DETERMINANTS OF THE COMPETITIVENESS OF INTERNATIONAL FINANCIAL CENTRES IN AFRICA

VELMA ACHIENG OWINO

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by Strathmore University or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis.

Velma Achieng Owino

[Signature] .....  .....

[Date] .....13-03-2025.....

Approval

The supervisor named below reviewed and approved the thesis of Velma Achieng Owino.

Name of Supervisor: Dr. Muli Maingi

Lecturer, Strathmore University Business School

[Signature] .....  .....

[Date].....14-03-2025.....

DEDICATION

I dedicate this thesis to my parents, brother, and sisters, as well as to my husband, Valiant, for his impeccable love, inspiration and support. Additionally, I devote this work to my heavenly Father and God, who has abundantly enabled me to accomplish his wonderful plans for my life. I witnessed God's miraculous blessing during data analysis—our daughter, Valour, was born.

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ABSTRACT

In recent years, the globalisation of economies has led to the rapid development of cities in various countries into international financial centres (IFCs). The IFCs contribute significantly to the country's global competitiveness by making investing and conducting financial services and transactions easier, less risky and more attractive, thereby increasing economic development and growth. The Global Financial Centres Index (GFCI) is a benchmarking model developed by Z/Yen Group to evaluate the relative level of development and competitiveness of major IFCs. The business environment, financial sector development, human capital and infrastructure are theoretically known to be determinants of the competitiveness of IFCs, but the magnitude and statistical significance of their effect remain unknown as most studies on the competitiveness of IFCs are descriptive—only describe the characteristics of highly competitive IFCs—due to data limitations. A few studies have statistically analysed the effect of specific metrics such as capital access, inflation rate, internet usage and skilled workforce on the competitiveness of IFCs at the global level or outside Africa but have not evaluated the effect of the aggregate business environment, financial sector development, human capital and infrastructure. A targeted, context-specific empirical study on the competitiveness of African IFCs is needed to facilitate the development of better-suited policies and interventions to increase the competitiveness of these IFCs globally. Therefore, this study relied on the agglomeration, world city and global city theories underpinning the development and competitiveness of IFCs to fill the research gap by using a secondary panel data set drawn from four African IFCs over five years between 2019 and 2023. The study adopted the positivist research philosophy and a diagnostic quantitative research design. The study conducted a feasible generalised least squares estimation of the random effects regression model to determine the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs in Africa. Descriptive statistics revealed that while some IFCs excelled in particular competitive areas, attaining low or moderate and inconsistent scores across other dimensions affected their GFCI ratings (overall competitiveness). The results revealed that the business environment had a statistically significant negative effect on the competitiveness of the IFCs. The financial sector development and human capital showed significant positive effects on the competitiveness of the IFCs. The study concluded that addressing weaknesses in the business environment and improving financial sector development and human capital could significantly enhance the global standing of African IFCs. The findings of this study may serve as a working guide to African governments, policymakers and city planners seeking to enhance their targeting efforts and identify better-suited policies to mitigate low global competitiveness. The results can help them highlight the specific competitive areas that require improvements to increase the overall competitiveness of their IFCs globally.

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LIST OF ACRONYMS

ATMs	Automated teller machines
CBDCs	Central Bank Digital Currencies
EIU	Economist Intelligence Unit
ESG	Environmental, Social and Governance
GDP	Gross Domestic Product
GFCI	Global Financial Centers Index
HSBC	Hong Kong and Shanghai Banking Corporation
ICT	Information and Communication Technology
IFCs	International Financial Centers

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DEFINITION OF TERMS

Determinants of the competitiveness of IFCs	These include an IFC's business environment, financial sector development, human capital and infrastructure (Z/Yen Group, 2023b).
Global Financial Centres Index	A global benchmarking model designed by the Z/Yen Group in 2007 to evaluate the relative level of development and competitiveness of major international financial centres (Z/Yen Group, 2007).
International Financial Center	A city with a high number of various banks, stock exchanges, financial markets, insurance companies, commercial and communication infrastructure, expertise and innovation, and regulatory framework where several domestic and international (cross-border) trading transactions are conducted (Solovjova et al., 2018).

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In recent years, the globalisation of economies has led to the rapid development of cities in various countries into international financial centres (IFCs) (Z/Yen Group, 2023b). An IFC is a city with a high number of various banks, stock exchanges, financial markets, insurance companies, commercial and communication infrastructure, expertise and innovation, and regulatory framework where several domestic and international (cross-border) trading transactions are conducted (Solovjova et al., 2018). Countries in all parts of the world are trying to develop one or more of their cities as highly competitive IFCs that attract investors globally (Naeem, 2023; Vo and Nguyen, 2021). For this reason, many countries are searching for ways to emulate the success of leading IFCs, such as New York and Singapore (Z/Yen Group, 2023b). Therefore, understanding the critical determinants of the competitiveness of IFCs may help formulate suitable policies and a strategic development plan, including intervention areas and efficient allocation of resources for a city.

The IFCs contribute significantly to the country's global competitiveness by making investing and conducting financial services and transactions easier, less risky and more attractive (Popkova et al., 2016). Further, IFCs can create favourable macroeconomic performance indicators such as capital market and capital flow efficiency, employment, finance accessibility, human capital development, low transaction costs, political stability and reduced poverty level (Naeem, 2023). All these can increase the economic development and growth of a country.

The business environment, financial sector development, human capital and infrastructure are theoretically known to be determinants of the competitiveness of IFCs, but the magnitude and statistical significance of their effect remain unknown as most studies on the competitiveness of IFCs are descriptive—only describe the characteristics of highly competitive IFCs—due to data limitations (Chen & Chen, 2015; Chow & Pei, 2019; Nguyen et al., 2020; Pan et al., 2018; Solovjova et al., 2018; Woo, 2016; Ku & Morriss, 2021). A few studies have analysed the effect of specific factors such as capital access, corporate tax rate, inflation rate, internet usage and skilled workforce on the competitiveness of IFCs at the global level or outside Africa but have not evaluated the effect of the aggregate business environment, financial sector development, human capital and infrastructure (Moosa et al., 2016; Naeem, 2023; Tey, 2004; Yıldırım & Mullineux, 2015). This study set out to empirically determine the effect of the

business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs in Africa.

1.1.1 The Global Financial Centres Index

The Global Financial Centres Index (GFCI) was designed by the Z/Yen Group in 2007 as a ranking tool that evaluates the relative level of development and competitiveness of major international financial centres, as shown in Appendix 1. According to Z/Yen Group (2023b), IFCs can help bring together global capital, foster cultural exchanges, and enhance international cooperation between countries, thereby facilitating collaborative responses to global challenges. Refreshed every six months, the number of IFCs in the GFCI has increased from 46 in the first edition in March 2007 (GFCI 1) to 121 in the 34th edition in September 2023 (GFCI 34) (Z/Yen Group, 2007; Z/Yen Group, 2023a). This progress has caused the GFCI to receive wide attention from different groups, including governments, investors, policymakers and researchers (Esen & Gokmenoglu, 2016; Wójcik et al., 2019).

The GFCI provides a hierarchy of IFCs using a factor assessment model based on both financial centre assessments (an online survey for respondents to rate each IFC as a city to do business) and a statistical model (a database of instrumental factors or indicators for each IFC). Notably, Z/Yen Group (2021) excludes assessments given to an IFC by respondents operating in that financial centre to avoid home bias. The instrumental factors are categorised into competitive areas: the city's business environment, financial sector development, human capital and infrastructure. The database for instrumental factors comprises several data sources, such as the Economist Intelligence Unit (EIU), Numbeo, the United Nations, the World Bank and Transparency International (Z/Yen Group, 2022). Z/Yen Group (2023b) uses a machine learning algorithm to correlate the IFC survey valuations and the instrumental factors to speculate ratings an interviewee would have provided for the IFCs unknown to them. Finally, the respondents' actual and predicted ratings are consolidated to generate the ranking.

The following IFCs have several times been demonstrated in the GFCI as irreplaceably more competitive cities in their regions: London, Singapore, New York, Astana, Dubai and the Cayman Islands (Z/Yen Group, 2023b). Table 1.1 shows the top ten and bottom ten IFC across three GFCI editions (GFCI 32-34) between 2022 and 2023. Considering the top ten IFCs globally, New York, London, Singapore, Hong Kong, and San Francisco have consistently kept their rank in the benchmarking model. Washington, DC (position eight) and Geneva (position ten) joined the top ten IFCs for the first time in the September 2023 GFCI (GFCI 34), while

Chicago (Position eight) entered the same group in the March 2023 GFCI (GFCI 33) in position eight (Z/Yen Group, 2023b). Other IFCs in the top ten category included Los Angeles and Shanghai. Among the bottom ten IFCs globally, Buenos Aires, Ho Chi Minh City, Trinidad and Tobago, St Petersburg, Bogota, Baku, Tehran, Moscow, Mexico City and Bratislava had the lowest ranks respectively (Z/Yen Group, 2023b).

Table 1.1: GFCI ratings and ranks of the top ten and bottom ten IFCs globally from 2022 to 2023

International financial centre	GFCI 34 model		GFCI 33 model		GFCI 32 model	
	Rating	Rank	Rating	Rank	Rating	Rank
Top ten IFCs						
New York	763	1	760	1	760	1
London	744	2	731	2	731	2
Singapore	742	3	723	3	726	3
Hong Kong	741	4	722	4	725	4
San Francisco	735	5	721	5	724	5
Los Angeles	734	6	719	6	722	7
Shanghai	733	7	717	7	723	6
Washington DC	732	8	713	11	714	15
Chicago	731	9	716	8	717	12
Geneva	730	10	701	23	709	20
Bottom ten IFCs						
Bratislava	601	112	598	93	603	84
Mexico City	595	113	594	97	587	100
Moscow	593	114	605	86	605	82
Tehran	591	115	549	118	568	112
Baku	586	116	558	116	556	116
Bogota	583	117	566	113	588	99
St Petersburg	581	118	563	115	565	114
Trinidad and Tobago	578	119	547	119	567	113
Ho Chi Minh City	577	120	567	112	578	104
Buenos Aires	563	121	557	117	564	115

Source: Z/Yen Group (2023b).

In Africa, the GFCI ranks seven IFCs: Cape Town, Casablanca, Johannesburg, Kigali, Lagos, Mauritius and Nairobi. Only three African IFCs (Johannesburg, Casablanca and Mauritius) were part of the GFCI between September 2014 and March 2018. Johannesburg was included in the GFCI benchmarking model in September 2007 (GFCI 2), Casablanca in March 2014 (GFCI 15), Mauritius in September 2014 (GFCI 16), Cape Town in September 2018 (GFCI 24), Nairobi in March 2019 (GFCI 25), and Kigali and Lagos in September 2021 (GFCI 30)

(Z/Yen Group, 2023b). Figure 1.1 shows the comparative progress of African IFCs across various GFCI editions (GFCI 1-34) between 2007 and 2023.

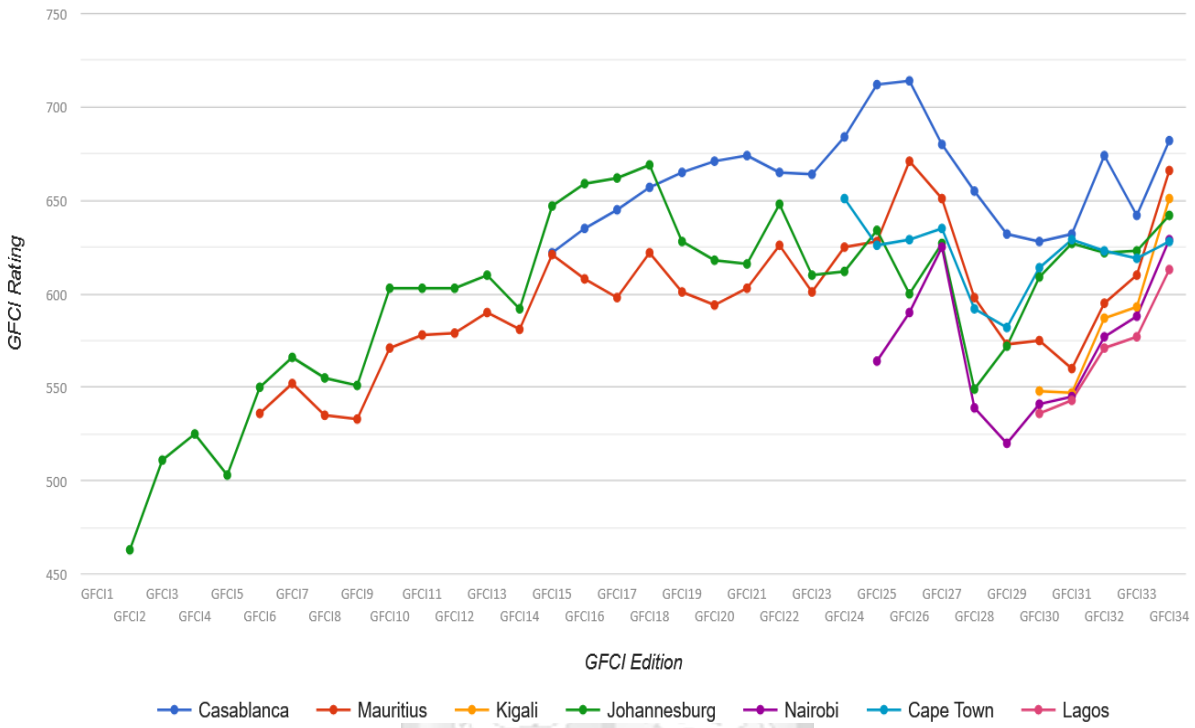

Figure 1.1: Comparative ratings of African IFCs in GFCI 1-34 between 2007 and 2023

Source: Z/Yen Group (2023b).

