and the *AVE* values are greater than the 0.5 threshold, which is regarded as acceptable. According to *Hair et al. (2009),* these findings support the validity of the construct variables in model modification.

Table 3

Indicators for the adjustment quality of the model

Latent variables	AVE	CR	R^2
Anti-corruption	1.000	1.000	0.624
Corruption	0.959	0.957	0.649
Globalisation	0.816	0.941	–
Socio-economic	0.873	0.969	0.656

Fornell and Larcker (1981) suggested a discriminant validity assessment of the models (the evaluation of the extent to which a construct is empirically distinct from other constructs). According to the authors, the square root of *AVE* for each latent construct component should be greater than the construct factor's strongest correlation with any other variable. The discriminant values were calculated by measuring the square root of the *AVE* of the latent construct variables, as given on the diagonal of Table 4, and comparing it to the *R* in each sectional column. Moreover, cross loadings were examined for discriminant validity, that is, whether each item loading on a construct factor is greater than all of its cross loadings with other construct factors. Apart from the globalisation variable, the data confirm that there is no issue. Another approach was utilised to examine the discriminant validity in this case. The cross loadings between manifest variables and these

constructs were examined to determine relationships between manifest and construct variables. This analysis found no concern with discriminant validity. The study reached the conclusion that the measurement model has discriminant validity.

Table 4

**Fornell–Larcker criterion analysis for checking
the discriminant validity of the model**

Latent variables	Discriminant value			
	Anti-corruption	Corruption	Globalisation	Socio-economic
Anti-corruption	1.000			
Corruption	−0.362	0.979		
Globalisation	0.788	−0.806	0.903	
Socio-economic	0.790	−0.810	0.988	0.934

Table 5

Bootstrapping results

Causal relationship	β (original sample)	Sample mean	Standard deviation	Test statistics	p value
Corruption → Socio-economic	−0.810	−0.803	0.123	6.569	0.000
Globalisation → Corruption	−0.806	−0.805	0.108	7.434	0.000
Socio-economic → Anti-corruption	0.790	0.781	0.126	6.255	0.000

Bootstrap calculations were used to determine the relevance of route coefficients. Based on *Hair, Ringle and Sarstedt's (2011)* criteria, the number of sub-examples is 5,000. The results included in Table 5 show that the globalisation construct variable has a negative relation with corruption, the corruption construct variable has a negative relation with the socio-economic construct and the socio-economic construct variable has a positive relation with anti-corruption.

Table 6

Total effects and significance test statistics of the model

Causal relationship	β (original sample)	Sample mean	Standard deviation	Test statistics	p value
Corruption → Anti-corruption	−0.640	−0.622	0.133	4.822	0.000
Corruption → Socio-economic	−0.810	−0.803	0.123	6.569	0.000
Globalisation → Anti-corruption	0.516	0.509	0.118	4.372	0.000
Globalisation → Corruption	−0.806	−0.805	0.108	7.434	0.000
Globalisation → Socio-economic	0.652	0.658	0.126	5.177	0.000
Socio-economic → Anti-corruption	0.790	0.781	0.126	6.255	0.000

The results presented in Table 6 further show a positive total direct effect of socio-economic factors on anti-corruption ($\beta = 0.790$), and a negative total direct effect of corruption on socio-economic factors ($\beta = -0.810$) and of globalisation on corruption ($\beta = -0.806$).

Table 7 presents three total indirect effects. The first one involves the globalisation's indirect effect on the socio-economic factors ($\beta = 0.652$), resulting from the direct effect of the globalisation construct on the corruption construct and the direct effect of the corruption construct on socio-economic variables. The second indirect effect, which results from corruption's direct effect on socio-economic variables and the socio-economic construct on anti-corruption, is the corruption construct on the anti-corruption ($\beta = -0.640$). Finally, the indirect effect of globalisation on anti-corruption ($\beta = 0.516$) is as mentioned earlier.

