

MCII, GIZ, BREA: Integrated Climate Risk Management

RE Financing & Insurance Toolkit

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PRESENTATION OUTLINE

PART I
Macro Case For RE

PART II
Financial Case For RE

PART III
The Way Forward



Macro Global Impacts of the GEFC

Pre-Crisis

Post-Crisis



36%

Rise in Average Public Debt/GDP

52%



4%

Slowdown in Global Economic Growth

3.5%



44%

Increased in share of Global GDP produced by Emerging and Developing Countries

60%

Source: IMF

The Big Picture: Impacts on the Caribbean

**GDP Growth
Slowdown and
GDP Contraction**



**Increased Fiscal
Pressures**



**Weakening External
Position**



**Worsening
Credit Ratings**



**Declining Relative
Competitiveness**



Rising Protectionism



**Increased Financial
Regulatory
Requirements**

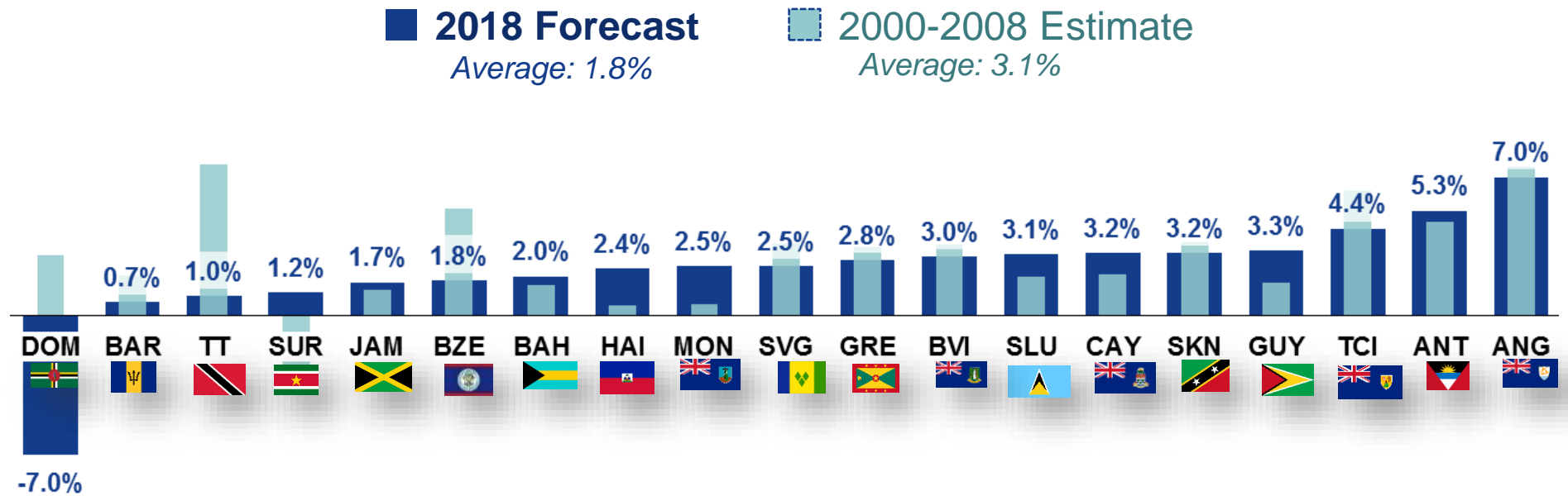


**Geo-political
Uncertainty**



Average regional economic growth is yet to recover to its pre-crisis level

GDP Growth Rate (%)



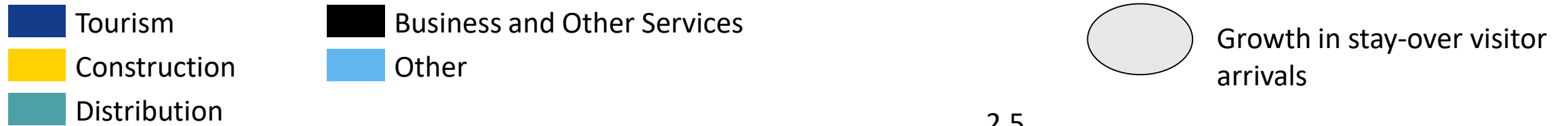
Source: CDB, IMF WEO, ECLAC, Central Banks
2007 estimate unavailable for TCI