Table 1.2 shows the GFCI ratings and ranks of IFCs in Africa between 2019 and 2023. In the GFCI 34 (September 2023 edition), Casablanca led the African IFCs (position 54 out of 121 IFCs globally, 682 points), followed by Mauritius (position 68, 666 points), Kigali (position 81, 651 points), Johannesburg (position 83, 642 points), Nairobi (position 90, 629 points), Cape Town (position 91, 628 points) and Lagos (position 103, 613 points), respectively. On average, Casablanca has attained the highest rating of 665.1 points, while Lagos achieved the lowest rating of 568 between March 2019 and September 2023 (GFCI 25-34). While two IFCs represent South Africa, the average rating of Cape Town (627.7 points) is more than Johannesburg's (610.5 points).

Table 1.2: GFCI ratings and ranks of IFCs in Africa between 2019 and 2023

Month and year	GFCI model	Casablanca IFC		Mauritius IFC		Kigali IFC		Johannesburg IFC		Nairobi IFC		Cape Town IFC		Lagos IFC	
		Global Rating	Global Rank	Global Rating	Global Rank	Global Rating	Global Rank	Global Rating	Global Rank	Global Rating	Global Rank	Global Rating	Global Rank	Global Rating	Global Rank
September 2023	34	682	54	666	68	651	81	642	83	629	90	628	91	613	103
March 2023	33	642	57	610	81	593	98	623	69	588	103	619	73	577	109
September 2022	32	674	54	595	92	587	100	622	65	577	105	623	64	571	109
March 2022	31	632	54	560	87	547	99	627	56	545	101	629	55	543	103
September 2021	30	628	53	575	73	548	94	609	64	541	98	614	62	536	102
March 2021	29	632	53	573	89	-	-	572	90	520	106	582	82	-	-
September 2020	28	655	46	598	63	-	-	549	90	539	96	592	67	-	-
March 2020	27	680	41	651	64	-	-	627	85	625	87	735	80	-	-
September 2019	26	714	21	671	40	-	-	600	81	590	88	629	63	-	-
March 2019	25	712	22	628	54	-	-	634	48	564	97	626	56	-	-
Average global rating		**665.1**		**612.7**		**585.2**		**610.5**		**571.8**		**627.7**		**568**	

Source: Z/Yen Group (2023b).

1.1.2 Competitiveness of International Financial Centres

The competitiveness of IFCs is underpinned by common attributes as follows. First, highly competitive IFCs have a well-developed business environment in terms of the institutional and regulatory environment, macroeconomic environment, political stability and the rule of law and tax and cost competitiveness (Z/Yen Group, 2022). Consistent, flexible, stable, and transparent regulatory systems and better legislation such as immigration legislation, protection mechanisms for investor rights, and combating money laundering increase the ease of doing business in an IFC (Solovjova et al., 2018). Top-ranked IFCs have stable macroeconomic indicators such as high employment rates, finance accessibility and portfolio investments, low inflation rate, transaction costs, poverty level and real interest rates (Naeem, 2023).

Further, leading IFCs are predominantly found in politically stable cities and countries with effective governance, efficient public service, electoral transparency, predictable policies, respect for human and property rights, strong adherence to the rule of law, social cohesion and zero or minimal tolerance for corruption, which win investors' trust (Ku & Morriss, 2021). A favourable tax and customs regime in the form of friendly personal income tax, low or zero corporate tax rates and tax reliefs can make an IFC attractive to resident and non-resident financial institutions, investors and skilled workers (Du et al., 2014; Wang, 2016). Between 2000 and 2020, the mean rate of corporate income tax in Asian countries declined from 20% to 17%, contributing to the GFCI ranking of seven Asian IFCs (Beijing, Hong Kong, Seoul, Singapore, Shanghai, Shenzhen and Tokyo) among the top twenty IFCs from 2020 to 2023 (Naeem, 2023; Z/Yen Group, 2023b).

Second, top-ranked IFCs have high financial sector development in terms of the availability of capital, economic output, depth and breadth of industry clusters and market liquidity (Z/Yen Group, 2023a). Financial services are often clustered in a district or location but around the central bank, securities exchange and the offices of large global financial service firms (Pan et al., 2018). There are highly diversified, developed, and advanced global networks of financial institutions, multinational corporations, and investors that facilitate international capital flows, financial transactions, and investments (foreign direct investments) (Ku & Morriss, 2021). For example, the European Investment Bank is headquartered in Luxembourg but has active offices in 160 countries across (European Investment Bank, 2023). Leading IFCs host major international securities exchanges such as the New York Stock Exchange (New York City) and the London Stock Exchange in London (Pan et al., 2018). Additionally, they mostly host

financial institutions and securities regulators, such as the central bank, multinational corporation headquarters and world-famous financial institutions (Pan et al., 2018). For example, New York City hosts world-famous banks such as Citigroup, Goldman Sachs, and J.P. Morgan, and London hosts Barclays and Standard Chartered (Yi-Lin Forrest et al., 2018).

Leading IFCs have high banking sector assets denominated in domestic and foreign currencies, bond and foreign exchange trading, equity market capitalisation, gross domestic product (GDP) and a robust insurance market with large insurance and pension funds and money market (TheCityUK, 2023). For example, London is the largest insurance hub worldwide, accounting for about 84 billion United States dollars (USD) in global gross written premiums in 2020 (London Market Group, 2022). Regarding the equity markets, as of September 2022, there were 591 foreign companies listed on the New York Stock Exchange, followed by the London Stock Exchange (333 companies) and Singapore Exchange, which had 227 companies (TheCityUK, 2023). For the bond markets, London had the largest value of traded international bonds globally at the end of March 2022—approximately 3.3 trillion USD, about 12% of the world's total trade in international bonds (TheCityUK, 2023).

Market liquidity is the ability of financial market actors to undertake transactions (securities transactions) in a short period of time and with low transaction costs without causing significant changes in value or prices (Díaz & Escribano, 2020). Market liquidity covers the bond, equity, foreign exchange and money markets. An increase in foreign exchange, investment and hedge funds, the development of new financial products such as credit derivatives and fixed income, the liberalisation of international capital flows and the securitisation of loans enhance financial market liquidity (Szepanski, 2022). Liquid financial markets have numerous highly heterogeneous market actors or investors, implying many buyers and sellers willing to trade in the financial centre (Díaz & Escribano, 2020). Highly competitive IFCs have abundant financial market liquidity with low transaction costs and synchronisation of currencies to offer a favourable investment environment for investors and firms such as notaries and insurance companies (Nguyen et al., 2020; Ku & Morriss, 2021). London is known for substantial financial market liquidity advantages (Kalaitzake, 2022).

Third, highly competitive IFCs have adequate human capital—skilled personnel, education and development, flexible labour market and quality of life (Z/Yen Group, 2021). Top-ranked IFCs have a highly skilled workforce and professionals with expertise in financial services such as auditing, banking, insurance, investment funds, tax advisory and stock brokerages to ensure

better financial innovation, management practices, market analysis, and product differentiation and promotion (Ku & Morriss, 2021). These skilled and experienced professionals include accountants, auditors, asset, data, financial risk and insurance managers, business, financial and private equity analysts, financial law experts, investment bankers, statisticians and tax advisors. In many cases, a top-notch IFC has agglomerated top universities and an advanced education system to support a highly skilled workforce and professionals in all economic sectors, including the financial services sector (Nguyen et al., 2020).

Highly competitive IFCs have a flexible and innovative workforce and labour market (Fakitesi, 2009). A qualified and dynamic workforce that continuously upskills and reskills and a flexible labour market under minimal government regulation attract investors due to ease in sourcing the required skills (Z/Yen Group, 2023a). A skilled workforce, flexible contracts, and the openness of workers to relocate to a new job often attract multinational corporations and foreign investors to highly competitive IFCs (Ramsay, 2014). Favourable wages, protection of the rights of workers and employers, flexible working hours, part-time and temporary contracts and advanced technology allowing employees to work from home can encourage people to take up employment and help reduce costs for employers (Fang et al., 2022). Further, highly competitive IFCs offer a good quality of life, making them desirable places for investment, leisure and work (Lai et al., 2020).

Finally, top-ranked IFCs have a highly developed built infrastructure, information and communication technology (ICT) infrastructure, transport infrastructure and sustainable development (Z/Yen Group, 2019). Such IFCs have excellent housing and residential properties within reasonable distance to employees' work stations, office spaces for firms to occupy and highly developed air, road, rail or train and sea transport infrastructure (Z/Yen Group, 2021). In addition, they have well-developed energy, internet, education, healthcare, water and sanitation infrastructure, and a high proportion of the population and financial services providers use internet and mobile phones for communication and electronic banking (e-banking) (Ku & Morriss, 2021). Notably, highly competitive IFCs have implemented effective policy and regulatory reforms that promote accountability and transparency among financial market stakeholders in supporting sustainable development (Nolan, 2023). All the top thirty IFCs worldwide have integrated Standards of Environmental, Social and Governance (ESG) into investment portfolios to help deliver sustainable financial systems (Robins & McDaniels, 2017).

1.2 Statement of the Problem

African IFCs have experienced a growing culturally diverse population, increasing universities and educated people, reasonable ICT, strategic geographic locations, and versatile financial services sectors (Kamau, 2021; Nairobi IFC, 2023). However, IFCs in Africa currently drag behind in the GFCI ratings, with Casablanca occupying position 54 in the September 2023 GFCI 34 model as the first African Africa, followed by Mauritius (position 68), Kigali (position 81), Johannesburg (position 83), Nairobi (position 90), Cape Town (position 91) and Lagos in position 103 (Z/Yen Group, 2023b). While the business environment, financial sector development, human capital and infrastructure are theoretically known to be determinants of the competitiveness of IFCs, could it be that African IFCs require a unique evaluation of how these factors influence their competitiveness to inform future directions and identify suitable policies to mitigate low global competitiveness?

As mentioned earlier, the magnitude and statistical significance of the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs remain unknown as most studies on this area only describe the characteristics of highly competitive IFCs due to data limitations (Chen & Chen, 2015; Nguyen et al., 2020; Woo, 2016; Ku & Morriss, 2021; Fang et al., 2022; Chen & Lin, 2020; Klapper & Lusardi, 2020; Li & Sai, 2020; Palei, 2015). For example, Chen and Chen (2015) used a desk literature review to assess the institutional support and stock exchange of IFCs in China and noted that Shanghai and Shenzhen IFCs had improved their GFCI rankings over the past five years, possibly due to their institutional support, strategic locations and strong economy. Woo (2016) also used a desk literature review to explore how the economic and political conditions have contributed to the growth of IFCs in Asia and attributed Singapore's rise as a leading IFC to factors such as economic and political stability, liquid capital markets, strategic geographic location, robust regulatory systems, and trading capacity in the Asian dollar market.

A few studies have statistically analysed the effect of specific factors such as capital access, corporate tax and inflation rates, internet usage, political stability and skilled workforce on the competitiveness of IFCs at the global level or outside Africa but have not evaluated the effect of the aggregate business environment, financial sector development, human capital and infrastructure (Moosa et al., 2016; Naeem, 2023; Yıldırım & Mullineux, 2015). For exanple, Eichengreen and Shah (2020) conducted a global panel study of the GFCI ratings between 2007 and 2016 and observed significant negative effect of inflation rate on the competitiveness of

the IFCs but did not evaluate the impact of the aggregate business environment. A targeted, context-specific empirical study on the competitiveness of African IFCs is needed to facilitate the development of better-suited policies and interventions to increase the competitiveness of these IFCs globally. Therefore, this study aimed to empirically examine the determinants of the competitiveness of IFCs by evaluating the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs in Africa. The study set out to inform investors, governments, planners, policymakers and traders of the significance of these factors and provide evidence-based insights to inform policy and institutional changes for African IFCs' transformation.

1.3 Objectives of the Study

1.3.1 General Objective

The main objective of this study was to examine the determinants of the competitiveness of IFCs in Africa.

1.3.2 Specific Objectives

The four specific objectives were:

i. To determine the effect of the business environment on the competitiveness of IFCs in Africa.
ii. To evaluate the effect of financial sector development on the competitiveness of IFCs in Africa.
iii. To examine the effect of human capital on the competitiveness of IFCs in Africa.
iv. To evaluate the effect of infrastructure on the competitiveness of IFCs in Africa.

1.4 Research Hypotheses

The study set out to test the following four hypotheses for the four specific objectives.

i. The business environment has no significant effect on the competitiveness of IFCs in Africa.
ii. Financial sector development has no significant effect on the competitiveness of IFCs in Africa.
iii. Human capital has no significant effect on the competitiveness of IFCs in Africa.
iv. Infrastructure has no significant effect on the competitiveness of IFCs in Africa.

1.5 Scope of the Study

The study explored the determinants of the competitiveness of IFCs in Africa to facilitate the development of better-suited interventions for increasing their competitiveness globally. The study's scope was limited to assessing four broad competitive areas used by the Z/Yen Group to create GFCI ratings and ranks of IFCs: business environment, financial sector development, human capital and infrastructure (Z/Yen Group, 2023b). Although the GFCI ranks seven African IFCs comprising Cape Town, Casablanca, Johannesburg, Kigali, Lagos, Mauritius and Nairobi, only five IFCs (Johannesburg, Casablanca, Mauritius, Cape Town and Nairobi) were concurrently ranked in the GFCI report between March 2019 and September 2023 (Z/Yen Group, 2023b). Kigali and Lagos IFCs were included in the GFCI in September 2021. Due to data limitations, including data for many independent variables being available on a country basis rather than city level, the study selected only one IFC (highest average GFCI rating) per country. Moreover, given that data for some independent variables were annual, the study used only September GFCI ratings annually. Therefore, this study used panel data covering four African IFCs (Cape Town, Casablanca, Mauritius and Nairobi) ranked in every September GFCI between 2019 and 2023 (five years).