Table 7

Indirect effects and significance test statistics of the model

Causal relationship	β (original sample)	Sample mean	Standard deviation	Test statistics	p value
Corruption → Anti-corruption	−0.640	−0.622	0.133	4.822	0.000
Corruption → Socio-economic	–	–	–	–	–
Globalisation → Anti-corruption	0.516	0.509	0.118	4.372	0.000
Globalisation → Corruption	–	–	–	–	–
Globalisation → Socio-economic	0.652	0.658	0.126	5.177	0.000
Socio-economic → Anti-corruption	–	–	–	–	–

4. Conclusions

Corruption became an endemic problem that most nations with weak legal systems face and it is considered as one of the world's greatest challenges, as well as the most crucial issue on a country's path to sustainable development *(Rose-Ackerman, 2004)*. Furthermore, corruption is often regarded as a country's most substantial impediment to economic and political growth because corruption takes advantage of economic incentives to invest, weakening public institutions, redistributing money and power to undeserving individuals and finally breeding distrust in society. Thus, corruption is a major impediment to a country's progress and an obstacle on the path of development. Consequently, it is very important to detect and prevent corruption for the sake of future advancement of developing countries towards becoming developed nations.

Furthermore, it has a wide-ranging influence on impoverished areas. Corruption prevention has always been a hot topic and a critical concern in all countries. In addition, in the digital era, corruption is often disguised and difficult to uncover. As a result, corruption might present unique obstacles during the detecting phase.

The study examined the relationships between the determinants of globalisation, corruption and socio-economic factors and their effects on anti-corruption by applying PLS-SEM modelling to China's data from national and international databases, spanning from 2010 to 2020. This period covers President Xi's launch of the anti-corruption campaign in China. The model structure and measurements were verified for the causal model (see Figure 2). The latent constructs were verified by examining convergence validity, *AVE*, *CR* and factor loading *(Hair et al., 2009)*. The results in Table 3 show that *CR* > 0.7 and *AVE* > 0.5 for each latent variable and that factor loadings are greater than 0.5; thus, all the factor loadings for the constructs are reliable. According to the results presented in Table 4, the discriminant validity was justified as the discriminant values of the latent variables are greater than the square of the correlation between the latent variable and other constructs (for the criterion, see *Fornell–Larcker, 1981)*.

The analysis of the validity of the structural model in Table 2 showed that latent constructs, corruption, socio-economic factors and anti-corruption had higher predictive relevance because the predictive validity $Q^2 > 0$; furthermore, the effect size (f^2) for the latent globalisation, socio-economic and corruption constructs were considered large (for f^2 values, see *Hair et al., 2014*). According to the R^2 results, corruption is affected by latent construct globalisation, explaining 64.9% of the variance of corruption. With an R^2 value of 0.624, the latent socio-economic construct also influences the anti-corruption latent construct, explaining 62.4% of the variation in the construct.

The results for the total effects of the latent constructs on anti-corruption show that the latent socio-economic construct ($\beta = 0.790$, $p = 0.000 < 0.050$) has a positive and statistically significant effect on anti-corruption, which may be brought on by rising average pay for workers in public administration, social security and social services, as well as a rising GDP per capita. Economic growth was one of the key objectives of China's Twelfth Five-Year Plan (2011–2015), with one objective aiming to increase GDP by about 8%, per capita income by 7% annually and to spend 2.2% of GDP on research and development by 2015. In addition, China increased trading and investment restrictions in 2010, giving the government greater control over corruption and its eradication.

The path coefficient, i.e. the total effect of the corruption latent construct ($\beta = -0.810$, $p = 0.000 < 0.050$) on socio-economic factors is negative and

substantial. The total effect of the globalisation construct on corruption ($\beta = -0.806$, $p = 0.000 < 0.050$) is also negative and substantial, indicating that as corruption cases rise, the government will inevitably continue to impose additional restrictions on banking and investing transactions, lowering the degree of freedom in these areas. In addition, a rise in corruption can lead to inequality and the distribution of wealth among one set of individuals.