BARBADOS - TRENDS IN REAL GROSS VALUE-ADDED

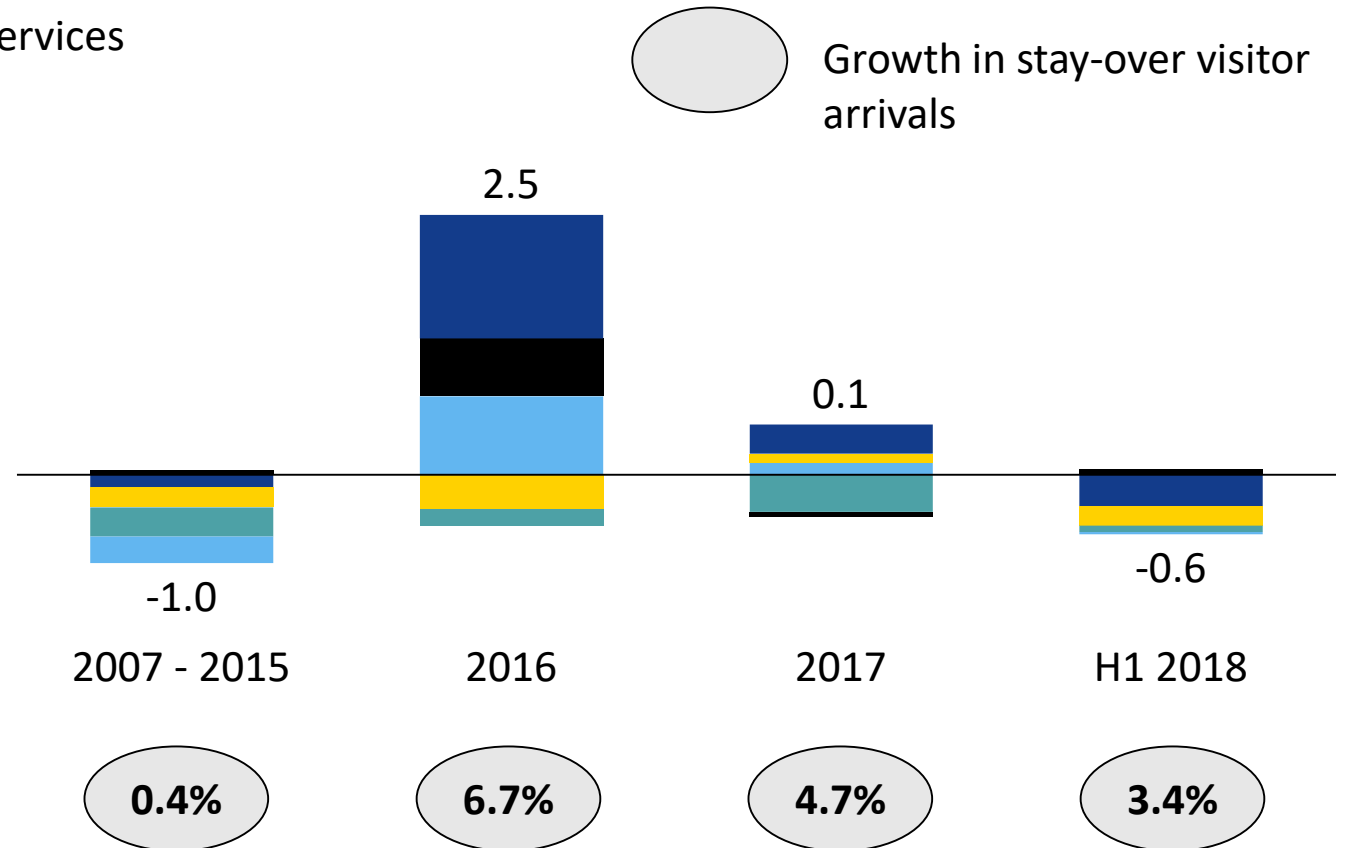
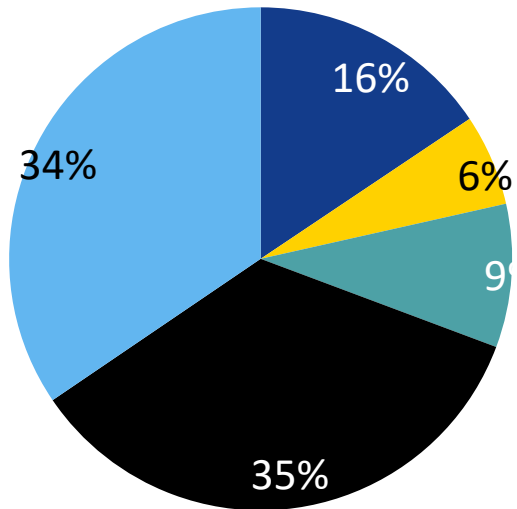


Decomposition of Cumulative Real Gross Value-Added (GVA)