1.6 Significance of the Study

Various stakeholders can benefit from the findings of this study. First, the study's findings can benefit the academic and research communities by contributing to the current body of knowledge on the competitiveness of IFCs, which is primarily descriptive through empirical evaluation of the determinants of the competitiveness of IFCs in Africa.

Second, the financial services sector workforce and professionals in the IFCs may gain valuable insights for exploring potential career opportunities and investment gaps, postulating changes in the financial landscape, and aligning themselves and their services to the changes. Third, the findings of this study may help the African IFCs enhance their attractiveness as a destination for global corporations, financial institutions and investors and influence decisions related to establishing regional headquarters or expanding operations in the IFCs.

Fourth, government officials and policymakers can gain critical insights into how various determinants affect the competitiveness of IFCs in Africa and opportunities to transform their specific IFC into a highly competitive centre in Africa and globally. Policymakers may use the findings to formulate and implement targeted policies and interventions to increase the

competitiveness of these IFCs. Finally, upon adopting and implementing the policy recommendations of this study based on its empirical findings, local businesses and corporations may benefit from a favourable financial sector environment and conditions such as improved access to funding and growth opportunities.

1.7 Chapter Summary

Chapter one of this thesis has presented the background of the study by defining the concept of an IFC and describing the GFCI and the characteristics of highly competitive IFCs. In addition, the chapter provided the problem statement, objectives of the study, research hypotheses, the scope of the study and the contribution of the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the related literature on the determinants of the competitiveness of IFCs. It starts by reviewing the theories underlying the development and competitiveness of IFCs and how they relate to the study. Section two provides the empirical literature review, including a discussion of the findings of previous studies. The third section summarises the literature reviewed, the research gap(s) identified and how the proposed study filled the gaps. The final section describes the conceptual framework.

2.2 Theoretical Review

Many IFCs have developed in various countries to compete globally. The study adopted three theories explaining the development and competitiveness of IFCs—the agglomeration, world city and global city theories—through the lens of cities' business environment, financial sector development, human capital and infrastructure.

2.2.1 The Agglomeration Theory

The conceptualisation of the agglomeration theory can be traced to the work of Marshall (1890). When a city's financial sector development is such that economic or financial activities cluster together in a particular locality, it attracts significant extrinsic advantages to firms in that locality through pooled specialised human resources, spillover of skills, and proximity to suppliers (Marshall, 1890). Besides, a city's strategic location can increase the ease of trading with other domestic and global cities. Ye et al. (2018) also noted that agglomeration theory entails clustering financial enterprises and their products and services in each geo-political landscape, causing a self-reinforcing socio-economic and financial growth cycle (Ye et al., 2018). The pooling of financial enterprises creates economies of scale, networks and specialisation, instigating and stimulating the development and growth of attractive, regional and globally competitive IFCs (Ye et al., 2018).

IFCs mostly have vast foreign exchange markets, multinational corporation headquarters, major banks, and stock exchanges (Yi-Lin Forrest et al., 2018). For example, London hosts the London Stock Exchange and famous banks such as Barclays, Hong Kong and Shanghai Banking Corporation (HSBC) and Standard Chartered. New York City has the New York Stock Exchange and famous banks such as Citigroup and J.P. Morgan. Monga (2013) asserted that

the success of agglomerated human capital, business enterprises, and physical and technological infrastructure depends on how well they are synchronised through a country's political and legislative framework. IFCs can become more competitive through institutional support—a business-friendly environment in economic and legal systems that promote financial deregulation and low taxes and protect the rights of creditors and investors in capital markets (Solovjova et al., 2018).

Some economies practice state-directed capitalism—the state has a vast economic power to mobilise and allocate resources and investment—or state capitalism, where the state makes an economic intervention to benefit large government-owned corporations. For example, Singapore City, through state-directed capitalism from strong government support that attracted international financial firms, experienced quick financial sector growth and became more competitive (Braunstein, 2017). Singapore's government has provided a business-friendly environment through tax breaks, trust laws and a government school to train bankers and asset managers (Chen & Chen, 2015). These initiatives have made Singapore attractive to financial and wealth-management firms globally. Therefore, localisation and agglomeration of financial institutions and services under good legislative frameworks can reduce transaction costs and promote the growth and competitiveness of IFCs (Kalaitzake, 2022).

Some scholars such as Fagbohunka (2012) and Mohanty and Mishra (2014) have criticised the agglomeration theory due to possible adverse effects of the cluster of economic or financial activities in cities, such as congestion, increased crime, increased office occupancy cost and pollution. However, from the perspective of the agglomeration theory, the study set out to determine the effects of business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs. According to the theory, IFCs are likely to be more competitive when these factors are favourable or improved.

2.2.2 The World City Theory

Friedmann and Wolff (1982) coined the concept of "world city theory" and viewed world cities as the gathering point of global capital and the control centre of the world economy. Friedmann (1986) argued that the form and structure of a city depend on how it integrates into the global economy and its specific function in the world economy. World cities are financial centres for controlling and commanding the world economy as they can organise and coordinate global market systems based on the division of labour (Friedmann, 1986). Later, Friedmann (1995) adopted a multi-scalar classification of cities based on the geographical scope of their

functions—national, regional, or international cities—due to rapidly expanding globally oriented businesses, corporate headquarters, financial services, transport and communications.

Notably, the conceptualisation of world cities by Friedmann and Wolff (1982), Friedmann (1986), and Friedmann (1995) indicated the increasing role of financial sector development in the development of cities into world centres. Based on this premise, the finance industry has recently boomed due to economic growth, globalisation, human capital development, innovation and technology (Chen & Chen, 2015). Financial services are economic services offered by financial institutions such as banks, investment funds, stock brokerages and insurance companies to facilitate the transfer of monetary assets (Chen & Chen, 2015). Financial services usually exist in cities, also known as financial centres (Ioannou & Wojcik, 2021) and are classified as national, regional, or international financial centres based on their geographic scope.

A national financial centre, such as Toronto (Canada) and Sydney (Australia), acts as the main centre for financial services within a specific country (Z/Yen Group, 2023b). A regional financial centre, such as Chicago (American Midwest) and Frankfurt (Western Europe), conducts most of its external transactions among countries in a region (Z/Yen Group, 2019). Finally, international financial centres, such as Nairobi (Kenya) and Singapore City (Singapore), conduct a significant volume of cross-border transactions on a global level (Lai & Pan, 2021). Moosa et al. (2016) specified that IFCs deal in domestic and major world currencies, which are generally free of taxes and exchange controls and provide financial services to residents and foreign clients.

According to the world city theory, a city can competitively command and control the global capital when it has a favourable business environment, financial sector development, human capital and infrastructure—such as highly diversified financial services, corporate headquarters, ICT and transport infrastructure and skilled labour (Ghadge, 2019). However, the world city theory has been criticised for emphasising the role of a city in the global economy based on capital accumulation and control while downplaying other competitive dimensions, such as geographical and socio-cultural factors, including tourism (Ghadge, 2019). Based on the world city theory, the study aimed to evaluate the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs. According to the theory, IFCs have a higher chance of being highly competitive if they have a better business environment, financial sector development, human capital, and infrastructure.

2.2.3 The Global City Theory

Sassen (1991) built upon the world city theory by studying global cities from the angle of the global city theory—geographical dispersal of economic activities. Sassen argued that international cities are the geographic command points of global economic ventures; key places for finance and specialised firms; locations of innovations, global capital and information flow; and markets for financial utilities (Sassen, 1991; Sassen, 1995b; Sassen, 1995a; Sassen, 2001). Further, Sassen (1991) and Sassen (2001) asserted that in addition to organising, coordinating and controlling the global economy, global cities such as New York, London and Tokyo are places with top-notch financial sector development and infrastructure. Historically, competitive IFCs have developed and grown in economies where a stable domestic currency is a world reserve currency vastly used in international trade. In the 20th century, the USD replaced the British pound sterling as the world reserve currency when New York City became the world's top financial centre (Chen & Chen, 2015).

Global cities perform central high-end functions of coordinating, financing, managing and servicing a network of operations of multinational corporations (Sassen, 1995b; Sassen, 1995a). Beaverstock et al. (1999) viewed global cities from the perspective of financial services such as accounting, banking and legal services provided by skilled financial professionals. Further, Castells (1996) explored the advancement of global cities and realised that these cities dominated the infrastructure network in the form of global internet and information technology. Therefore, the internet, information technology and financial capital have become the main components of current economic globalisation and critical competitive factors for the growth and rating of global cities (Ni & Shen, 2021).

Critics of the global city theory have cited possible neglect of local dynamics, such as political aspects of the cities that shape their identities when the theory focuses heavily on global interconnectedness and economic functions of cities (Ghadge, 2019). Based on the global city theory, the study aimed to determine the effect of the financial sector development, human capital and infrastructure on the competitiveness of IFCs. According to the theory, highly competitive IFCs have robust financial sector development, human capital and infrastructure.

2.3 Empirical Review

This section points out the research gap as a basis for further investigation. It entails a review of the empirical studies on the factors affecting the competitiveness of IFCs.

2.3.1 Business Environment and Competitiveness of the IFCs

The business environment entails specific factors such as corporate tax rates, corruption levels, inflation rates, political stability and absence of violence in an IFC (Z/Yen Group, 2022). Fakitesi (2009) conducted a desk literature review of the nature of the business environment of most successful IFCs and concluded that such cities provide globally competitive regulatory and tax regimes. Conversely, extreme tax rates erode the purchasing power of customers and the profitability of firms in the financial services sector within an IFC, discouraging firms and investors from establishing or maintaining operations there (Fakitesi, 2009). Likewise, Chen and Chen (2015) used a desk literature review to assess IFCs in mainland China and noted that Shanghai and Shenzhen IFCs cities had improved their GFCI rankings over the past five years, possibly due to their institutional support and strong economy. In contrast, financial crises comprising a banking panic, interest rate volatility, inflationary pressures, recessions and a stock market crash can negatively affect the growth, profitability and strategic decision-making of firms operating within an IFC, reducing the centre's competitiveness (Chen & Chen, 2015). However, Fakitesi (2009) and Chen and Chen (2015) only conducted descriptive studies and did not evaluate the effect of the business environment on the competitiveness of IFCs.

Further, Woo (2016) used a desk literature review to explore how the economic and political conditions have contributed to the growth of Hong Kong, Singapore and Shangai as Asia's leading financial centres. Woo (2016) attributed Singapore's rise as a leading IFC to its economic and political stability, robust legal and regulatory systems, and trading capacity in the Asian dollar market. Similarly, Solovjova et al. (2018) studied the performance of Riga IFC in Latvia in the GFCI by using a desk literature review to analyse its banking system, economic development and legislative environment. Solovjova et al. (2018) concluded that Riga IFC could enhance its competitiveness by specialising in financing international trade, transaction business and private banking. However, Woo (2016) and Solovjova et al. (2018) only conducted descriptive studies and did not evaluate the effect of the business environment on the competitiveness of IFCs.

Tey (2004) used a Generalised Method of Moments (GMM) to conduct a panel estimation of the determinants of the formation of IFCs in 71 countries. The results indicated that economic size had the most significant effect, while economic growth rate and stage of economic development attained insignificant effects. Similarly, Eichengreen and Shah (2020) conducted a panel study of the GFCI ratings of IFCs between 2007 and 2016 and observed significant

positive and negative effects of government size and inflation rate, respectively, on the competitiveness of the IFCs. A large government size may imply large public spending as a share of GDP, implying improved contract-enforcement services, property rights enforcement, and credit services. However, Tey (2004) and Eichengreen and Shah (2020) only analysed the effect of specific factors but did not evaluate the impact of the business environment on the competitiveness of IFCs.

Naeem (2023) used a panel regression analysis to examine the competitiveness of IFCs and establish the most pertinent factors that significantly influenced the GFCI ranking of IFCs worldwide between 2007 and 2020. The results showed significant positive effects of freedom to trade internationally and sound money on the GFCI. Conversely, business regulation had a significant negative effect on the GFCI. However, similar to preceding studies, Naeem (2023) only evaluated the impacts of specific factors within the domain of the business environment but did not evaluate the effect of the business environment on the competitiveness of IFCs.

2.3.2 Financial Sector Development and Competitiveness of the IFCs

Financial sector development covers specific factors such as capital access, capitalisation of stock exchanges, credit market regulation, global credit rating and value of share trading in an IFC (Z/Yen Group, 2023a). Fakitesi (2009) used a desk literature review to establish the nature of an IFC with a well-developed financial sector necessary for high competitiveness and concluded that such a centre has sophisticated capital markets. In addition, Chow and Pei (2019) assessed the Singapore IFC using a desk literature review and asserted that the centre had advanced due to its good banking sector, liquid capital market, robust insurance market and high financial innovation. Further, Nguyen et al. (2020) studied the performance of Vietnam's Ho Chi Minh City in the GFCI and observed that the city consistently achieved lower ranks. Although Ho Chi Minh City hosts many international financial institutions, the city's financial market has insufficiently diversified funding and investment opportunities and limited asset management services (Nguyen et al., 2020). However, all these researchers only conducted descriptive studies and did not estimate the effect of financial sector development on the competitiveness of IFCs.