The results also show that the latent globalisation construct has an indirect effect on anti-corruption. Its indirect effect is manifested through the corruption variable and socio-economic factors ($\beta = 0.516$, $p = 0.000 < 0.050$), which are positive and substantial. The results correspond to *Lalountas et al.*'s *(2011, p. 645)* summary: 'Many international institutions consider globalisation as a powerful tool to fighting corruption since it presupposes structural and institutional reforms. … These reforms constitute the transmission channel via which globalisation affects the control of corruption.'

Based on the findings, it can be concluded that although globalisation does not affect anti-corruption directly, it does so indirectly through corruption's direct impact on socio-economic factors and its own direct impact on corruption. Corruption is considerably and adversely impacted by globalisation. In 1978, China opened its economy to the free market and began the process of going global. The anti-corruption campaign was developed as China globalised politically, socially and economically, in an effort to increase its legitimacy abroad and demonstrate the communist party and state council's control. Aiming to close all safe havens for criminals, wherever they may be, Xi currently seeks to add an additional focus to the anti-corruption campaign that concerns fugitives overseas accused of committing serious economic crimes. With this campaign impressive success has been attained. The introduction of this new strategy might alter the perception of the Western media, which thinks at present that this anti-corruption drive serves as a tool for political purges.

The PLS-SEM results show the value of integrating the socio-economic, corruption and globalisation determinants in models in order to assess their effects on anti-corruption. Furthermore, the negative and substantial impact of latent corruption on socio-economic factors leads to the conclusion that corruption has a sand-in-the-wheel effect on economic growth in the latent socio-economic construct. Policies and interventions should focus on these three determinants to increase the effectiveness of anti-corruption measures in China. The results indicate that globalisation, socio-economic and corruption determinants have a substantial effect on anti-corruption. The findings show that socio-economic variables account for 62.4% of the change in anti-corruption and that globalisation favours anti-corruption.

Appendix

Description of variables

Variables	Description	Data Source
Globalisation index (KOFGI)	The KOF Globalisation Index measures globalisation's economic, social and political dimensions.	KOF Globalisation Index
Cultural globalisation index, *de jure* (KOFCuGIdj)	The variable covers the ratio of girls to boys enrolled in primary education level in public and private schools, the human capital index based on the average years of schooling and an assumed rate of return to education and quantification of aspects of freedom of expression and belief, associational and organisational rights, rule of law and personal autonomy and individual rights.	KOF Globalisation Index
Political globalisation index, *de jure* (KOFPoGIdj)	The variable includes the number of international intergovernmental organisations in which a country is a member. International treaties signed between two or more states and ratified by the highest legislative body of each country since 1945 and the number of distinct treaty partners of a country with bilateral investment treaties.	KOF Globalisation Index
Economic globalisation index, *de jure* (KOFEcGidj)	This variable is the equal combination of *de jure* trade globalisation and *de jure* financial globalisation.	KOF Globalisation Index
Social globalisation index, *de jure* (KOFEcGidj)	This variable is the equal combination of *de jure* interpersonal globalisation, *de jure* informational globalisation and *de jure* cultural globalisation.	KOF Globalisation Index
GDP per Capita	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2015 prices, expressed in US dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for the depreciation of fabricated assets or for the depletion and degradation of natural resources.	WDI
Average Wage of Employed Persons In Public Management, Social Security And Social Organisation	Average wage of employed persons as public officers in yuan	China National Statistics

(Table continues on the next page.)

(Continued.)

