THE EFFECTS OF REGULATION, BANKING DEVELOPMENT AND SELECTED ECONOMIC FORCES ON STOCK MARKET DEVELOPMENT IN AFRICAN COUNTRIES

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ABSTRACT

Despite the increased number of stock exchanges in Africa, this segment of the financial market remains underdeveloped with low market capitalization, volume, and liquidity. Efforts of the previous policies to promote the stock market development (SMD) and restore the declining investors' confidence did not yield positive outcome as they are yet to meet the rising demand of capital for domestic firms. Building on the Arbitrage Pricing Theory (APT), the main objective of this study is to examine the effects of regulation, banking development, and selected economic forces on stock market development in the 12 African countries using the pooled mean group (PMG) model for the period spanning 1996 to 2016. The findings of the first objective reveal a positive and significant relationship between regulatory quality and SMD. On the other hand, the findings of the second objective indicate a negative and significant relationship between banking development and SMD. While the findings of the third objective suggest a positive and significant relationship between the selected economic forces and SMD. Specifically, life expectancy has a positive and significant relationship with SMD. Secondly, poverty reduction is positively related to SMD. Thirdly, there is a positive and significant relationship between unemployment and SMD while the export growth has a positive and significant impact on SMD. In addition, for the control variables of this study, the exchange rate has a positive and significant impact on SMD while both interest rates and financial crisis exert a negative and significant impact on SMD. The findings of this study have several policy implications that include ensuring a sound and effective securities regulation, promoting a complementary banking sector-stock market development nexus, and ensuring stable economic forces to improve the stock market development in Africa that has been slow in recovering from the aftershock of the 2008 global financial crisis.

Keywords: arbitrage pricing theory, stock market development, financial crisis, Africa, pooled mean group

ABSTRAK

Walaupun terdapat peningkatan dalam jumlah pasaran saham di Afrika, segmen pasaran kewangan ini masih berada di tahap kurang membangun dengan modal pasaran, jumlah dan kecairan yang rendah. Usaha daripada polisi sebelum ini, bagi mempromosikan pembangunan pasaran saham (SMD) dan memulihkan keyakinan pelabur yang semakin luntur tidak memberikan hasil yang memberangsangkan kerana pasaran saham masih belum dapat memenuhi peningkatan permintaan modal bagi syarikat domestik. Berdasarkan Teori Penentuan Harga Arbitraj (APT), objektif utama kajian ini adalah untuk mengkaji kesan peraturan, pembangunan perbankan dan kuasa ekonomi terpilih terhadap pembangunan pasaran saham di 12 buah negara Afrika menggunakan model *pooled mean group* (PMG) bagi tempoh 1996 hingga 2016. Hasil kajian bagi objektif pertama menunjukkan hubungan yang positif dan signifikan antara kualiti peraturan dan SMD. Sebaliknya, dapatan bagi objektif kedua menunjukkan hubungan yang negatif dan signifikan antara pembangunan perbankan dan SMD. Manakala dapatan daripada objektif ketiga menunjukkan hubungan yang positif dan signifikan antara kuasa ekonomi terpilih dan SMD. Secara khususnya, jangka hayat mempunyai hubungan yang positif dan signifikan dengan SMD. Kedua, pengurangan kemiskinan berkait secara positif dengan SMD. Ketiga, terdapat hubungan yang positif dan signifikan antara pengangguran dan SMD, manakala pertumbuhan eksport mempunyai kesan positif dan signifikan terhadap SMD. Sebagai tambahan, bagi pemboleh ubah terkawal kajian ini pula, kadar pertukaran menunjukkan kesan yang positif dan signifikan terhadap SMD sementara kadar faedah dan krisis kewangan memberikan kesan yang negatif dan signifikan terhadap SMD. Hasil kajian ini memberi beberapa implikasi terhadap polisi termasuk memastikan peraturan sekuriti yang kukuh dan berkesan, menggalakkan hubungan yang salin melengkapi antara pembangunan perbankan dan pasaran saham dan memastikan kuasa ekonomi yang stabil untuk meningkatkan pembangunan pasaran saham di Afrika yang mengalami proses pemulihan yang perlahan selepas krisis kewangan global yang berlaku pada tahun 2008.