Eichengreen and Shah (2020) used panel regression to determine the effect of global credit rating, credit market regulation and market capitalisation on the GFCI ratings between 2007 and 2016. The results showed significant positive impacts of equity market capitalisation and global credit rating on the competitiveness of IFCs. Relatedly, Naeem (2023) used a panel

regression analysis to examine the effect of capital access, global credit rating and market capitalisation on the GFCI ratings between 2007 and 2020 and observed that all the variables had significant positive coefficients. However, Eichengreen and Shah (2020) and Naeem (2023) only estimated the effect of specific factors within the financial sector development domain but did not determine the impact of financial sector development on the competitiveness of IFCs.

2.3.3 Human Capital and Competitiveness of the IFCs

Human capital covers specific factors such as the net national income per capita, availability of skilled personnel, cost of living, crime rates, education and development, and labour market regulation in an IFC (Z/Yen Group, 2021). Klapper and Lusardi (2020) conducted a desk literature review of the role of financial literacy and resilience in the attractiveness of IFCs. Klapper and Lusardi (2020) noted that while inadequate financial literacy among local people may reduce their participation in an IFC's financial products and services, a shortage of educated workforce can lead to sourcing of foreign talent, escalating operational costs and hindering the centre's ability to attract investors and remain more competitive.

Relatedly, Vo and Nguyen (2021) used a desk literature review to explore the determinants of a global financial centre and noted that the presence of the world's top higher-level educational institutions offering Accounting and Finance courses to supply a highly skilled workforce and professionals in the financial services sector increases the competitiveness of an IFC. Industry associations and specialist training firms offering training courses and workshops on compliance, international markets expertise, risk management and sustainability can yield a knowledgeable and skilled workforce and market participants. Further, Fang et al. (2022) asserted that a rigid labour market characterised by stringent regulations and limited mobility could lower the competitiveness of an IFC by impeding its ability to adapt swiftly to dynamic market demands and technological advancement. Labour market inflexibility can limit IFCs' capacity to attract and retain top-tier talent and international investors. However, all these researchers only conducted descriptive studies and did not evaluate the effect of human capital on the competitiveness of IFCs.

Kayral and Karan (2012) applied logistic regression to assess the specific factors within the human capital domain of 53 IFCs, with the September GFCI 2010 as the dependent variable. The study found that the labour force participation rate was a significant distinguishing feature of the IFCs' competitiveness. Further, Naeem (2023) used a panel regression analysis to assess

these factors between 2007 and 2020 and observed a significant negative effect of labour market regulation on the GFCI. However, these researchers only evaluated the impacts of specific factors within human capital but did not assess the effect of human capital on the competitiveness of IFCs.

2.3.4 Infrastructure and Competitiveness of the IFCs

An IFC's infrastructure entails specific factors such as the built infrastructure, office occupancy costs, sustainable development, percentage of the population using the internet and quality of the domestic transport network (Z/Yen Group, 2019). Palei (2015) assessed the impact of infrastructure on global competitiveness through a literature review and asserted that poor-quality built infrastructure can make an IFC less attractive to skilled financial professionals and global investors who prioritise conducive investment, operational efficiency, and residential and working environments, impeding its competitiveness. Chen and Lin (2020) also conducted a literature review of the role of infrastructure on cross-border investment and the competitiveness of IFCs and noted that a robust transportation network can reduce the time and costs of domestic and international travel and increase access to a diverse talent pool, fostering a conducive environment for financial transactions and business operations. In contrast, poorly developed transport infrastructure poses a significant threat to the competitiveness of an IFC by increasing travel times and logistical costs, thereby deterring the efficiency of financial transactions and operations and diminishing the centre's attractiveness to local and foreign firms, investors and professionals (Chen & Lin, 2020). However, these researchers only conducted descriptive studies and did not estimate the effect of infrastructure on the competitiveness of IFCs.

Moosa et al. (2016) evaluated the determinants of the status of an IFC using Leamer's extreme bound analysis covering 53 out of 83 centres due to data limitations and the choice of only one IFC per country, with the March 2013 and September 2014 GFCI as the dependent variables. The results showed that high-tech exports, occupancy cost, and the percentage of the population using the internet were significant determinants of the status of an IFC. The researchers concluded that countries should keenly consider these variables to establish a highly competitive IFC. Similarly, Eichengreen and Shah (2020) conducted a panel study of the GFCI ratings of IFCs between 2007 and 2016 and observed significant positive effects of high-tech exports and the percentage of the population using the internet on the competitiveness of the IFCs. Further, Naeem (2023) used a panel regression analysis to evaluate the effect of high-

tech exports, the percentage of the population using the internet and the quality of ground transport network on the competitiveness of the IFCs. Naeem (2023) found that all the mentioned variables were positively significant. However, all these researchers only estimated the effect of specific factors within the infrastructure domain but did not determine the impact of infrastructure on the competitiveness of IFCs.

2.4 Summary of Literature Review and Research Gap(s)

The magnitude and statistical significance of the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs remain unknown as most studies on this area have only described the characteristics of highly competitive IFCs due to data limitations (Chen & Chen, 2015; Nguyen et al., 2020; Pan et al., 2018; Solovjova et al., 2018; Woo, 2016; Ku & Morriss, 2021; Fakitesi, 2009; Fang et al., 2022; Chen & Lin, 2020; Klapper & Lusardi, 2020; Li & Sai, 2020; Palei, 2015).

A few studies have statistically analysed the effect of specific factors such as capital access, corporate tax and inflation rates, internet usage, political stability and skilled workforce on the competitiveness of IFCs at the global level or outside Africa but have not evaluated the impact of the aggregate business environment, financial sector development, human capital and infrastructure (Eichengreen & Shah, 2020; Kayral & Karan, 2012; Moosa et al., 2016; Naeem, 2023; Tey, 2004; Yıldırım & Mullineux, 2015). Therefore, this study aimed to fill the research gap by empirically determining the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs in Africa. A targeted, context-specific empirical study on the competitiveness of African IFCs is needed to facilitate the development of better-suited policies and interventions to increase the competitiveness of these IFCs globally.

2.5 Conceptual Framework of the Study

Evidence from the literature reviewed above helped develop a conceptual framework (Figure 2.1) illustrating the assumed linkages among variables considered suitable for the study. The study used the GFCI rating (competitiveness of IFCs) as the outcome variable and IFC's business environment, financial sector development, human capital and infrastructure as independent variables. The four independent variables were composite indices (aggregated indicators), each comprising a set of five indicators. The aggregation process of these variables is explained in section 3.6 of the next chapter of this thesis (research methodology).

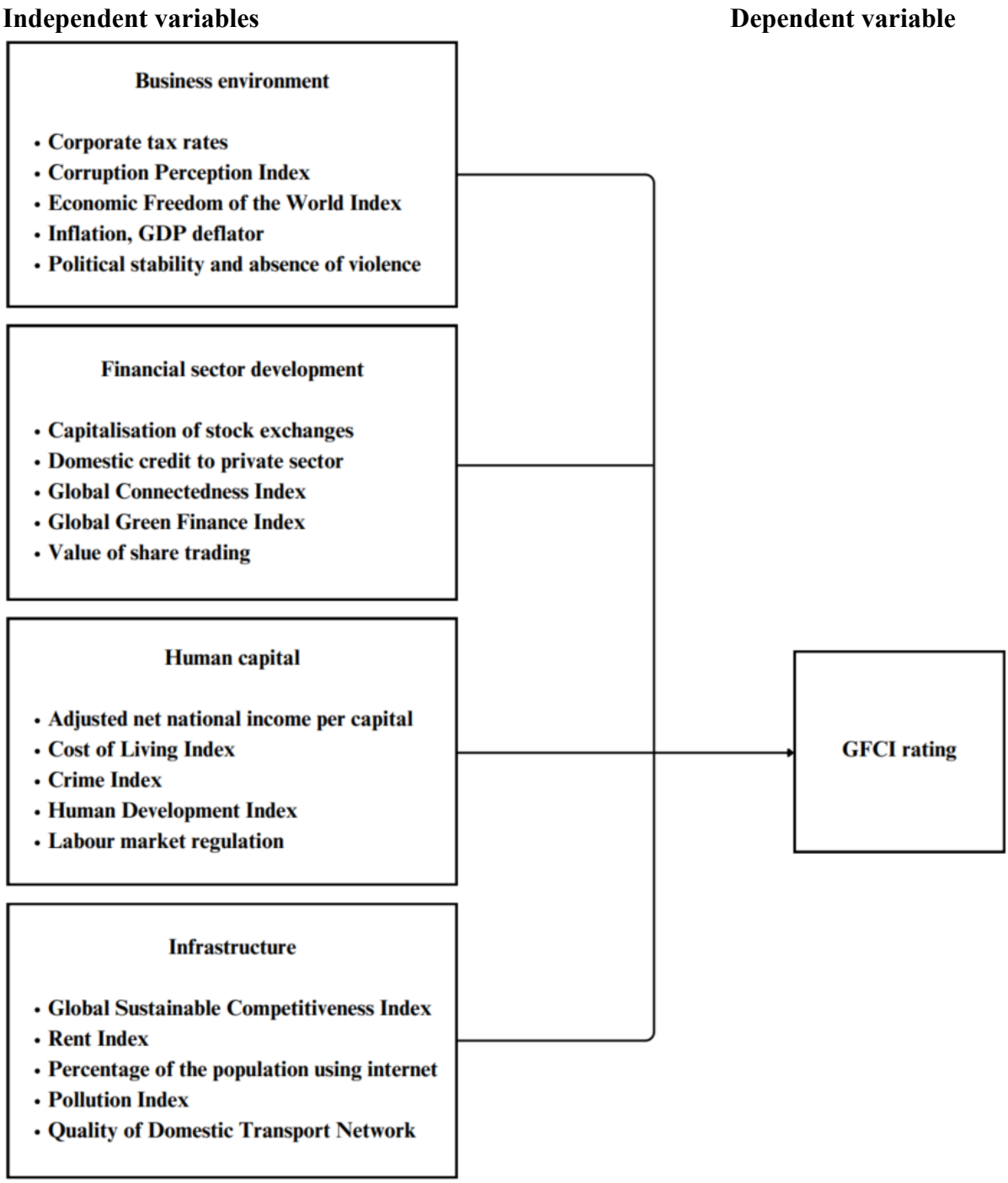

Figure 2.1: Conceptual framework

Source: Author (2024).

2.6 Operationalisation of Variables in the Study

Table 2.1 shows the operationalisation of the dependent and independent variables based on the various indicators and data sources used by the Z/Yen group to develop the annual GFCI report (Z/Yen Group, 2023b). Other supporting literature for the variables was discussed in sections 1.1.2 (competitiveness of international financial centres) and 2.3 (empirical review).

Table 2.1: Operationalisation of variables in the study

Variable	Indicator	Description and measurement	Data source
GFCI rating	GFCI rating	An index designed by the Z/Yen Group as a ranking model to measure the comparative level of development and competitiveness of major IFCs across business environment, human capital, financial sector development and infrastructure components. The GFCI ratings range from 0 (low) to 1,000 (high IFC competitiveness).	Z/Yen Group
Business environment	Corporate tax rates	The percentage tax rate on companies' income. Higher values imply unfavourable high tax rates.	Klynveld Peat Marwick Goerdeler (KPMG)
	Corruption Perceptions Index	The index ranks countries based on the perceived corruption levels among politicians and public officials. The index scores range from 0 (highest level) to 100 (lowest level of corruption).	Transparency International
	Economic Freedom of the World Index	An index that ranks countries based on the degree of economic freedom in five main areas: freedom to trade internationally, legal system and security of property rights, sound money, size of government and regulation. The index scores range from 0 (lowest level) to 10 (highest level of economic freedom).	Fraser Institute
	Inflation, GDP deflator	Percentage change in prices in the whole economy as captured by the GDP implicit deflator's growth rate per year. Higher values are unfavourable.	World Bank
	Political stability and absence of violence	Measures perceptions of the likelihood of political instability and violence or terrorism. It provides a -2.5 to 2.5 governance score for countries where higher values imply better governance. It also provides a percentile rank for countries ranging from 0 (lowest rank) to 100 (highest rank).	World Bank

Variable	Indicator	Description and measurement	Data source
Financial sector development	Capitalisation of stock exchanges	Share price times the number of shares outstanding for domestic companies listed on the stock exchanges, excluding investment funds, unit trusts and companies that only hold shares of other listed companies. Data are end-of-year values as a percentage of GDP, with higher values preferred.	World Federation of Stock Exchanges (WFE) through the World Bank
	Domestic credit to private sector	Measures the financial (credit) resources such as loans, trade credits, purchases of nonequity securities and other account receivables provided to the private sector by financial corporations such as deposit banks, foreign exchange companies, insurance companies, finance and leasing companies, monetary authorities, money lenders and pension funds. Data are end-of-year values as a percentage of GDP, with higher values preferred.	World Bank
	Global Connectedness Index	The index ranks counties based on their level of globalisation on a score from 0 (nothing crosses national borders at all or simply least globally connected) to 100 (frictionless borders or simply most globally connected).	Dalsey Hillblom Lynn (DHL)
	Global Green Finance Index	The Z/Yen Group designed the index as a benchmarking model to measure the comparative depth and quantity of green finance provisions from major IFCs. The index ratings range from 0 (low) to 1,000 (high IFC competitiveness).	Z/Yen Group
	Value of share trading	The total number of domestic and foreign shares traded times their respective matching prices. Both companies listed on the stock exchanges and those admitted to trading are considered. Data are end-of-year values as a percentage of GDP, with higher values preferred.	WFE through the World Bank