Percent



Composition of 2017 GVA



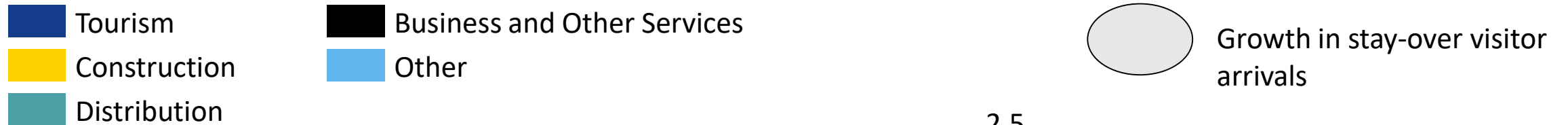
Sources: Central Bank of Barbados' H1 2018 Economic Press Release, Government of Barbados, Author's Calculations

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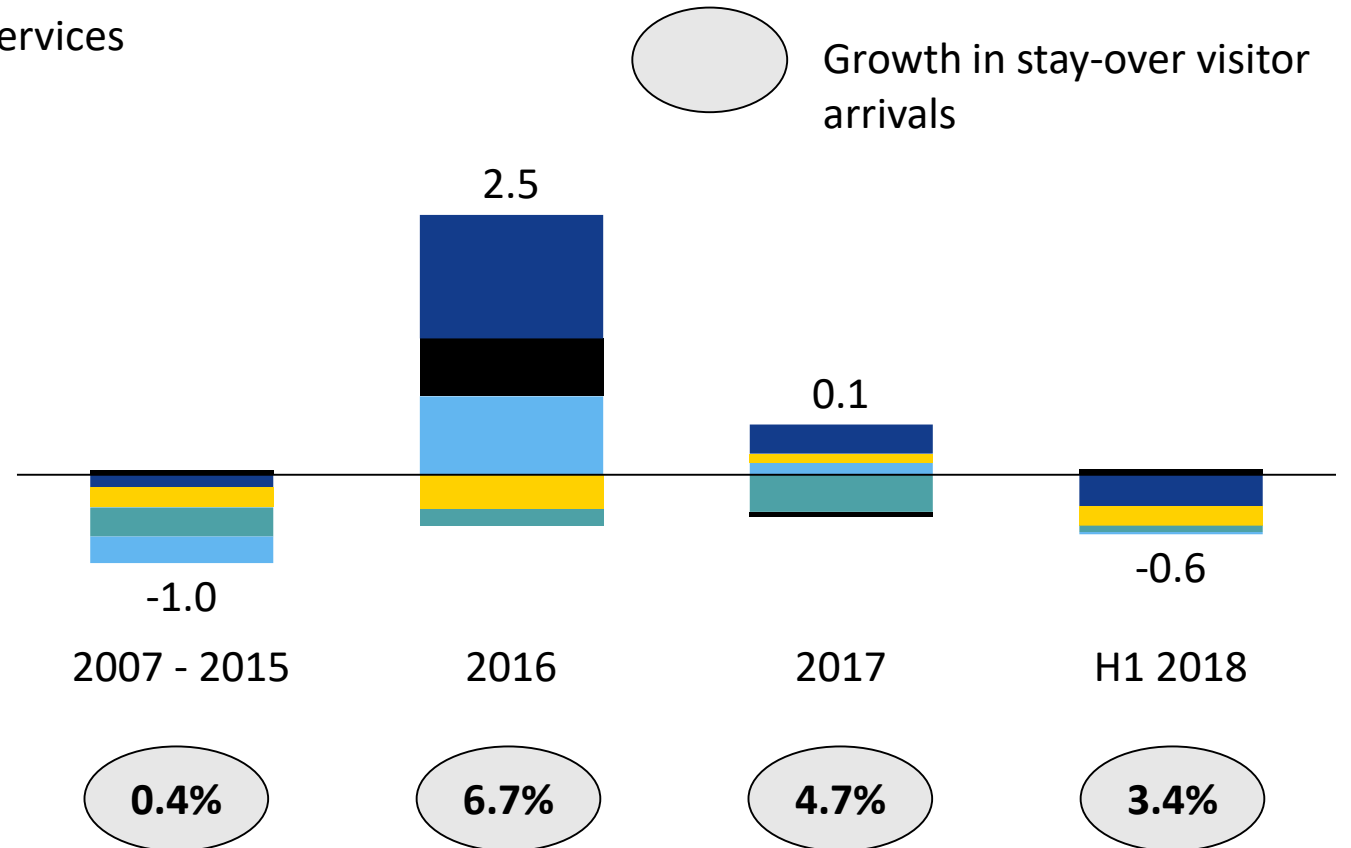
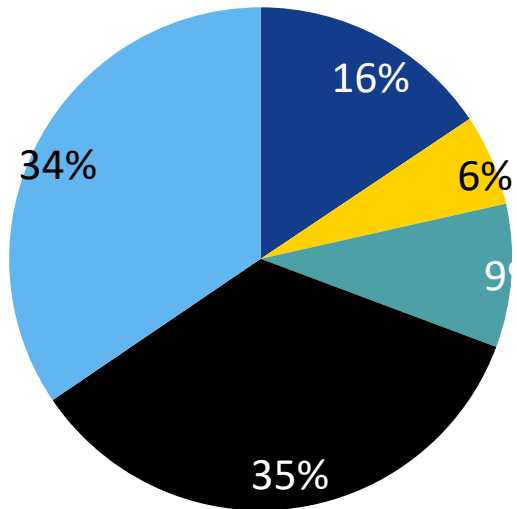