Variables	Description	Data Source
Gender Inequality	A composite measure reflecting inequality in achievement between women and men in three dimensions: reproductive health, empowerment, and the labour market.	UNDP
Human Development Index (HDI)	The human development index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable, and having a decent standard of living. The HDI is the geometric mean of normalised indices for each of the three dimensions.	UNDP
Investment freedom	The index evaluates a variety of restrictions that are typically imposed on investment. This index has a pointing system of 0 to 100 and includes national treatment of foreign investment, restrictions on land ownership, foreign investment code, sectoral investment restrictions and foreign exchange and capital controls.	The Heritage Foundation
Financial freedom	Financial freedom is a measure of banking efficiency as well as a measure of independence from government control and interference in the financial sector. State ownership of banks and other financial institutions such as insurers and capital markets reduces competition and generally lowers the level of available services.	The Heritage Foundation
Number of cases of dereliction of duty and tort that the people's procuratorate decides to prosecute		China National Statistics
Number of Arrests of Criminal Suspects and Defendants under Public Prosecution for Corruption and Bribery		China National Statistics
Control of corruption (control. Corruption)	Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests. The estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately 2.5 to 2.5.	WGI

Note: WDI: World Development Indicators; UNDP: United Nations Development Program.

References

Aïssaoui, R. – Fabian, F. (2022): Globalization, economic development, and corruption: A cross-lagged contingency perspective. *J International Business Policy* 5, 1–28. https://doi.org/10.1057/s42214-020-00091-5.

Ang, Y. Y., (2019): *China's Corrupt Meritocracy.* Project Syndicate.

Araral, E. – Hui, L. – Khuong, V. M. – Hartley, K. (2017): Has China's Anti-Corruption Campaign Slowed Down Growth? *Lee Kuan Yew School of Public Policy Research Paper.* 17–29. http://dx.doi.org/10.2139/ssrn.3074893

Capital Economics (2022): *China is one of globalisation's winners. It won't throw that away for Russia.* https://www.capitaleconomics.com/blog/china-is-one-of-globalisations-winners-it-wont-throw-that-away-for-russia

China Annual Dataset (2022): China National Statistics. https://data.stats.gov.cn/english/ (downloaded: May 2023)

Clark, W. C. (2000): *Governance in a Globalizing World, Chapter Environmental globalization.* Brookings Institution Press. 86–108.

Cohen, J. (1988): Statistical Power Analysis for the Behavioural Sciences. *Psychology Press.* 2nd Edition. New York.

D'Amico, N. (2015): Corruption and Economic Growth in China: An Empirical Analysis. *Senior Honors Projects.* 78. http://collected.jcu.edu/honorspapers/78

Dickson, B. (2016): The Dictator's Dilemma: The Chinese Communist Party's Strategy for Survival. *Oxford: Oxford University Press.*

DiMaggio, P. J. – Powell, W. W. (1983): The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48 (2), 147–160.

Dreher, A. – Gaston, N. – Martens, P. (2008): Measuring globalization: Gauging its consequences. *Springer Science and Business Media.*

Fang, B. (2012): 专家：习近平反腐目标—打垮太上皇架构 (in Chinese). (*Expert: Xi Jinping's Anti-Corruption Goal—To Break Down the Overlord Structure*). Voice of America. Archived from the original on March 3, 2015

Feenstra, R. C. – Inklaar, R. – Timmer, M. P. (2015): The Next Generation of the Penn World Table. *American Economic Review.* 105(10).

Fornell, C. – Larcker, D. F. (1981): Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research. 18(1), pp. 39–50. https://doi.org/10.1177/002224378101800104

Freedom House (2022): Freedom in the World 2022.

Fu, H. (2015): Wielding the Sword: President Xi's New Anti-corruption Campaign. In Greed, Corruption, and the Modern State: *Essays in Political Economy.* edited by Susan Rose-Ackerman and Paul Lagunes, 134–158. Cheltenham: Edward Elgar.

Gong, T. (2002): Dangerous Collusion: Corruption as a Collective Venture in Contemporary China. *Communist and Post-Communist Studies*

Gold, T. – Guthrie, D. – Wank, D. (2002): An Introduction to the Study of Guanxi. In: Gold, T. – Guthrie, D. – Wank, D. (eds.): *Social Connections in China: Institutions, Culture, and the Changing Nature of Guanxi. Structural Analysis in the Social Sciences.* Cambridge University Press, pp. 3–20.