Variable	Indicator	Description and measurement	Data source
Human capital	Adjusted net national income per capita	Measures gross national income less consumption of fixed capital and natural resources depletion. Data are end-of-year values as current USD, with higher values preferred to lower ones.	World Bank
	Cost of Living Index	The index ranks countries based on the comparative cost of living given the relative prices of clothing, food, household goods, entertainment and utilities, excluding rent. Index values range from 0 (low) to 200 (high cost of living). Cities are ranked from the most expensive to the least costly—a country with the highest index value ranks first.	Numbeo
	Crime Index	The index ranks countries based on an estimation of their overall level of crime. Index scores range from 0 (very low level) to 100 (very high level of crime).	Numbeo
	Human Development Index	The index ranks countries based on their overall level of human development across three major components: access to knowledge, a decent living standard and a long and healthy life. The index ranges from 0 (low level) to 1 (very high level of human development).	United Nations Development Programme (UNDP)
	Labour market regulation	Measures the state of labour market regulation in various countries based on components that encompass the ability to hire foreign labour, conscription periods, costs of worker dismissal, flexible wage determination, hiring and firing regulations, labour regulations and minimum wage, and working hours regulations. Country scores range from 0 (rigid and unfavourable) to 10 (flexible and favourable labour market regulations).	Cato Institute
Infrastructure	Global Sustainable Competitiveness Index	The index ranks countries based on their competitiveness and sustainability, given their performance in economic sustainability, governance efficiency,	Solability

Variable	Indicator	Description and measurement	Data source
		intellectual capital, natural capital, resource intensity and efficiency and social capital. Index scores range from 0 (lowest) to 100 (best/ideal world).	
	Rent Index	The index estimates the prices of renting apartments and offices in a country. Index values range from 0 (low) to 100 (high rental prices). A country with the highest index value ranks first.	Numbeo
	Percentage of the population using the internet	Number of internet users per 100 people. Values range from 0 (low) to 100 (high).	International Telecommunication Union (ITU) and the World Bank
	Pollution Index	The index ranks countries by estimating their overall pollution levels—air, light, noise and water pollution, cleanliness, garbage disposal and green spaces. Index values range from 0 (very low level) to 100 (very high pollution level).	Numbeo
	Quality of Domestic Transport Network	It captures the availability and quality of transport networks in countries based on ground and port infrastructure. Values range from 0 (least developed) to 10 (most developed transport network).	World Economic Forum (WEF)

Source: Author (2024) based on the annual GFCI report (Z/Yen Group, 2023b).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This study set out to empirically determine the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs in Africa. This chapter discusses the research philosophy and design, study population and the procedure of sampling, data collection and processing, data analysis, research quality and ethical issues.

3.2 Research Philosophy

According to Don-Solomon and Eke (2018), a research philosophy is a school of thought on how research data should be collected, analysed, and findings reported. The study adopted a positivist research philosophy as it emphasises the objective collection of quantitative data and data analysis, mainly using quantitative methods to provide practical results that can solve real-world problems (Pranas et al., 2018). In positivist research philosophy, the researcher dissociates personal views and focuses on empirical measurements, including testing hypotheses (Park et al., 2020). Therefore, the positivist research philosophy guided the entire research process in this study.

3.3 Research Design

A quantitative research design involves the analysis of quantitative data, testing hypotheses and establishing the relationship between two variables (Antwi & Hamza, 2015). It can take the forms of causal and diagnostic research designs. A causal research design attempts to identify and understand the relationship between at least two variables and explore the possible reasons for a relationship between the variables (Sileyew, 2019). A diagnostic research design identifies and analyses the factors contributing to a phenomenon to provide insights into effective solutions (Khanday & Khanam, 2019). Therefore, this study employed a diagnostic quantitative research design.

3.4 Target Population and Sampling Design

The study focused on four African IFCs—Cape Town, Casablanca, Mauritius and Nairobi—listed on the GFCI over five years between 2019 and 2023 (Z/Yen Group, 2023b), providing a sample size of 20 observations. The study used deliberate sampling. Campbell et al. (2020) considered deliberate sampling a good technique as it involves selecting samples based on the study's objectives with the belief that they are a true representative of the population. The

feasibility of sampling four IFCs over five years (N = 4 IFCs, T = 5 years and NT = 20 observations) was as follows. First, the study aimed to conduct targeted, context-specific empirical and explorative research on the competitiveness of African IFCs to facilitate the development of better-suited policies and interventions to increase their global competitiveness. Second, only five African IFCs (Johannesburg, Casablanca, Mauritius, Cape Town and Nairobi) were concurrently ranked in the GFCI report between 2019 and 2023 (Z/Yen Group, 2023b). Kigali and Lagos IFCs were included in the GFCI in 2021 (Z/Yen Group, 2021). Given that data for many independent variables were available on a country basis rather than city level, the study preferred South Africa's Cape Town (highest average GFCI rating) to Johannesburg.

Third, the conceptual framework outlined the links between four independent variables (business environment, financial sector development, human capital and infrastructure) and the dependent variable (GFCI rating). Each independent variable was an aggregate (composite index) of five indicators, implying the study obtained data for 20 indicators. Since the study used a few independent variables (four), the estimated model was considered parsimonious (high explanatory power) in the face of the small sample size (20 observations). Finally, as the study used panel data, diagnostic tests were used to validate panel regression assumptions (heteroskedasticity, autocorrelation and multicollinearity) and a feasible generalized least squares estimation of a log-transformed model was conducted to address any defects and improve the precision and reliability of estimates (Bai et al., 2021; Vafaei et al., 2018). Therefore, due to the uniqueness of the study's variables and data sets, including limited data availability and difficulty in expanding the number of African IFCs and years considered, only 20 observations were attainable. This study aimed to provide actionable insights, fill the research gap and act as a stepping stone for future research with more comprehensive data sets.

3.5 Data Collection

The study used a secondary panel data set of four independent variables (business environment, financial sector development, human capital and infrastructure and one dependent variable, the GFCI rating, drawn from four African IFCs over five years between 2019 and 2023. The rationale for choosing 2019 as the start date and 2023 as the end date for data collection is that most African IFCs were first included in the GFCI in 2019, and the GFCI 2023 edition was the latest ranking report based on the mentioned study’s scope.

The study used various databases from which the Z/Yen group draws secondary data to develop

the annual GFCI report as was shown in Table 2.1 in section 2.6 (operationalisation of variables in the study) of the preceding chapter. These data sources included the Cato Institute, Dalsey Hillblom Lynn, Fraser Institute, International Telecommunication Union, Klynveld Peat Marwick Goerdeler, Legatum Institute, Numbeo, Solability, the Word Bank, the World Federation of Stock Exchanges, Transparency International, United Nations Development Programme (UNDP), World Economic Forum, World Intellectual Property Organisation and Z/Yen Group.

3.6 Data Normalisation, Rescaling, Weighting and Aggregation

Normalisation is the conversion of indicators in different measurement scales into a standard scale to deal with the possible influence of outliers in the data and facilitate comparison (Odhiambo et al., 2021). This study employed the minimum-maximum normalisation method to standardise or normalise all indicators to a standard range of 0–1 (El Gibari et al., 2019). The indicators such as capitalisation of stock exchanges and the political stability and absence of violence for which a high value corresponded to a suitable condition for the competitiveness of an IFC in the GFCI were normalised, as shown in Equation 3.1.

$$q_i = (z_i - \text{Min}(z_i))/(\text{Max}(z_i) - \text{Min}(z_i)) \qquad \text{Equation 3.1}$$

where q_i was the normalised value of the individual indicator (i), z_i was the raw value of the indicator (i), and $Min(z_i)$ and $Max(z_i)$ corresponded to the lowest and highest values of the indicator (i) in the four African IFCs, for all $i = 1, 2, \ldots, n$ (Odhiambo et al., 2021). This process normalised all indicators' values to a standard range of 0–1. Subsequently, the normalised values were rescaled from 0–1 to 0–100 scores. Eventually, an IFC with the highest or lowest indicator value scored 100 or 0 (EIU, 2022).

The indicators such as corporate tax rates, crime index and pollution index for which a high value corresponded to an adverse condition for the competitiveness of an IFC in the GFCI were normalised as shown in Equation 3.2 (EIU, 2022; Odhiambo et al., 2021).

$$q_i = (z_i - \text{Max}(z_i))/(\text{Max}(z_i) - \text{Min}(z_i)) \qquad \text{Equation 3.2}$$

After normalisation, equal weights were assigned to indicators within each competitive area (independent variable): business environment, financial sector development, human capital and infrastructure. Weights within each competitive component summed to one. Equal weighting posits equal importance of all indicators, and many composite indices such as the Economic Freedom of the World Index, GFCI, Genuine Savings Index, Global Organised Crime Index

and Human Development Index use it due to its simplicity, straightforwardness and replicability (Odhiambo et al., 2021).

Finally, linear aggregation was used to calculate the scores of IFCs in each competitive area (independent variable) (EIU, 2022). Linear aggregation infers that the business environment, financial sector development, human capital and infrastructure scores were computed by obtaining a sum of the product of the individual indicator scores and their weights. Like the normalised indicators, the independent variable scores of African IFCs were stated in a range of 0–100, where 100 implied the most favourable score. Equation 3.3 shows the linear aggregation specification.

$$f = \sum_{i=1}^{n} w_i q_i \qquad \text{Equation 3.3}$$

where f was the value of the competitive area (explanatory variable), q_i was the normalised and rescaled value of the individual indicator (i), and w_i was the weight assigned to q_i, with $\sum_{i=1}^{n} w_i = 1$ and $0 \leq w_i \leq 1$, for all $i = 1, 2, \ldots, n$ (Greco et al., 2019; Odhiambo et al., 2021).

3.7 Data Analysis

Data analysis was performed in Stata 15 statistical software. The following sections describe the individual methods for the specific research objectives.

3.7.1 Panel Regression Analysis of the Business Environment, Financial Sector Development, Human Capital and Infrastructure and Competitiveness of the IFCs

A panel data set entailed observing the same IFCs over different periods, providing multiple observations on each centre in the sample with cross-sectional (N) and time series (T) elements (Brugger, 2021). Panel data provides more information and efficiency of econometric estimates as panel data regression models can identify undetectable effects in pure cross-sectional and time series data (Hsiao, 2022). The study conducted diagnostic tests to choose the appropriate panel regression model between the fixed and random effects models (Sinha, 2017). The regression coefficient of the business environment, financial sector development, human capital and infrastructure variables corresponded to each variable's effect on the competitiveness of the African IFCs. If the p-value of the estimated variable was small (p-value < 0.05) at a 0.05 significance level, the study rejected the null hypothesis that a variable, say business environment, had no significant effect on the competitiveness of IFCs in Africa (Baltagi & Baltagi, 2008).

3.7.1.1 Fixed Effects Model Specification

The fixed effects (FE) model posits that each IFC has unique individual time-invariant characteristics (cross-section heterogeneity) that may impact or bias the dependent variable (GFCI rating) and need to be controlled by assuming a different intercept for each centre (Das, 2019). The FE model removes the effects of the time-invariant features from the independent variables to estimate their net effects. For example, the within FE model wipes out (demeans) cross-section effects and relegates them to the error term—the individual specific effects (the intercept) cancel out, and time-invariant variables are dropped from the model and their coefficients are not identified (Hsiao, 2022). This is the rationale for the correlation between the error term and the independent variables (endogeneity) in FE models (Gujarati & Porter, 2009). Equation 3.4 shows the FE model specification.

$$\log(GFCI_{it}) = \alpha_i + \beta_1 \log(BE_{it}) + \beta_2 \log(FSD_{it}) + \beta_3 \log(HC_{it}) + \beta_4 \log(INF_{it}) + \delta_1 D_{2019} + \delta_2 D_{2020} + \delta_3 D_{2021} + \delta_4 D_{2022} + \varepsilon_{it} \quad \text{Equation 3.4}$$

where *GFCI* rating was the dependent variable, α_i was the intercept or individual specific effects, β corresponded to the individual coefficients or estimates of the business environment (*BE*), financial sector development (*FSD*), human capital (*HC*) and infrastructure (*INF*), δ represented the effects of the years 2019, 2020, 2021 and 2022 (time dummies *D*) relative to 2023 and ε was the error term, for all $i = 1, 2, \ldots, N$ and $t = 1, 2, \ldots, T$ (Wooldridge, 2010).

3.7.1.2 Random Effects Model Specification

Unlike the FE model, the random effects (RE) model postulates that the unobserved variation across IFCs is random and not correlated with the regressors in the model, which allows estimation of the coefficients of time-invariant variables (Gujarati & Porter, 2009). In the FE model, time-invariant features are immersed in the intercept. In the RE model, the unobservable effects are included in the composite error term, which then becomes the "sum of unobservable individual-specific effects (time-invariant) and a well-behaved (remainder) disturbance" (Baltagi & Baltagi, 2008). The individual composite error components are neither correlated with each other nor autocorrelated with any of the independent variables in the model. Equation 3.5 shows the RE model specification, where α_i was the intercept or individual specific effects, and $v + \varepsilon$ was the composite error term (Wooldridge, 2010).

$$\log(GFCI_{it}) = \alpha_i + \beta_1 \log(BE_{it}) + \beta_2 \log(FSD_{it}) + \beta_3 \log(HC_{it}) + \beta_4 \log(INF_{it}) + \delta_1 D_{2019} + \delta_2 D_{2020} + \delta_3 D_{2021} + \delta_4 D_{2022} + v_{it} + \varepsilon_{it} \quad \text{Equation 3.5}$$

3.7.2 Diagnostic Tests

There are six assumptions of linear regression models (Gujarati & Porter, 2009). First, the linearity assumption posits a linear relationship between the outcome variable and regressors—a constant change in the regressed variable due to a unit change in the regressor variable. Second, the exogeneity assumption states that the error terms should not be correlated with the independent variable (no endogeneity). Third, the homoskedasticity assumption posits that the error terms have constant variance in all levels of the regressors (no heteroskedasticity). Fourth, the non-autocorrelation assumption states that the error terms should not correlate. Fifth, the normality assumption requires a normal distribution of the error terms. Finally, the non-multicollinearity assumption posits that two or more independent variables in a regression model should not be correlated. If the exogeneity, homoskedasticity and non-autocorrelation assumptions are violated, then using the FE or RE model may be more suitable (Das, 2019). The study conducted the following diagnostic tests to check data set properties and choose the appropriate panel regression model.