Kata kunci: teori penentuan harga arbitraj, pembangunan pasaran saham, krisis kewangan, Afrika, pooled mean group

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LIST OF ABBREVIATIONS

Abbreviation	Full Meaning
ACCA	Association of Chartered Certified Accountants
AEO	African Economic Outlook
AIC	Akaike Information Criterion
APT	Arbitrage Pricing Theory
AREAER	Annual Report on Exchange Arrangement and Exchange Restriction.
ARDL	Autoregressive Distributed Lag
ASEA	African Securities Exchange Association
ASEAN	Association of South East Asian Nations
BERI	Bonds, Equities and Related Instruments
BVRM	Bourse Regionale des Valeurs Mobilieres
CAPM	Capital Asset Pricing Model
CICF	China International Conference in Finance
CMA	Capital Market Authority
CPI	Consumer Price Index
CSE	Cairo Stock Exchange
CaSE	Casablanca Stock Exchange
DFE	Dynamic Fixed Effect
ECT	Error Correction Term
EFI	Economic Freedom Index
EFSA	Egyptian Financial and Supervisory Authority
EIB	European Investment Bank
EMH	Efficient Market Hypothesis
EGX	Egyptian Stock Exchange
EU	European Union
FDI	Foreign Direct Investment
FDS	Financial Development and Structure
FE	Fixed Effect Model
FSB	Financial Service Board
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GSE	Ghana Stock Exchange
IAPM	International Arbitrage Pricing Model
ICRG	International Country Risk Guide
IFS	International Financial Statistics
IMF	International Monetary Fund
IPO	Initial Public Offering
JSE	Johannesburg Stock Exchange
KPMG	Klynveld Peat Main Goerdder
LaSE	Lagos Stock Exchange
LM	Langrage Multiplier
LUSE	Lusaka Stock Exchange
MFM	Macroeconomic Factor Model

MENA	Middle East and North Africa
MG	Mean Group Model
MGF	Market Guarantee Fund
NAMFISA	Namibian Financial Institutions and Supervisory Authority
NBER	National Bureau of Economic Research
NBS	National Bureau of Statistics
NEPRU	Namibian Economic Policy Research Unit
NILEX	Nile Stock Exchange
NRF	Norton Rose Full Bright
NSX	Nairobi Securities Exchange
NiSX	Nigeria Stock Exchange
NYSE	New York Stock Exchange
OECD	Organization of Economic Cooperation and Development
PMG	Pooled Mean Group
POLS	Pooled Ordinary Least Squares
RBM	Reserve Bank of Malawi
RE	Random Effect
SAIIA	South African Institute of International Affairs
SBC	Schwarz Bayesian Criteria
SEC	Securities and Exchange Commission
SMD	Stock Market Development
STB	Securities Trading Board
SSA	Sub-Sahara Africa
UNCTD	United Nation Conference on Trade and Development
UNDP	United Nations Development Program
USE	Uganda Stock Exchange
VAR	Vector Autoregressive
VECM	Vector Error Correction Model
VIF	Variance Inflation Factor
WAMU	West African Monetary Union
WEO	World Economic Outlook
WFE	World Federation of Exchanges
WGI	World Governance Indicators

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter as the name implies introduces the background of the study. The chapter also discusses the statements of the research problem. It further presents research questions, research objectives and the significance of the study. The scope of the study is also defined in the chapter, and finally, the chapter presents the organization of the study.

1.2 Background of the Study

Financial markets play a vital role in the growth and development of every economy (Fufa & Kim, 2018). More specifically, the financial market including stock markets play a crucial role in channeling funds from surplus to deficit, from non-profitable to productive sectors of the economy (Suganthi & Dharshanaa, 2014). It is a segment of financial market that provides opportunities for long-term investment. Thus, every nation needs a well-functioning stock market for its development. John and Duke (2013) disclose that equity markets provide channels for mobilization and allocation of funds in economies through exploiting material and human resources for optimal output. Therefore, the importance of stock market in financial economics literature cannot be overstressed. It has been argued that, one of the crucial aspects of research in finance is to understand the cross-sectional behavior of equity market returns (Subrahmanyam, 2018).

Although stock markets assist in the development of economic activities, they are also affected by the conditions of other economic variables. Therefore, capital markets,