Gygli, S. – Haelg, F. – Potrafke. N. – Sturm, J. E. (2019): The KOF Globalisation Index – Revisited, Review of International Organizations, 14(3), 543–574 external page. https://doi.org/10.1007/s11558-019-09344-2

Habib, M. – Zurawicki, L. (2002): Corruption and foreign direct investment. Journal of International Business Studies, 33: 291–307.

Hair, J. F. – Black, W. C. – Babin, B. J. – Anderson, R. E. – Tatham, R. (2009): Análise Multivariada de Dados. Bookman Editora. Porto Alegre.

Hair, J. F. – Ringle, C. M. – Sarstedt, M. (2011): PLS-SEM: Indeed, a silver bullet. *Journal of Marketing Theory and Practice.* 19(2), pp. 139–152. https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F. – Sarstedt, M. – Hopkins, L. – Kuppelwiese, V. G. (2014): Partial least squares structural equation modelling (PLS-SEM): An emerging tool in business research. *European Business Review*. 26(2), pp. 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, J. F. – Sarstedt, M. – Ringle, C. M. – Mena, J. A. (2012): An assessment of the use of partial least squares structural equation modelling in marketing research. *Journal of the Academy of Marketing Science*. 40(3), pp. 414–433. https://doi.org/10.1007/s11747-011-0261-6

Heritage Research (n.d): Financial Freedom: Banking Efficiency and Economic Freedom. Reached on 22nd May 2023. https://www.heritage.org/index/financial-freedom#:~:text=Financial%20freedom%20is%20a%20measure,interference%20in%20the%20financial%20sector.

Heritage Research (n.d): Economic Data and Statistics on World Economy and Economic Freedom. Economic Data and Statistics on World Economy and Economic Freedom. https://www.heritage.org/index/explore?view=by-region-country-year (downloaded: May 2023)

Hwang, K. (1987): Face and Favor: The Chinese Power Game, *American Journal of Sociology,* 92(4), 944–974.

Jensen, N. M. – Li, Q. – Rahman, A. (2010): Understanding corruption and firm responses in cross-national firm-level surveys. *Journal of International Business Studies*, 41: 1481–1504.

King, A. (1991) 'Kuan-hsi and Network Building', *Daedalus,* 120(2), 63–84.

Lalountas, D. A. – Manolas, G. A. – Vavouras, I. S. (2011): Corruption, globalization and development: How are these three phenomena related? *Journal of Policy Modeling*, 33(4), pp: 636–648. https://doi.org/10.1016/j.jpolmod.2011.02.001.

Krammer, S. M. S. (2017): Greasing the wheels of change: Bribery, institutions, and new product introductions in emerging markets*. Journal of Management*, 45(5), 1889–1926.

Leal, P. H. – Marques, A. C. – Shahbaz, M. (2021): The role of globalisation, de jure and de facto, on environmental performance: evidence from developing and developed countries. *Environ Dev Sustain,* 23, 7412–7431. https://doi.org/10.1007/s10668-020-00923-7

Lin, C. – Morck, R. – Yeung, B. – Zhao, X. (2016): Anti-corruption reforms and shareholder valuations: Event study evidence from China (No. w22001). National Bureau of Economic Research.

Manion, M. (2004): Corruption by Design: Building Clean Government in Mainland China and Hong Kong. Cambridge, MA: *Harvard University Press.*

Mao, Y. (2014): 回音壁：西媒为何跟不上习近平的步伐？(Echoing Wall: Why can't Western media keep up with Xi Jinping?) Duowei Times (in Chinese). Archived from the original on December 27, 2014. Retrieved March 12, 2015.

Mauro, P. (1995): Corruption and growth. Quarterly Journal of Economics, 110(3), 681–712.

Naylor, R. (1987): *Hot Money and the Politics of Debt.* Toronto: McGill-Queen's Press.