3.7.2.1 Normality Test

A linear regression model's error term (residuals) captures unobservable or omitted factors that may affect the dependent outcome variable. The study used the Shapiro-Wilk Test to assess the normality of the residuals' distribution (Gujarati & Porter, 2009). If the p-value was small (p-value < 0.05) at a 0.05 significance level, the study rejected the null hypothesis that the error terms were distributed normally (Baltagi & Baltagi, 2008). If the error terms were not normally distributed, the model was log-transformed to normalise the data set (Curran-Everett, 2018; Vafaei et al., 2018). Log transformation is a technique where each data point in a data set is replaced with its logarithm (Adubisi et al., 2017; Vrbin, 2022).

3.7.2.2 Heteroskedasticity Test

Heteroskedasticity occurs when the error terms' variance in a regression model are non-constant in all levels of the independent variables. The study used the Breusch-Pagan Test to test for heteroskedasticity (Hsiao, 2022). If the p-value was small (p-value < 0.05) at a 0.05 significance level, the study rejected the null hypothesis of no heteroskedasticity in affirmation of the alternative hypothesis of heteroskedasticity (Hansen, 2022). If the model was heteroskedastic, the study conducted a log transformation of the data set to stabilise the variance of residuals (Curran-Everett, 2018; Vafaei et al., 2018). In addition, the study used a

feasible generalized least squares estimator to address the problem of heteroskedasticity and make plausible inferences (Bai et al., 2021). A feasible generalized least squares estimation for the FE or RE models is useful when the error terms have non-constant variance or exhibit autocorrelation, as it provides unbiased and efficient estimates with reliable standard errors (Moundigbaye et al., 2018).

3.7.2.3 Autocorrelation Test

Autocorrelation or serial correlation occurs due to the correlation of the error terms in a regression model. The study used the Woolridge Test for autocorrelation (Wooldridge, 2010). If the p-value was small (p-value < 0.05) at a 0.05 significance level, the study rejected the null hypothesis of no autocorrelation (Wooldridge, 2010). Subsequently, if the model indicated autocorrelation or serial correlation, the study used a feasible generalized least squares estimator to correct the defect and draw valid inferences (Bai et al., 2021). The study also introduced time dummies as independent variables to account for unobserved time-specific effects that could induce autocorrelation (Dutta et al., 2019; Abdulhafedh, 2017).

3.7.2.4 Multicollinearity Test

Multicollinearity occurs when several regressors in a regression model are correlated. The study used the Variance Inflation Factor (VIF) to assess the inflated level of the OLS estimator due to collinearity (Das, 2019). A VIF less than 10 (VIF < 10) indicated no multicollinearity (Baltagi & Baltagi, 2008).

3.7.2.5 Hausman Test

The study employed the Hausman test to choose between the FE model and the RE model (Wooldridge, 2010). The null hypothesis was that the RE model was appropriate compared to the FE model (Wooldridge et al., 2016). If the F test > F critical or the p-value was small (p-value < 0.05) at a 0.05 significance level, the study rejected the null hypothesis that the RE model was appropriate (no endogeneity) compared to the FE model (endogeneity). Rejecting the null hypothesis implied that the study should not use the RE model but can estimate the FE model (Baltagi & Baltagi, 2008).

3.8 Research Quality

The study followed standard procedures to ensure the results were valid and reliable. The validity and reliability of a research instrument are its ability to measure the predetermined

target and to generate consistent results with other researchers using a similar methodological approach, respectively (Sürücü & Maslakci, 2020). The study used triangulation in data collection to increase the validity and reliability of the research (Moon, 2019). Based on this premise, data for the research variables were obtained from various reputable sources or organizations such as the Cato Institute, DHL, Fraser Institute, KPMG, Legatum Institute, Numbeo, the Word Bank, Transparency International, UNDP, WEF, WIPO and Z/Yen Group. The study verified the accuracy of the secondary data by comparing different sources reporting the same information. In addition, the researcher collected the most recent data for the indicator variables relative to the measurement period of the dependent variable. The study conducted data normalisation and rescaling to deal with the possible dominance of outliers in the data set and facilitate comparison. The study used quantitative methods in data analysis, including diagnostic tests which can be empirically replicated.

3.9 Research Ethics

This study recognised that dishonesty is an unethical practice that could jeopardise research. The study has acknowledged using other people's arguments, concepts, ideas, or research findings by citation. Ethical approval to conduct research was obtained from the Strathmore University Institutional Scientific Ethics Review Committee (reference number SU-ISERC2304/24) (Appendix 2). In addition, the study obtained secondary data from authentic global open-source databases that do not require approvals. Finally, the researcher did not manipulate the data collected for hidden personal interests.

3.10 Chapter Summary

Chapter three of this thesis has provided a comprehensive overview of the research methodology. The chapter presented the philosophy and design of the research, study population and the procedure of sampling, data collection and processing (data normalisation, rescaling, weighting and aggregation), data analysis (panel regression analysis of the business environment, financial sector development, human capital and infrastructure and competitiveness of the IFCs), including diagnostic tests, research quality and ethical issues. The next chapter presents the findings of this study.

CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This study aimed to empirically determine the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs in Africa. This chapter presents the findings of the study in the following sections: descriptive statistics, diagnostic tests, and panel regression models.

4.2 Descriptive Statistics

Table 4.1 summarises the descriptive statistics of the normalised, rescaled, weighted and aggregated variables in the study from 2019 to 2023. These variables included the GFCI ratings (dependent variable) and business environment, financial sector development, human capital and infrastructure (independent variables) of Africa's Cape Town, Casablanca, Mauritius and Nairobi IFCs.

The GFCI ratings evaluated the overall competitiveness of African IFCs. Overall, the average GFCI rating was 46.86 points, with Casablanca achieving the highest GFCI rating of 75.20 points (range 50.86–100). However, a wide variability in Casablanca's rating, shown by a standard deviation of 18.26, suggested fluctuating competitiveness. Cape Town and Mauritius had moderate mean scores of 44.69 and 46.86 points, respectively. Nairobi achieved the lowest average rating of 20.69 points and the most extensive range (0–51.43 points), highlighting challenges in gaining traction as an IFC. The findings underscored the need to address variability factors and improve African IFCs' competitiveness.

For the business environment, the overall average score of IFCs was 41.94 points, with Mauritius outperforming other IFCs (84.73 points, range 72.81–96.92) under a minimal standard deviation of 10.91. This result implied a stable and favourable business environment. Cape Town (32.11 points) and Casablanca (33.17 points) showed moderate average performance, with similar scores and ranges and less variability, but still need significant improvements to catch up. On average, Nairobi's low score of 17.78 points indicated enormous challenges in its business environment, necessitating critical reforms. Considering the financial sector development aspect, the overall average score of IFCs was 42.36 points. Cape Town demonstrated the strongest financial sector development, with a mean score of 78.09 points and a small variability compared to Casablanca, Mauritius and Nairobi. Nairobi lagged significantly (10.38 points), indicating a nascent or struggling financial sector.

Table 4.1: Summary descriptive statistics of the normalised, rescaled, weighted and aggregated variables from 2019 to 2023

	GFCI ratings				Business environment				Financial sector development			
Country	**Mean**	**Standard deviation**	**Min**	**Max**	**Mean**	**Standard deviation**	**Min**	**Max**	**Mean**	**Standard deviation**	**Min**	**Max**
Cape Town	44.69	8.73	30.29	51.43	32.11	4.33	27.63	38.19	78.09	5.18	72.32	84.48
Casablanca	75.20	18.26	50.86	100.00	33.17	4.54	29.42	38.65	41.09	7.03	30.96	50.21
Mauritius	46.86	25.31	20.57	75.43	84.73	10.91	72.81	96.92	39.88	5.13	31.37	45.15
Nairobi	20.69	21.38	0.00	51.43	17.78	1.32	15.85	19.47	10.38	2.51	8.57	14.80
Pooled	46.86	26.65	0.00	100.00	41.94	26.74	15.85	96.92	42.36	25.10	8.57	84.48
	Human capital				**Infrastructure**							
Cape Town	42.17	2.78	38.17	45.83	45.09	5.23	40.08	52.60	Not applicable			
Casablanca	50.58	3.89	44.82	53.73	53.27	1.86	51.02	55.68				
Mauritius	75.96	5.13	70.51	82.45	72.06	4.34	64.98	76.18				
Nairobi	42.16	4.28	36.05	46.22	35.29	1.81	33.13	37.76				
Pooled	52.72	14.70	36.05	82.45	51.43	14.25	33.13	76.18				

Note: Min and max denote minimum and maximum.

Source: Author (2024).

Overall, the average score for human capital was 52.72 points, with Mauritius dominating (75.96 points) and obtaining a reasonably consistent range of 70.51–82.45 points. Casablanca had a moderate average score of 42.17 points, implying room for improvement. Although Cape Town and Nairobi attained similar mean scores of 42.17 and 42.16 points, respectively, Nairobi showed slightly higher variability or fluctuation in human capital. Finally, the infrastructure aspect of IFCs attained an overall mean score of 51.43 points, with Mauritius excelling (72.06 points, range 64.98–76.18) and maintaining a relatively consistent performance than other African IFCs. Nairobi lagged with a mean score of 35.29 points, indicating significant infrastructure challenges. The results demonstrated that while some IFCs excelled in particular competitive areas, attaining low or moderate and inconsistent scores across other dimensions affected their overall competitiveness (GFCI ratings).

4.3 Results of Diagnostic Tests

The following sections present the results of diagnostic tests conducted to check data set properties and research quality (reliability of results) and choose the appropriate panel regression model. These tests included normality, heteroskedasticity (non-constant variance of the error terms), autocorrelation (serial correlation), multicollinearity and Hausman tests.

4.3.1 Normality Test

The Shapiro-Wilk Test results revealed a small p-value (p-value < 0.05) at a 0.05 significance level (Table 4.2), suggesting evidence against the normal distribution of the residuals. Therefore, the study rejected the null hypothesis that the error terms were normally distributed. The model was log-transformed to normalise the data set and make it suitable for informing and advancing understanding of the competitiveness of African IFCs (Curran-Everett, 2018; Vafaei et al., 2018).

Table 4.2: Results of the test for normality

Test	Statistic	P-value
Shapiro-Wilk Test	W = 0.6912	0.000

Source: Author (2024).

4.3.2 Heteroskedasticity Test

In Table 4.3, the results of the Breusch-Pagan Test showed a chi-squared value of 101.81 and a p-value < 0.05 at a 0.05 significance level, suggesting evidence of heteroskedasticity. Therefore, the study rejected the null hypothesis of no heteroskedasticity. In addition to the log transformation of the panel regression model, the study conducted a feasible generalized least squares estimation of the model to resolve the problem of heteroskedasticity and provide unbiased and efficient estimates with reliable standard errors (Curran-Everett, 2018; Vafaei et al., 2018; Bai et al., 2021).

Table 4.3: Results of the test for heteroskedasticity

Test	Statistic	P-value
Breusch-Pagan Test	$\chi^2_{(4)} = 101.81$	0.000

Source: Author (2024).

4.3.3 Autocorrelation Test

The results of the Woolridge Test for autocorrelation (Table 4.4) had a test statistic of 39.65 and a p-value < 0.05 at a 0.05 significance level, suggesting first-order autocorrelation in the model. Therefore, the study rejected the null hypothesis of no autocorrelation. The study applied a feasible generalized least squares estimator to correct serial correlation and draw valid regression estimates (Bai et al., 2021). In addition, the study used time dummies as regressors to account for unobserved temporal effects that could create serial correlation (Dutta et al., 2019).

Table 4.4: Results of the test for autocorrelation

Test	Statistic	P-value
Woolridge Test	F(1, 3) = 39.65	0.008

Source: Author (2024).

4.3.4 Multicollinearity Test

Table 4.5 shows the results of the Multicollinearity Test using the Variance Inflation Factor (VIF).

The VIF of each independent variable was less than 10 (VIF < 10), suggesting evidence of no multicollinearity in the panel regression model.

Table 4.5: Results of the test for multicollinearity

Independent variables	Variance Inflation Factor (VIF)
log(business environment)	8.60
log(financial sector development)	7.94
log(human capital)	6.97
log(infrastructure)	2.23

Source: Author (2024).

4.4 Results of the Correlation Analysis

Karl Pearson's correlation coefficient (r) takes the range of -1 to +1 in determining the relationship between variables, where -1 indicates a strong negative correlation, and +1 implies a strong positive correlation (Pandey, 2020). Table 4.6 shows the findings of Karl Pearson's correlation analysis of the study's independent variables and dependent variable (GFCI rating).