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Appendix A

Stock Market Capitalization Ratio of listed domestic companies

Year	Cote devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	7.303	16.434	20.072	14.878	-10.81	33.576	20.029	12.00	7.853	166.988	0.346	2.882
1997	8.936	22.295	17.842	14.024	-8.91	37.302	29.977	16.8	10.087	155.436	0.401	10.877
1998	12.338	26.781	16.714	13.776	-7.01	39.890	34.794	11.17	9.892	136.666	0.454	12.981
1999	13.166	31.489	14.313	12.595	-5.11	39.926	36.381	17.46	8.339	156.134	0.508	8.356
2000	12.147	30.869	9.802	10.345	-3.21	31.718	31.906	7.75	7.532	165.996	0.562	7.134
2001	11.146	26.135	8.815	8.904	-1.31	24.983	25.419	4.24	10.018	129.998	0.616	6.242
2002	11.107	26.649	9.856	9.326	0.59	24.911	22.247	4.392	9.351	134.861	0.670	5.923
2003	11.954	29.709	14.317	19.227	2.49	30.084	23.072	5.574	10.711	157.945	0.724	10.601
2004	12.639	38.831	22.905	25.282	4.39	34.151	34.534	6.158	13.151	175.844	0.874	11.308
2005	13.609	66.063	21.251	27.954	6.29	38.618	43.861	5.952	15.813	209.403	1.156	10.204
2006	18.881	82.063	12.030	41.08	14.68	46.537	58.555	5.826	18.446	238.914	1.091	11.135
2007	32.881	88.739	11.441	46.970	23.975	59.222	85.191	6.938	35.991	265.619	11.355	14.674
2008	35.188	76.195	9.676	42.327	33.27	51.700	82.511	7.014	35.548	227.075	21.62	15.774
2009	27.806	47.206	10.151	33.583	22.32	44.287	69.560	8.237	21.736	210.071	20.684	16.873
2010	28.072	39.682	9.481	38.412	19.59	62.953	71.844	9.854	19.545	200.978	15.285	17.972
2011	28.850	27.481	8.441	35.347	17.33	69.750	66.386	9.588	17.303	145.229	26.201	17.740
2012	33.325	21.41	7.401	32.281	12.59	61.53	53.4	9.322	12.19	229.02	37.118	17.508
2013	37.8	21.54	6.361	29.216	7.85	73.72	50.39	9.056	15.65	256.48	48.035	17.277
2014	34.22	23.24	5.321	26.151	3.11	68.34	48.0	8.790	11.16	265.84	58.951	17.045
2015	39.33	16.68	4.281	23.086	-1.63	61.96	45.65	8.524	10.38	233.95	69.868	16.813
2016	44.44	10.12	3.241	20.021	-6.37	55.58	43.3	8.258	9.6	202.06	80.785	16.581

Appendix B

Domestic Credit to Private Sector by Banks (% of GDP)

Year	Cote divoire	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	16.36122	36.53439	6.005079	21.51429	4.028828	43.40375	24.0689	41.36313	8.978994	59.95689	5.278934	8.0606
1997	16.77027	39.69361	8.195094	24.21845	3.661004	49.09835	40.54118	42.0844	10.66127	61.85087	4.823475	6.8248
1998	15.94884	46.55501	9.203715	23.81171	6.395414	56.40879	41.7415	41.37627	12.98141	66.4524	5.611753	5.9620
1999	14.23208	52.00182	12.40541	26.41728	4.747461	57.12808	44.96358	39.57562	13.49416	66.26619	6.020243	6.4216
2000	14.89028	51.95328	13.81501	25.61514	5.603748	57.49743	48.33552	39.7845	12.30446	67.3355	5.674234	7.3702
2001	12.02677	54.93114	11.74587	25.0709	5.207935	57.81885	42.3585	41.31075	16.50936	74.43265	6.622314	6.3597
2002	11.84028	54.6554	12.00124	25.70175	2.746888	58.59116	41.28025	40.82206	13.02111	56.03039	7.702312	5.2985
2003	10.18648	53.89763	12.38701	24.99471	3.13701	73.1932	40.46242	44.27078	13.79619	60.77205	8.270646	5.8506
2004	10.87921	54.04292	13.05804	27.13177	3.678725	72.98623	40.57228	46.15722	13.12077	62.50478	7.612968	6.9312
2005	9.680267	51.16544	15.42956	26.13132	4.0427	75.1778	43.93874	50.72686	13.22053	65.90211	8.471885	6.5290
2006	11.55638	49.29098	11.01962	22.76716	5.102492	68.60234	46.39777	48.19857	13.16818	73.62445	9.970364	8.0804
2007	14.50794	45.51522	14.41774	22.93319	5.478204	71.67468	55.4592	48.23149	24.57161	78.29414	10.09833	9.6248
2008	14.69264	42.79751	15.82746	25.28172	9.113463	81.76213	60.60358	46.56347	33.65413	76.68678	13.78591	12.173
2009	15.64138	36.09271	15.54375	24.92966	10.87478	80.04582	63.20458	47.9828	38.34855	74.59646	9.720509	9.9534
2010	16.32321	33.0723	14.58034	27.13387	13.82962	85.2779	66.74277	47.97483	15.3907	70.35181	13.2819	9.1480
2011	16.83289	31.15492	14.3848	30.42144	13.93239	89.2581	70.32613	48.5398	12.46493	67.5855	15.1432	10.011
2012	16.39031	27.38845	14.73673	29.48282	14.57426	98.79949	71.54543	48.47009	11.78871	68.62892	13.41167	11.933
2013	17.99473	26.22244	16.07318	31.63273	12.45304	106.2603	68.1081	47.84597	12.58533	67.27483	13.31045	11.641
2014	19.14975	25.60668	18.83815	34.06767	11.40364	98.73223	68.34647	49.63639	14.48775	67.01888	13.80338	13.330
2015	22.21025	26.31639	19.36758	34.61821	12.25859	102.768	64.22295	53.75913	14.19323	68.24127	14.32514	15.677
2016	22.70222	49.44033	19.897	34.62449	10.51072	96.36594	65.60282	57.88187	15.64045	78.48761	13.6654	12.925