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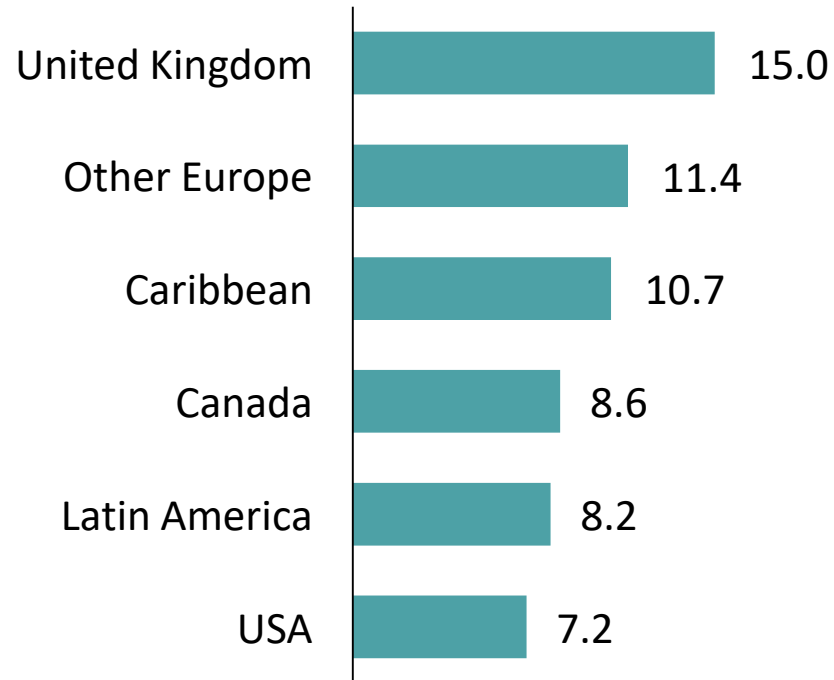


Sources: Central Bank of Barbados' H1 2018 Economic Press Release, Government of Barbados, Author's Calculations

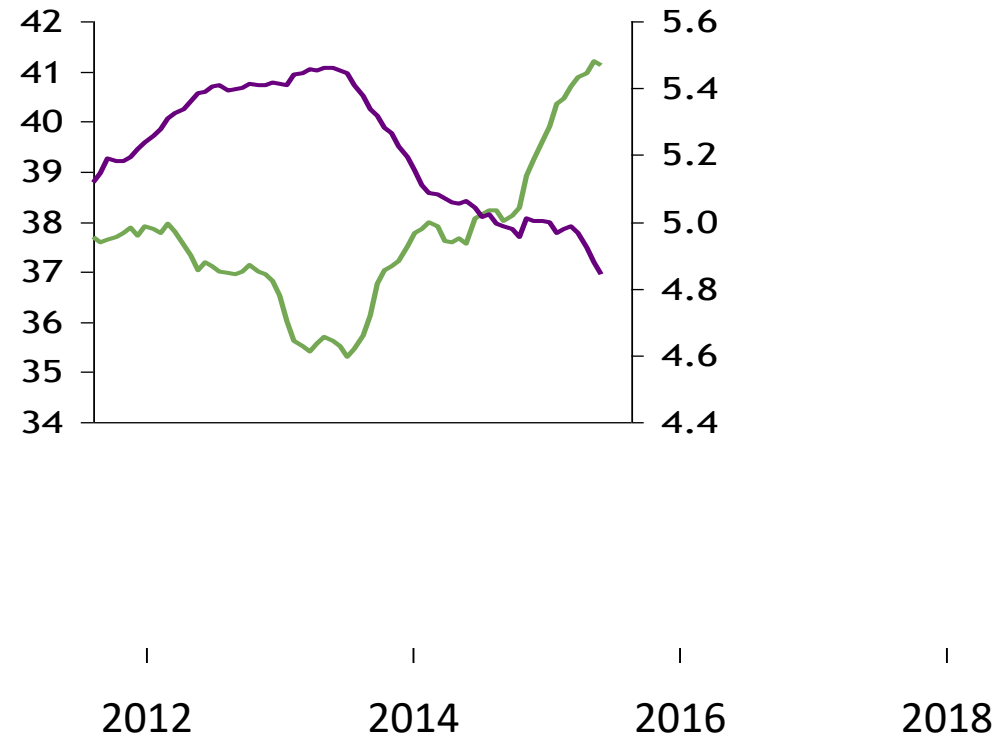
DRIVERS IN CHANGES IN AVERAGE VISITOR LENGTH OF STAY (LOS)