Table 4.6: Results of Karl Pearson's correlation analysis

Variable	log(GFCI)	log(business environment	log(financial sector development)	log(human capital)	log(infrastructure)
log(GFCI)	1.000	0.653** (0.016)	0.702** (0.010)	0.853*** (0.000)	0.605** (0.023)
log(business environment	0.653** (0.016)	1.000	0.549** (0.032)	0.573** (0.028)	0.430** (0.047)
log(financial sector development)	0.702** (0.010)	0.549** (0.032)	1.000	0.497** (0.041)	0.458** (0.044)
log(human capital)	0.853*** (0.000)	0.573** (0.028)	0.497** (0.041)	1.000	0.421** (0.049)
log(infrastructure)	0.605** (0.023)	0.430** (0.047)	0.458** (0.044)	0.421** (0.049)	1.000

Significant correlation at the * 0.1 level; ** 0.05 level; and ***0.01 level.
P-values in parentheses.

Source: Author (2024).

The results in Table 4.6 above showed the business environment (r = 0.653), financial sector development (r = 0.702), human capital (r = 0.853) and infrastructure (r = 0.605) had significant moderate to strong positive correlations with the GFCI rating (all p-values < 0.05). The findings suggested that an improvement in these variables may be associated with a substantial increase in the GFCI rating of African FCs. Given that all the independent variables indicated a moderate to strong relationship with the dependent variable (GFCI rating), the findings justified their inclusion in the panel regression model.

The results also showed significant moderate positive inter-correlations among the independent variables (p-values < 0.05 at the 0.05 significance level. As Karl Pearson's correlation coefficients of all paired independent variables were less than 0.8 (no strong correlations), the findings suggested no potential multicollinearity (Shrestha, 2020; Senaviratna & A Cooray, 2019). This assertion was confirmed by the VIF of each independent variable (VIF < 10), suggesting evidence of no multicollinearity in the panel regression model (Table 4.5 in the preceding section).

4.5 Results of the Panel Regression Analysis of the Variables

Table 4.7 shows the results of the Hausman Test for choosing between fixed effects and random effects models. The test statistic was 3.06, with a p-value > 0.05 (p-value = 0.6902) at a 0.05 significance level, indicating that estimating the random effects regression model was better than the fixed effects model. Therefore, the study failed to reject the null hypothesis that the random effects model was appropriate for analysing the panel data compared to the fixed effects model.

Table 4.7: Results of the Hausman Test between fixed effects and random effects models

Test	Statistic	P-value
Hausman Test	$\chi^2_{(4)} = 3.06$	0.6902

Source: Author (2024).

4.5.1 Results of the feasible generalized least squares estimation of the determinants of competitiveness of IFCs based on the random effects model

The results from the diagnostic tests revealed that the error terms in the panel regression model were not normally distributed, heteroscedastic and autocorrelated. To resolve these defects, the study conducted a feasible generalized least squares estimation of the log-transformed random effects regression model with time dummies and obtained the results in Table 4.8.

Table 4.8: Results of the feasible generalized least squares estimation of the determinants of competitiveness of IFCs based on the random effects model

Independent Variables	Coefficients	Standard errors	T-values	P-values
log(business environment)	-2.789***	0.961	-2.902	0.004
log(financial sector development)	1.251***	0.327	3.826	0.000
log(human capital)	4.173**	1.890	2.208	0.027
log(infrastructure)	2.077	1.482	1.401	0.161
Year 2019	1.353***	0.543	2.492	0.013
Year 2020	0.289	0.542	0.533	0.594
Year 2021	-0.376	0.515	-0.730	0.465
Year 2022	0.072	0.407	0.177	0.859
Constant	-15.682	5.619	-2.791	0.005

Wald chi^2 (8) = 46.08; Prob > chi^2 = 0.00; Number of obs = 19.
Significance of a variable at * 0.1 level; ** 0.05 level; and ***0.01 level.

Source: Author (2024).

The estimated random effects model was statistically significant, comprising a Wald chi^2 test statistic of 46.08 and a Prob > chi^2 of 0.000 (p-value < 0.05) at a 0.05 significance level. This implied that the regressors significantly explained the outcome variable. This is to say, the model significantly explained the effects of the business environment, financial sector development, human capital and infrastructure on the GFCI ratings of African IFCs. The interpretation of all statistically significant explanatory variables was based on the ceteris paribus assumption—as the variable of interest changed, everything else remained constant (Liusman et al., 2017).

For the time dummies, only 2019 (δ_1 = 1.353 and p-value = 0.013) recorded significantly higher

GFCI ratings of African IFCs at the 0.01 level (about 35.3% higher) than 2023 used as the reference year. This could reflect a pre-COVID-19 period of relative stability and higher economic activities in the IFCs (Takyi & Bentum-Ennin, 2021). Conversely, the GFCI ratings in all other years (2019, 2020, 2021 and 2022) were not significantly different from 2023. This observation could be attributed to the slow recovery of various IFCs from the shocks of the COVID-19 pandemic that derailed local economies between 2020 and 2023 (Anyanwu & Salami, 2021; Wójcik & Ioannou, 2020). The estimate for the year 2021 was not statistically significant (δ_3 = -0.376 and p-value = 0.465), but it clearly showed the negative residual effect passed on from 2020. Further, the constant of the estimated model was -15.682 (p-value = 0.005, 0.01 significance level), indicating a significant negative effect of the regressors on the GFCI ratings of African IFCs in the reference period 2023. This observation reflected the low baseline competitiveness of African IFCs. The following sections discuss the findings related to the sub-objectives of the study.

4.5.1.1 The Effect of the Business Environment on the Competitiveness of IFCs in Africa

As shown in Table 4.8 above, the business environment of African IFCs had a statistically significant negative effect (β_1 = -2.789 and p-value = 0.004) on their GFCI ratings at the 0.01 level, ceteris paribus. Therefore, the study rejected the null hypothesis that the business environment had no significant effect on the competitiveness of IFCs in Africa. The larger t-value of -2.902 supported the stronger evidence against the stated null hypothesis at 0.01 significance level (p-value < 0.005). The observed significant negative effect suggested an increase in the business environment metrics, such as corporate tax and inflation rates, could substantially decrease the GFCI ratings (competitiveness) of African IFCs.

4.5.1.2 The Effect of Financial Sector Development on the Competitiveness of IFCs in Africa

The results in Table 4.8 above indicated that the financial sector development had a statistically significant positive effect (β_2 = 1.251 and p-value = 0.000) on GFCI ratings of African IFCs at the 0.01 level, ceteris paribus. Therefore, the study rejected the null hypothesis that financial sector development had no significant effect on the competitiveness of IFCs in Africa. The larger t-value of 3.826 also supported the solid evidence against the stated null hypothesis at 0.01 significance level (p-value < 0.005). The observed significant positive impact indicated an increase in the financial sector development metrics, such as capitalisation of stock exchanges and the value of

share trading, could significantly increase the competitiveness (GFCI ratings) of IFCs in Africa.

4.5.1.3 The Effect of Human Capital on the Competitiveness of IFCs in Africa

The coefficient of the human capital variable was statistically significant ($\beta_3 = 4.173$ and p-value = 0.027) at the 0.05 level, ceteris paribus (Table 4.8). Therefore, the study rejected the null hypothesis that human capital had no significant effect on the competitiveness of IFCs in Africa. The t-value of 2.208 was moderately significant at the 0.05 level, supporting the significant positive impact of human capital on the GFCI ratings. The strong positive effect (4.173) suggested that improved human capital metrics, such as adjusted net national income per capita and Human Development Index scores, could vastly increase the GFCI ratings of IFCs in Africa.

4.5.1.4 The Effect of Infrastructure on the Competitiveness of IFCs in Africa

The results in Table 4.8 revealed that infrastructure had no statistically significant effect ($\beta_4 = 2.077$ and p-value = 0.161) at 0.005 level, ceteris paribus. Infrastructure positively impacted the GFCI ratings, suggesting that better infrastructure could improve the competitiveness of IFCs in Africa. However, since this impact was not statistically significant (p-value > 0.05), the study failed to reject the null hypothesis that infrastructure had no significant effect on the competitiveness of IFCs in Africa. Moreover, the observed t-value was small (1.401), supporting evidence of the insignificant impact of the business environment variable on GFCI ratings.

4.6 Chapter Summary

This chapter presented and discussed the findings of the study. Although some IFCs excelled in particular competitive areas, attaining low and inconsistent scores across other dimensions affected their overall competitiveness. Diagnostic tests identified issues like non-normality, heteroskedasticity and autocorrelation in the data, which were addressed using log transformation, time dummies and feasible generalized least squares estimation of the random effects model. Panel regression analysis highlighted that the business environment significantly and negatively influenced IFC competitiveness. Financial sector development and human capital had significant positive impacts. However, infrastructure showed no statistically significant effect. The analysis also revealed temporal effects, with GFCI ratings in 2019 being significantly higher than in 2023, likely reflecting pre-COVID-19 stability.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarises the key findings, discusses the findings in light of the research objectives and presents the study's conclusions, recommendations and limitations. It also provides contributions to the knowledge gap and suggestions for further research.

5.2 Summary of the Key Findings

Descriptive statistics revealed that while some IFCs excelled in particular competitive areas, attaining low or moderate and inconsistent scores across other dimensions affected their GFCI ratings (overall competitiveness) between 2019 and 2023. The panel regression analysis revealed temporal effects, with the competitiveness in 2019 being significantly higher than in 2023, possibly due to stability and more economic activities in the IFCs before the COVID-19 pandemic. Further, the results showed that the business environment had a statistically significant negative impact (β_1 = -2.789, p = 0.004), while the financial sector development effect (β_2 = 1.251, p = 0.000) and human capital (β_3 = 4.173, p = 0.027) showed significant positive effects on the competitiveness of the IFCs. Although infrastructure positively impacted the ratings (β_4 = 2.077), its effect was insignificant (p = 0.161). Therefore, the stated null hypotheses that the business environment, financial sector development and human capital had no significant effects on the competitiveness of IFCs in Africa were rejected. However, the study failed to reject the null hypothesis that infrastructure had no significant effect on the competitiveness of IFCs in Africa.

5.3 Discussion of the Research Findings

This study aimed to determine the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs in Africa. The findings of the study in light of the research objectives are discussed below.

5.3.1 The Effect of the Business Environment on the Competitiveness of IFCs in Africa

The first objective of this study was to determine the effect of the business environment on the competitiveness of IFCs in Africa. The business environment encompasses specific indicators such as corruption levels, inflation rates, institutional and regulatory regimes, political stability and tax

rates (Z/Yen Group, 2022). The business environment had a statistically significant negative impact on the competitiveness of IFCs (GFCI ratings), ceteris paribus. This negative effect was attributed to possible extreme tax rates, high corruption levels and volatile inflation rates that reduce confidence in doing business in certain cities. An increase in the business environment factors such as corporate tax rates, Corruption Perceptions Index scores and inflation rates was associated with a significant decrease in the competitiveness of African IFCs.

The results of this study concurred with the agglomeration and world city theories in the sense that clustering financial institutions and services in a business-unfriendly environment with fewer cross-border transactions and unfavourable tax and legislative frameworks may lead to less competitive IFCs. In addition, the results corroborated the findings of Eichengreen and Shah (2020), who observed a significant negative effect of the inflation rate (a business environment metric) on the competitiveness of IFCs between 2007 and 2016.

5.3.2 The Effect of Financial Sector Development on the Competitiveness of IFCs in Africa

The second objective of this study was to evaluate the effect of financial sector development on the competitiveness of IFCs in Africa. The financial sector development involves specific factors such as capital access, capitalisation of stock exchanges, global credit rating and value of share trading in an IFC (Z/Yen Group, 2023a). Financial sector development had a statistically significant positive effect on GFCI ratings, ceteris paribus. The positive impact of the financial sector development on the competitiveness of IFCs in Africa was ascribed to an improved banking sector, capital access and financial innovation in the sampled cities. Also, good financial sector development has the potential to attract foreign direct investments and facilitate international capital flows and financial transactions, thereby increasing the GFCI rating of an IFC. Therefore, an increase in the financial sector development factors such as capitalisation of stock exchanges, domestic credit to private sector and the value of share trading was associated with a significant increase in the competitiveness (GFCI ratings) of IFCs in Africa.

The results of this study were in line with the agglomeration and world city theories in the sense that pooling financial enterprises and the ability to command and control the global capital can create economies of scale and specialisation, making an IFC more attractive and competitive. Additionally, the results were similar to the findings of Naeem (2023) and Eichengreen and Shah

(2020), who noted significant positive effects of capital access, global credit rating and market capitalisation (financial sector development metrics) on the GFCI ratings of IFCs.

5.3.3 The Effect of Human Capital on the Competitiveness of IFCs in Africa

The third objective of this study was to examine the effect of human capital on the competitiveness of IFCs in Africa. Human capital significantly and positively influenced the GFCI ratings, ceteris paribus. The strong positive effect (4.173) underscored the critical role of human capital aspects, including net national income per capita, availability of skilled personnel, cost of living, education and labour market regulation in enhancing the global standing of IFCs (Z/Yen Group, 2021). An increase in human capital factors such as adjusted net national income per capita, Cost of Living Index scores and Human Development Index scores could significantly increase the GFCI ratings of IFCs in Africa.

The results of this study agreed with the agglomeration, world city and global city theories in the sense that pooled specialised human resources and the ability to organise and coordinate global market systems based on the division of labour could create highly competitive IFCs. In addition, the results were buttressed by the findings of Vo and Nguyen (2021) and Kayral and Karan (2012), who argued that a highly skilled workforce and labour force participation rate were significant distinguishing features of highly competitive IFCs. Further, the results were similar to the findings of Klapper and Lusardi (2020), who asserted that a shortage of educated workforce could lead to sourcing foreign talent at high operational costs while the availability of skilled professionals could make a centre more competitive. However, these studies only covered human capital metrics, not the aggregate variable.