Appendix C

Regulatory Quality Index

Year	Cote Devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	-0.47506	0.009786	-0.38289	-0.37436	-0.2907	-0.02088	-0.17364	0.38104	-0.8171	0.3374	0.20793	-0.4218
1998	-0.26287	-0.33566	-0.24588	-0.34502	-0.2276	0.396877	-0.06078	0.16146	-0.9253	0.2671	0.24962	-0.1172
2000	-0.54458	-0.35037	-0.1026	-0.29987	-0.2201	0.584709	-0.05529	0.26845	-0.7434	0.4023	0.07895	-0.2593
2002	-0.44704	-0.49709	-0.4702	-0.17132	-0.5065	0.551486	-0.15843	0.49924	-1.2265	0.6299	-0.0318	-0.6129
2003	-0.81929	-0.61912	-0.282	-0.26423	-0.4592	0.579501	-0.26998	0.22116	-1.2402	0.7783	-0.0045	-0.5430
2004	-0.95719	-0.4925	-0.34966	-0.26233	-0.5218	0.422326	-0.23384	0.16498	-1.3228	0.6629	0.00410	-0.5136
2005	-0.95532	-0.41316	-0.10727	-0.23298	-0.4743	0.437491	-0.40382	0.12453	-0.7659	0.6700	-0.1782	-0.6965
2006	-0.90895	-0.43305	-0.07156	-0.1701	-0.5020	0.559843	-0.17059	0.12090	-0.8933	0.6784	-0.2145	-0.6206
2007	-0.84429	-0.28226	-0.04669	-0.23023	-0.4495	0.527652	-0.19973	-0.0282	-0.8714	0.4978	-0.2046	-0.4868
2008	-0.88815	-0.17432	-0.03091	-0.20073	-0.4768	0.798839	-0.17925	0.16752	-0.7807	0.4975	-0.2120	-0.4519
2009	-0.95009	-0.18704	0.09056	-0.13337	-0.4418	0.870435	-0.048	0.10326	-0.7282	0.3998	-0.1491	-0.5022
2010	-0.91198	-0.15662	0.12555	-0.07323	-0.5745	0.90115	-0.06731	0.08386	-0.7143	0.3585	-0.1531	-0.4781
2011	-0.85766	-0.3253	0.13206	-0.20681	-0.7005	0.850552	-0.10482	0.04459	-0.6685	0.4025	-0.1398	-0.4203
2012	-0.75637	-0.47063	0.12988	-0.29418	-0.7006	0.996537	-0.07734	0.07558	-0.7074	0.3839	-0.2305	-0.4137
2013	-0.72967	-0.63839	0.08430	-0.29701	-0.6812	0.942605	-0.11424	0.08611	-0.6566	0.4233	-0.2381	-0.4667
2014	-0.58242	-0.74168	-0.00718	-0.30963	-0.7818	1.123364	-0.12418	-0.0094	-0.8120	0.3012	-0.2021	-0.4918
2015	-0.51524	-0.7965	-0.03089	-0.29427	-0.8188	1.088608	-0.17242	-0.0822	-0.8406	0.3035	-0.2420	-0.4223
2016	-0.44807	-0.85131	-0.05461	-0.27891	-0.8558	1.053852	-0.22066	-0.1551	-0.8692	0.3059	-0.2819	-0.3528

Appendix D

Life Expectancy at birth, total (Years)