NBC Associated Press (2019): *China's anti-corruption campaign recovers $519 million in a year,* s.l.: NBC News.

Norris, P. (2000): Governance in a Globalizing World, chapter Global governance and cosmopolitan citizens. Brookings Institution Press.

Nye, J. S. (1967): Corruption and political development: A cost-benefit analysis. *American Political Science Review,* 61(2), 417–427.

PEW Research Center (2013): *Environmental Concerns on the Rise in China; Many Also Worried about Inflation, Inequality, Corruption,* s.l.: PEW Research Center. https://www.pewresearch.org/global/2013/09/19/environmental-concerns-on-the-rise-in-china/

Philp, M. (2006): Corruption Definition and Measurement. Sampford, C., Shacklock, A., Connors, C. & Galtung, F.: *Measuring Corruption.* Routledge.

Qi, X. (2013): 'Guanxi', social capital theory and beyond. *The British Journal of Sociology*, 64: 308–324. https://doi.org/10.1111/1468-4446.12019

Quah, J. S. T. (2015): Hunting the Corrupt "Tigers" and "Flies" in China: An Evaluation of XI Jinping's Anti-Corruption Campaign (November 2012 to March 2015), *Maryland Series in Contemporary Asian Studies,* 1(1). https://digitalcommons.law.umaryland.edu/mscas/vol2015/iss1/1

Quinn, D. – Schindler, M. – Toyoda, A. M. (2011): Assessing measures of financial openness and integration. *IMF Economic Review* 59(3), pp. 488–522.

Rose-Ackerman, S. (1978): *Corruption: A study of political economy*. New York, NY: Academic Press.

Rose-Ackerman, S. (2004): *The Challenge of Poor Governance and Corruption*. In: *Global Crises, Global Solutions.* s.l. Cambridge University Press.

Sampford, C. – Shacklock, A. – Connors, C. – Galtung, F. (2006): *Measuring Corruption.* s.l.: Routledge.

Scott, W. R. (2001): Institutions and Organizations (2nd ed). Thousand Oaks, CA: Sage.

Shelley, L. I. (1998): *Crime and Corruption in the Digital Age.* Journal of International Affairs, 51(2).

Sparling, R. A. (2019): *Political Corruption: The Underside of Civic Morality.* Philadelphia: University of Pennsylvania press.

Tencent (2016): Dataset of Fallen Officials in the Past 20 Years. http://news.qq.com/zt2014/20ffdata/index.htm (downloaded: August 2017).

The Economist (2014): *Banyan: Tiger in the net*. https://www.economist.com/china/2014/12/11/tiger-in-the-net. (downloaded: January 2023).

Tihanyi, L. – Hegarty, W. H. (2007): Political interests and the emergence of commercial banking in transition economies. *Journal of Management Studies*, 44(5): 788–813.

Tolbert, P. S. – Zucker, L. G. (1996): The Institutionalization of Institutional Theory. *Handbook of Organization Studies*, 175–190.

United Nations Development Programme (UNDP) (2018): *Annual Report 2022*. United Nations Publications. New York. https://annualreport.undp.org/assets/UNDP-Annual-Report-2022-en.pdf

Wedeman, A. H., (2004): The Intensification of Corruption in China. China Quarterly 180: 895–921.

Weingast, B. R. (1997): The Political Foundation of Democracy and Rule of Law. *American Political Science Review* 91(2): 245–63.

World Development Indicators | DataBank. (2000, January 1): World Development Indicators | DataBank. https://databank.worldbank.org/source/world-development-indicators

Yang, Q. – Tang, W. (2010): Exploring the Sources of Institutional Trust in China: Culture, Mobilization, or Performance? *Asian Politics & Policy*, 2, 415–436. https://doi.org/10.1111/j.1943-0787.2010.01201.x

Yi, J. – Meng, S. – Macaulay, C. D. – Peng, M. W. (2019): Corruption and foreign direction investment phases: The moderating role of institutions. *Journal of International Business Policy* 2: 167–181.