5.3.4 The Effect of Infrastructure on the Competitiveness of IFCs in Africa

The fourth objective of this study was to determine the effect of infrastructure on the competitiveness of IFCs in Africa. An IFC's infrastructure entailed specific factors such as the built infrastructure, office occupancy costs, sustainable development, percentage of the population using the internet and quality of the domestic transport network (Z/Yen Group, 2019). While the positive coefficient of infrastructure suggested it could bolster the IFC's global standing, the lack of statistical significance could be attributed to limited variability in infrastructure, potential lagged effects and aggregation of diverse infrastructure metrics.

IFCs operate in cities where infrastructure meets baseline adequacy (Ku & Morriss, 2021). Subsequently, if most centres had similar infrastructure quality, there could not be enough variability in the data for the model to detect significant effects. For the potential lagged effects, improvements or investments in infrastructure, such as transport networks, could only influence an IFC's competitiveness several years later, resulting in an insignificant contemporaneous relationship (Chakamera & Alagidede, 2018). Further, aggregating diverse metrics into a composite infrastructure index could mask individual effects (Calderon et al., 2018). For example, internet penetration could have a significant positive effect, while high office occupancy costs could demonstrate a significant negative impact, as reported by Naeem (2023), Eichengreen and Shah (2020) and Moosa et al. (2016). Aggregating these into a composite infrastructure index could lead to an insignificant net effect on the competitiveness of IFCs.

5.4 Conclusions

The competitiveness of African IFCs (GFCI ratings) varied widely, with substantial disparities in the cities' business environment, financial sector development, human capital and infrastructure. In addition, enhancing the business environment, financial sector development and human capital could significantly improve the competitiveness of IFCs in Africa. For example, addressing weaknesses in the business environment through zero or minimal tolerance for corruption and controlled inflation rates and improving financial sector development through increased metrics such as capitalisation of stock exchanges and the value of share trading could significantly increase the competitiveness of African IFCs. Similarly, enhancing human capital by increasing its metrics, such as adjusted net national income per capita and Human Development Index scores, could improve the competitiveness of IFCs in Africa. Further, infrastructure improvements could have long-term benefits (increased competitiveness) for the African IFCs but showed no immediate statistical significance.

5.5 Recommendations

There is a need for African governments, city planners, and policymakers to develop and implement targeted policies that address business environment problems such as corruption, high corporate tax rates and volatile inflation rates to bolster IFCs' global standing significantly. In addition, there is a need to foster financial sector development by developing and implementing

policies that support increased metrics such as capital access, capitalisation of stock exchanges, global credit rating and value of share trading. Further, African IFCs should improve human capital through increased investment in education and health, skill development and labour market reforms to substantially drive their global competitiveness. Finally, although infrastructure was not a significant determinant of competitiveness in the short run, African governments still need to invest in infrastructure by improving housing, internet penetration, transport networks and sustainability initiatives for long-term benefits and global success.

5.6 Contribution to Knowledge

The business environment, financial sector development, human capital and infrastructure are theoretically known to be determinants of the competitiveness of IFCs, but the magnitude and statistical significance of their effect remain unknown as most studies on the competitiveness of IFCs have only described the characteristics of highly competitive IFCs. A few studies have statistically analysed the impact of specific metrics such as capital access, inflation rate, internet usage and skilled workforce on the competitiveness of IFCs at the global level or outside Africa but have not evaluated the effect of the aggregate business environment, financial sector development, human capital and infrastructure. This research has provided evidence-based empirical insights, thereby addressing the research gap. In addition, this study made methodological contributions by using advanced panel regression techniques, including random effects modelling and feasible generalized least squares estimation, offering a robust methodological approach for analysing complex data sets in IFCs' competitiveness studies.

The policy implications of this study were that better-suited policies and interventions are critical levers for increasing the competitiveness of IFCs in Africa. The GFCI ratings of countries' IFCs are politically sensitive for governments that continuously seek to improve the global image of their cities. Also, policymakers and city planners are looking for a working guide to enhance their targeting efforts and identify suitable policies for mitigating low global competitiveness. The findings of this study may serve as a working guide highlighting the specific competitive areas that require improvements to increase the overall competitiveness of African IFCs globally. Finally, this study highlighted how the competitiveness of African IFCs fluctuated pre- and post-COVID-19 economic conditions, contributing to knowledge about the temporal effects, resilience and adaptability of IFCs during economic shocks.

5.7 Limitations of the Study

The analysis only covered the competitiveness of four African IFCs (Cape Town, Casablanca, Mauritius and Nairobi between 2019 and 2023), neglecting Kigali and Lagos because they were included in the GFCI in 2021 (Z/Yen Group, 2021). South Africa's Johannesburg was also dropped in favour of Cape Town, which had the highest average GFCI rating due to data availability on a country basis rather than a city level. Consequently, this study was restricted to small sample size (N = 4 IFCs, T = 5 years and NT = 20 observations) with the potential to create spurious regression results, but the researcher did not panic for three reasons. First, the study aimed to conduct targeted, context-specific empirical and explorative research on the competitiveness of African IFCs to facilitate the development of better-suited policies and interventions to increase their global competitiveness. As mentioned, only a maximum of four IFCs could be considered within the longest period covering five years of the GFCI report.

Second, the conceptual framework showed the links between the business environment, financial sector development, human capital and infrastructure (independent variables) and the GFCI rating (dependent variable). Each independent variable was an aggregate (composite index) of five normalised, rescaled, weighted and aggregated indicators, implying the study obtained data for 20 indicators. According to Zhang and Lai (2024), it is possible to have a small sample size for aggregated or clustered data in multi-level models, thereby violating the widely accepted minimum of 30 observations in panel regressions. About 30% of multi-level panel models with clustered data have small samples of less than 30 observations (McNeish, 2016). Since the study used a few independent variables (four), the estimated model was still parsimonious (regressors significantly explained the outcome variable as shown by a Wald chi^2 test statistic of 46.08 and p-value < 0.05).

Finally, the study used a feasible generalized least squares estimation of the log-transformed random effects model to address the problems of non-normality, heteroskedasticity and autocorrelation, thereby improving the precision and reliability of the estimates (Bai et al., 2021; Vafaei et al., 2018). Therefore, due to the uniqueness of the study's variables and data sets, including limited data availability and difficulty in expanding the number of African IFCs and years considered, only 20 observations were attainable. This study aimed to provide actionable insights, fill the research gap and act as a stepping stone for future research with more comprehensive data sets.

5.8 Suggestions for Further Research

Similar research could be conducted for many IFCs from different continents, such as Asia, Europe, and North America, over a more extended period to capture long-term trends and make comparisons across regional IFCs. Future studies may apply dynamic panel modelling to determine the effect of the business environment, financial sector development, human capital and infrastructure on the competitiveness of IFCs. It is likely that the competitiveness of IFCs in one year, say 2022, may depend on its GFCI ratings in previous years, say 2021, thereby reflecting persistence or inertia in the ratings. Finally, future research may consider longitudinal analysis to examine the lagged effects of infrastructure improvements on the competitiveness of African IFCs.

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APPENDICES

Appendix 1: GFCI ratings and ranks of various IFCs between 2022 and 2023

International financial centre	GFCI 34 model		GFCI 33 model		GFCI 32 model	
	Rating	Rank	Rating	Rank	Rating	Rank
New York	763	1	760	1	760	1
London	744	2	731	2	731	2
Singapore	742	3	723	3	726	3
Hong Kong	741	4	722	4	725	4
San Francisco	735	5	721	5	724	5
Los Angeles	734	6	719	6	722	7
Shanghai	733	7	717	7	723	6
Washington DC	732	8	713	11	714	15
Chicago	731	9	716	8	717	12
Geneva	730	10	701	23	709	20
Seoul	729	11	714	10	718	11
Shenzhen	728	12	712	12	720	9
Beijing	727	13	711	13	721	8
Frankfurt	726	14	707	17	711	18
Paris	725	15	710	14	719	10
Luxembourg	724	16	705	19	708	21
Boston	723	17	715	9	715	14
Zurich	722	18	704	20	707	22
Amsterdam	721	19	708	16	711	18
Tokyo	720	20	703	21	713	16
Dubai	719	21	702	22	712	17
Sydney	718	22	709	15	716	13
Berlin	714	23	698	26	703	26
Miami	713	24	-	-	-	-
Dublin	712	25	676	48	679	49
Munich	711	26	706	18	705	24
San Diego	710	27	685	39	628	59
Minneapolis/St Paul	709	28	695	29	-	-
Guangzhou	708	29	690	34	704	25
Toronto	707	30	699	25	706	23
Copenhagen	706	31	700	24	699	30
Qingdao	705	32	688	36	693	36
Busan	704	33	687	37	700	29
Edinburgh	703	34	697	27	702	27
Abu Dhabi	702	35	689	35	697	32
Atlanta	701	36	694	30	683	45
Vancouver	700	37	692	32	687	41
Montreal	699	38	682	42	696	33

International financial centre	GFCI 34 model		GFCI 33 model		GFCI 32 model	
	Rating	Rank	Rating	Rank	Rating	Rank
Melbourne	698	39	696	28	698	31
Stockholm	697	40	693	31	701	28
Calgary	696	41	678	46	686	42
Oslo	695	42	691	33	694	35
Osaka	694	43	686	38	692	37
Chengdu	693	44	680	44	695	34
Milan	692	45	674	50	680	48
Stuttgart	691	46	677	47	690	39
Lugano	690	47	668	56	629	58
Madrid	689	48	684	40	688	40
Hamburg	688	49	681	43	691	38
Helsinki	687	50	683	41	684	44
Glasgow	686	51	679	45	685	43
Jersey	684	52	632	60	627	60
Brussels	683	53	675	49	681	47
Casablanca	682	54	642	57	674	54
Rome	681	55	670	54	677	51
Wellington	680	56	672	52	682	46
Tel Aviv	679	57	671	53	675	53
Guernsey	678	58	633	59	616	71
Isle of Man	676	59	606	85	609	78
Astana	674	60	626	66	621	66
Vienna	673	61	673	51	633	55
GIFT City-Gujarat	672	62	625	67	610	76
Reykjavik	671	63	616	76	593	94
Dalian	670	64	620	72	607	80
Nanjing	669	65	617	75	604	83
Mumbai	668	66	631	61	617	70
Taipei	667	67	629	63	673	55
Mauritius	666	68	610	81	595	92
Tianjin	665	69	612	79	600	87
Liechtenstein	664	70	602	89	613	74
Malta	663	71	630	62	624	63
Cayman Islands	662	72	618	74	620	67
Lisbon	661	73	669	55	676	52
Bahrain	660	74	609	82	606	81
Riyadh	659	75	603	88	589	98
Hangzhou	658	76	611	80	602	85
New Delhi	657	77	627	65	619	68
Doha	656	78	628	64	671	57
Prague	654	79	624	68	626	61
Kuala Lumpur	653	80	641	58	672	56

International financial centre	GFCI 34 model		GFCI 33 model		GFCI 32 model	
	Rating	Rank	Rating	Rank	Rating	Rank
Kigali	651	81	593	98	587	100
Kuwait City	646	82	589	102	574	108
Johannesburg	642	83	623	69	622	65
Monaco	641	84	599	92	601	86
Gibraltar	639	85	587	104	586	101
Bangkok	635	86	621	71	608	79
Tallinn	633	87	597	94	594	93
Santiago	631	88	615	77	618	69
Riga	630	89	596	95	575	107
Nairobi	629	90	588	103	577	105
Cape Town	628	91	619	73	623	64
Warsaw	626	92	622	70	625	62
Cyprus	625	93	614	78	611	76
Xi'an	623	94	586	105	531	118
Jakarta	622	95	608	83	592	95
Athens	621	96	607	84	591	96
Vilnius	620	97	585	106	576	106
Barbados	619	98	541	120	550	117
British Virgin Islands	618	99	584	107	596	91
Wuhan	616	100	571	111	501	119
Sofia	615	101	600	91	585	102
Manila	614	102	583	108	584	103
Lagos	613	103	577	109	571	109
Rio de Janeiro	612	104	591	100	597	90
Bahamas	611	105	564	114	570	110
Sao Paulo	608	106	592	99	599	88
Budapest	606	107	590	101	590	97
Bermuda	605	108	604	87	615	72
Almaty	604	109	595	96	598	89
Istanbul	603	110	601	90	610	77
Panama	602	111	572	110	569	111
Bratislava	601	112	598	93	603	84
Mexico City	595	113	594	97	587	100
Moscow	593	114	605	86	605	82
Tehran	591	115	549	118	568	112
Baku	586	116	558	116	556	116
Bogota	583	117	566	113	588	99
St Petersburg	581	118	563	115	565	114
Trinidad and Tobago	578	119	547	119	567	113
Ho Chi Minh City	577	120	567	112	578	104
Buenos Aires	563	121	557	117	564	115

Source: Z/Yen Group (2023b).

Appendix 2: Ethical approval by the SU-ISERC to conduct the research

Strathmore UNIVERSITY

20th June 2024

Ms Owino Velma,
velma.owino@strathmore.edu

Dear Ms Owino,

RE: Determinants of the Competitiveness of International Financial Centres in Africa

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** proposal. Your application reference number is **SU-ISERC2304/24.** The approval period is from **20th June 2024 to 19th June 2025.**

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
v. Clearance for the export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,
Chairperson; SU-ISERC