Year	Cote Devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	48.7902	57.34078	53.2151	46.5129	70.3229	67.1181	59.3380	45.8770	60.5344	71.985	44.452	67.232
1997	48.0750	57.16425	52.5950	46.4355	70.4048	67.4579	58.4264	45.9212	59.6211	72.352	44.832	67.664
1998	47.4640	57.02393	52.1077	46.3687	70.6073	67.8198	57.4498	45.9924	58.5854	72.683	45.402	68.036
1999	46.9925	56.95371	51.8010	46.3505	70.9609	68.2142	56.4668	46.1000	57.4827	72.983	46.148	68.343
2000	46.6974	56.9851	51.7409	46.4363	71.6634	68.6521	55.5421	46.2644	56.3683	73.253	47.051	68.588
2001	46.5973	57.13861	51.9878	46.6843	71.7658	69.1402	54.7321	46.5057	55.2946	73.499	48.080	68.783
2002	46.6725	57.39993	52.5427	47.1303	71.9658	69.6701	54.0798	46.8299	54.3149	73.721	49.190	68.948
2003	46.8942	57.75015	53.3845	47.7912	72.1213	70.2297	53.6257	47.2346	53.4904	73.923	50.333	69.104
2004	47.2445	58.17534	54.4789	48.6712	72.2767	70.8085	53.4107	47.7107	52.8803	74.106	51.469	69.260
2005	47.6964	58.65202	55.7802	49.7715	72.4322	71.3928	53.4888	48.2383	52.5631	74.272	52.566	69.424
2006	48.2188	59.15122	57.2279	51.08	72.4322	71.9678	53.9024	48.7928	52.6046	74.415	53.603	69.598
2007	48.7802	59.64388	58.7390	52.5392	72.5707	72.5202	54.6246	49.3462	52.9970	74.535	54.581	69.779
2008	49.3514	60.10603	60.2285	54.0801	72.5707	73.0381	55.6013	49.8775	53.7040	74.636	55.495	69.963
2009	49.9113	60.52364	61.6316	55.6427	72.8824	73.5134	56.7777	50.3757	54.6834	74.725	56.332	70.150
2010	50.4507	60.89373	62.8881	57.1562	72.9673	73.9410	58.0746	50.8372	55.8696	74.811	57.077	70.341
2011	50.9723	61.22078	63.9605	58.5573	73.2668	74.3202	59.4039	51.2696	57.1810	74.906	57.722	70.534
2012	51.4901	61.52432	64.8599	59.8147	73.8634	74.6606	60.6847	51.6904	58.5204	75.018	58.274	70.728
2013	52.0160	61.82032	65.6030	60.9064	74.0170	74.9701	61.8454	52.1127	59.8000	75.154	58.749	70.920
2014	52.5470	62.11378	66.1941	61.8166	74.1943	75.2551	62.8389	52.5413	60.9547	75.314	59.155	71.109
2015	53.0782	62.40725	66.6456	62.5433	74.3531	75.5201	63.6364	52.9779	61.9341	75.497	59.508	71.295
2016	53.6094	62.70071	67.0971	63.2701	74.5119	75.7851	64.4339	53.4145	62.9134	75.679	54.723	71.481

Appendix E

Household Final Consumption Expenditure Per Capita

Year	Cote Devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	647.734	1394.823	712.7222	649.2481	258.215	3275.779	1211.043	2182.27	1133.31	3207.32	316.05	575.66
1997	659.475	1426.404	735.4326	655.2836	267.709	3399.85	1144.922	2275.19	1067.16	3256.91	314.52	550.82
1998	671.215	1431.771	758.1429	666.5038	277.203	3571.559	1195.723	2291.32	1048.22	3263.3	326.02	525.99
1999	682.955	1470.858	780.8532	674.991	286.696	3669.736	1201.176	2262.88	960.90	3271.24	340.58	501.15
2000	694.696	1518.439	803.5635	654.231	296.190	3770.248	1208.575	2342.19	954.36	3356.29	336.24	476.32
2001	706.436	1549.618	826.2739	663.0052	305.684	3860.603	1208.455	2507.68	1316.33	3441.64	332.65	451.48
2002	718.176	1553.277	848.9842	650.6299	315.178	3959.988	1235.865	2435.02	1291.45	3508.82	348.17	426.65
2003	729.917	1560.049	871.6945	647.0987	324.671	4128.554	1294.618	2604.90	1452.53	3564.43	348.44	401.81
2004	741.657	1563.295	894.4048	644.9193	334.779	4420.649	1336.394	2624.45	1526.13	3739.85	344.76	376.98
2005	753.398	1608.776	917.1152	668.0827	337.600	4714.621	1364.667	2615.26	1624.11	3918.80	351.21	447.28
2006	765.138	1681.006	939.8255	714.494	334.542	5079.94	1436.424	2810.17	1285.68	4207.30	381.17	517.58
2007	776.878	1765.521	962.5358	731.9098	301.120	5282.483	1484.754	2825.50	1723.75	4421.93	402.89	587.88
2008	788.619	1833.733	1039.406	701.2294	323.046	5616.523	1577.914	3146.76	1353.54	4414.64	393.64	658.19
2009	800.359	1901.546	992.6391	713.5637	312.085	5718.718	1621.297	3532.93	1736.00	4240.52	451.61	728.49
2010	818.201	1940.752	1022.328	746.357	345.192	5855.535	1665.36	3282.14	1538.84	4344.80	454.11	798.79
2011	752.986	2005.417	1142.091	771.9947	378.727	5992.588	1732.939	3504.97	1452.44	4502.01	465.43	760.45
2012	818.731	2088.933	994.7311	794.7396	416.127	6139.785	1779.171	3759.35	1414.14	4599.56	486.85	722.11
2013	831.411	2110.699	1068.631	838.296	364.772	6287.897	1809.025	4021.37	1666.88	4620.40	470.71	683.77
2014	893.403	2155.358	1101.627	851.3383	393.008	6441.595	1846.764	4198.78	1633.09	4580.97	466.41	645.42
2015	990.703	2175.301	1049.779	871.5258	409.107	6617.793	1865.157	4587.57	1612.73	4584.36	501.62	607.08
2016	1059.86	2229.585	997.9319	889.835	477.211	6811.644	1887.684	4794.56	1592.37	4548.42	484.55	568.74

Appendix F

Unemployment rates

Year	Cote Devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	9.312	9.00	8.507	9.989	6.916	5.8	18.1	19.53	6.87	21.0	2.95	15.0
1997	9.279	8.4	7.709	10.355	6.87	6.6	16.9	19.5	4.62	22.9	1.74	13.52
1998	9.273	8.03	8.2	10.731	6.795	6.9	19.12	19.64	5.23	25.0	2.70	12.0
1999	9.214	7.95	10.1	8.1	7.336	7.7	13.94	19.76	5.92	25.4	2.60	12.47
2000	9.149	9	10.36	8.632	7.413	8.8	13.6	20.3	6.70	26.7	1.67	12.93
2001	9.182	9.26	7.573	9.188	7.489	6.8	12.46	35.31	6.77	26.2	2.17	13.71
2002	9.147	10.01	9.187	9.775	7.566	7.2	11.59	21.40	6.85	26.6	3.5	12.72
2003	9.152	11	6.481	10.39	7.644	7.7	11.92	20.45	6.93	27.14	3.2	15.47
2004	9.199	10.3	5.319	10.556	7.722	8.5	10.83	21.9	7.01	24.67	2.61	15.51
2005	9.212	11.2	4.933	10.717	7.8	9.6	11.01	23.12	7.05	23.84	1.9	15.9
2006	9.21	10.49	3.6	10.893	6.678	9.1	9.67	20.30	7.10	22.61	3.34	14.27
2007	9.217	8.8	9.43	11.068	6.589	8.5	9.8	21.0	7.14	22.53	2.78	12.11
2008	9.235	8.7	5.587	11.241	6.529	7.2	9.6	37.6	7.19	22.41	1.82	7.9
2009	9.252	9.38	8.431	12.17	6.512	7.3	9.1	29.71	7.23	23.52	2.81	8.64
2010	9.237	8.98	4.2	12.184	6.494	7.7	9.1	22.1	7.28	24.68	3.05	10.83
2011	9.139	12	3.983	12.068	6.473	7.9	8.91	24.68	7.33	24.64	3.37	13.62
2012	9.4	12.67	4.091	11.959	6.357	8.7	8.99	27.41	7.6	24.72	1.45	7.85
2013	9.394	13.21	5.2	11.894	6.44	7.62	9.23	29.65	7.1	24.56	1.91	7.75
2014	9.377	13.17	5.137	11.815	6.436	7.72	9.9	29.59	4.8	24.89	1.91	7.72
2015	9.34	12.84	5.537	11.29	6.637	7.92	9.7	26.93	4.27	25.15	2.14	7.62
2016	9.322	12.014	5.766	10.998	6.735	7.78	9.98	25.58	5.00	25.92	2.28	7.53

Appendix G

Export Growth (annual % growth)

Year	Cote Devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	41.10	20.74	32.11	25.20	22.82	63.58	21.83	45.90	32.23	24.08	11.96	28.47
1997	42.91	18.84	32.41	22.68	21.35	61.46	23.92	43.18	41.77	23.98	13.35	27.37
1998	41.39	16.21	33.87	20.16	32.77	65.68	23.40	41.87	29.69	25.00	9.63	24.61
1999	42.40	15.05	32.07	20.83	28.02	63.93	25.15	41.96	33.86	24.69	12.25	25.03
2000	40.78	16.20	48.80	21.58	25.60	61.38	26.78	40.87	51.73	27.15	10.65	23.92
2001	40.70	17.47	45.23	22.93	27.99	68.45	28.20	41.17	45.44	29.37	11.51	25.10
2002	47.46	18.31	42.61	24.89	15.86	61.81	28.91	46.00	35.96	31.78	11.21	27.13
2003	41.89	21.79	40.67	24.08	20.17	56.67	27.50	43.38	39.78	26.88	11.38	25.68
2004	46.40	28.22	39.30	26.61	18.84	54.02	28.10	39.81	30.16	25.46	12.69	33.53
2005	49.89	30.34	36.44	28.50	18.12	59.85	30.91	40.44	31.65	26.44	14.17	30.61
2006	52.36	29.94	25.19	22.98	17.63	58.44	32.75	45.46	43.11	29.27	15.27	32.59
2007	47.22	30.24	24.52	21.91	23.31	55.86	34.57	50.48	33.72	31.17	16.72	33.59
2008	47.11	33.04	25.02	22.67	22.65	51.07	35.74	54.35	39.88	35.62	24.28	28.91
2009	50.85	24.95	29.29	20.03	20.02	47.67	28.00	52.34	30.76	27.91	17.26	29.25
2010	50.63	21.34	29.47	20.65	22.78	51.23	32.23	47.75	25.26	28.61	17.13	37.02
2011	53.81	20.56	36.93	21.62	20.77	52.44	34.70	45.52	31.32	30.46	19.01	40.47
2012	48.47	16.39	40.35	22.22	26.20	53.79	34.92	43.41	31.43	29.72	20.21	40.08
2013	41.53	17.01	34.18	19.92	35.65	48.41	32.77	41.18	18.04	30.88	20.29	40.48
2014	36.65	14.24	39.52	18.29	33.70	51.06	34.63	38.71	18.43	31.20	18.17	38.82
2015	37.71	13.18	43.85	16.65	29.32	48.79	34.79	39.04	10.63	30.37	18.44	37.13
2016	32.38	10.34	40.73	14.56	33.14	44.48	35.09	42.23	10.23	30.26	18.58	35.14

Appendix H

Exchange Rates (LCU/US$)

Year	Cote Devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	523.69	3.38	0.17	55.02	15.32	17.97	8.79	4.68	21.88	4.68	1029.59	1.28
1997	598.80	3.38	0.22	62.67	21.22	22.26	9.71	4.86	21.88	4.86	1140.11	1.41
1998	562.20	3.39	0.23	61.90	43.88	24.78	9.25	5.86	21.88	5.86	1362.69	2.29
1999	652.95	3.40	0.35	72.93	46.43	25.46	10.08	6.15	97.95	6.15	1506.04	2.63
2000	704.95	3.69	0.70	78.03	80.07	27.88	10.61	7.56	109.55	7.56	1766.68	4.15
2001	744.30	4.49	0.73	78.60	67.29	30.39	11.56	12.12	112.95	12.12	1727.40	3.83
2002	625.49	4.50	0.84	77.07	87.13	29.19	10.16	8.64	126.40	8.64	1852.57	4.33
2003	519.36	6.15	0.88	76.13	108.56	26.08	8.74	6.64	136.50	6.64	1935.32	4.64
2004	481.57	6.13	0.90	77.34	108.94	28.20	8.21	5.63	132.35	5.63	1738.59	4.77
2005	556.03	5.73	0.91	72.36	123.78	30.66	9.24	6.32	129.00	6.32	1816.86	3.50
2006	498.06	5.70	0.92	69.39	139.34	34.33	8.45	6.97	128.27	6.97	1741.44	4.40
2007	445.59	5.50	0.97	62.67	140.31	28.21	7.71	6.81	117.96	6.81	1697.34	3.84
2008	471.33	5.50	1.21	77.71	140.59	31.75	8.09	9.30	132.56	9.30	1949.18	4.83
2009	455.33	5.47	1.41	75.82	145.99	30.29	7.86	7.38	149.58	7.38	1899.71	4.64
2010	490.91	5.79	1.47	80.75	150.80	30.39	8.35	6.63	150.66	6.63	2308.30	4.79
2011	506.96	6.01	1.55	85.06	163.75	29.32	8.57	8.14	158.26	8.14	2490.99	5.11
2012	497.16	6.30	1.88	86.00	335.12	30.52	8.43	8.50	157.32	8.50	2685.94	5.14
2013	475.64	6.94	2.21	86.30	434.95	30.079	8.15	10.48	157.25	10.48	2527.95	5.51
2014	540.28	7.14	3.19	90.50	470.77	31.72	9.04	11.58	169.68	11.58	2773.06	6.39
2015	602.51	7.80	3.79	102.31	672.68	35.88	9.90	15.54	197.00	15.54	3377.01	10.98
2016	622.29	18.12	4.20	102.48	728.62	36.01	10.09	13.62	305.00	13.68	3610.50	9.91

Appendix I

Lending Interest Rates

Year	Cote Devoir	Egypt	Ghana	Kenya	Malawi	Mauritius	Morocco	Namibia	Nigeria	South Africa	Uganda	Zambia
1996	0.77	15.58	34.49	33.78	45.33	20.81	11.75	19.16	19.83	19.52	20.29	53.78
1997	1.18	13.79	35.75	30.24	28.25	18.91	11.75	20.17	17.79	20.00	21.37	46.69
1998	1.59	13.01	32.04	29.49	37.66	19.91	13.50	20.71	18.18	21.79	20.86	31.80
1999	2.00	12.96	23.56	22.38	53.58	21.62	13.50	18.48	20.29	18.00	21.54	40.51
2000	2.41	13.21	28.60	22.33	53.12	20.77	13.31	15.27	21.27	14.50	22.91	38.80
2001	2.82	13.29	30.85	19.66	56.16	21.10	13.25	14.53	23.43	13.77	22.65	46.23
2002	3.23	13.79	16.20	18.45	50.54	21.00	13.12	13.83	24.77	15.75	19.09	45.19
2003	3.64	13.53	14.32	16.57	48.91	21.00	12.56	14.700	20.71	14.95	18.94	40.57
2004	4.05	13.37	13.62	12.53	36.83	21.00	11.50	11.38	19.18	11.29	20.60	30.72
2005	4.46	13.14	10.16	12.88	33.08	21.04	11.50	10.61	17.94	10.62	19.64	28.20
2006	4.87	12.60	8.88	13.63	32.25	21.08	11.50	11.18	16.90	11.16	18.69	23.15
2007	4.74	12.50	8.89	13.34	27.71	21.87	11.50	12.88	16.93	13.16	19.10	18.88
2008	4.78	12.32	11.28	14.01	25.27	11.54	11.50	13.73	15.47	15.12	20.45	19.06
2009	5.18	11.97	17.06	14.80	25.25	9.25	11.50	11.11	18.36	11.70	20.95	22.06
2010	5.29	11.00	12.87	14.37	24.62	8.87	11.50	9.72	17.58	9.83	20.17	20.91
2011	5.42	11.03	8.90	15.04	23.75	8.91	11.50	8.73	16.01	9.00	21.83	18.83
2012	5.08	12.00	10.05	19.72	32.32	8.66	11.50	8.65	16.79	8.75	26.15	12.14
2013	5.40	12.29	12.35	17.31	46.01	8.50	11.50	8.28	16.72	8.50	23.28	9.52
2014	5.29	11.70	12.90	16.51	44.28	8.50	11.50	8.69	16.54	9.12	21.58	11.57
2015	5.21	11.62	13.33	16.08	44.38	8.50	11.50	9.32	16.84	9.41	22.60	13.25
2016	5.60	13.61	13.77	16.55	44.11	8.50	11.50	9.86	16.86	10.45	23.88	15.50

Appendix J

Pooled Mean Group Estimates: DV=SMD

Variables	Coefficient	Std. Error	t-stat.	Prob>Z	95% Confidence interval	
RQ	1.098001	.3177732	3.46	0.001	.4751773	1.720825
BD	-.0110146	.0062436	-1.76	0.078	-.0232519	.0012227
LEP	.0418089	.0146812	2.85	0.004	.0130343	.0705836
PVR	1.151032	.3854225	2.99	0.003	.3956182	1.906447
UN	.0791029	.030848	2.56	0.010	.0186419	.1395639
EXG	.0125134	.0072576	1.72	0.085	-.0017113	.0267381
ER	.0032898	.0011252	2.92	0.003	.0010845	.0054951
IN	-.0528533	.0164528	-3.21	0.001	-.0851003	-.0206064
BRK	-1.335268	.3692746	-3.62	0.000	-2.059033	-.6115031
ECT	-.1505448	.06268	-2.40	0.016	-.2733954	-.0276942

Appendix K

Pooled Mean Group Sensitivity Analysis Estimates

Variables	Coefficient	Std. Error	t-stat.	Prob>t	95% Conf. Interval	
RQ	.6258563	.1991177	3.14	0.002	0.2355927	1.0161
BD	-.005180	.0045764	-1.13	0.258	-0.014150	0.0037
LEP	.0297608	.0113644	2.62	0.009	0.0074869	0.0520
PVR	.879661	.2966777	2.97	0.003	0.2981834	1.4611
UN	.046084	.0211166	2.18	0.029	0.0046962	0.0874
EXG	.007517	.0062139	1.21	0.226	-0.004662	0.0196
ER	.0003806	.0002486	1.53	0.126	-0.000106	0.0008
IN	-.0305051	.010988	-2.78	0.005	-0.052041	-0.0089
BRK	-.8804025	.2485221	-3.54	0.000	-1.367497	-0.3933
ECT	-.1371276	.0609362	-2.25	0.024	-0.256560	-0.0176

Appendix L

Principal Component Analysis for Stock Market Development

Component	Eigen value	Difference	Proportion	Cumulative
Comp 1	2.58	2.252	0.86	0.86
Comp 2	0.33	0.256	0.11	0.97
Comp 3	0.07		0.03	1.00