Average 2017 Length of Stay by Market to Jamaica (nights)



— Share of North American Visitors in Total Arrivals (%) - left
 — Average LOS in Barbados (nights) - right



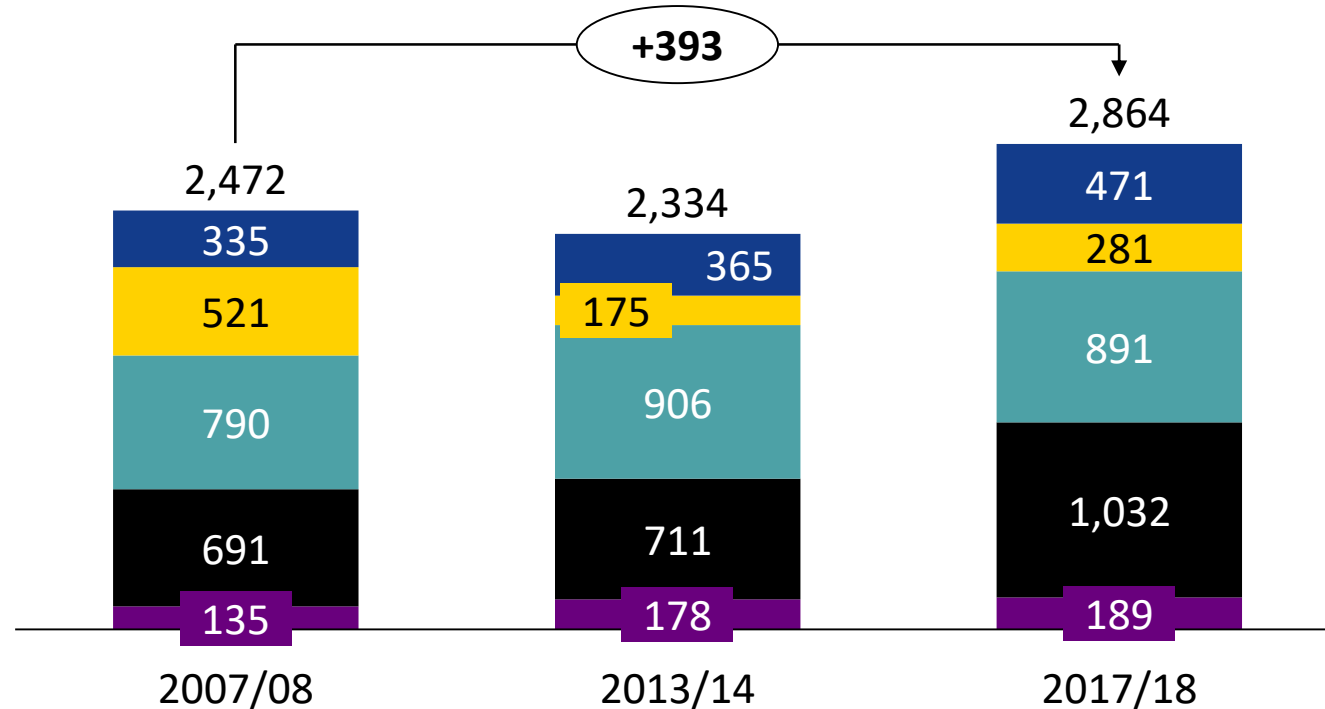
Sources: Central Bank of Barbados, Jamaica Tourism Board, BTMI

HISTORICAL FISCAL PERFORMANCE

Shifts in Composition of Government's Revenue

BBD Millions

- Personal Income Tax
- Corporate Tax
- VAT
- Other Taxes
- Non-Tax Revenue



Despite efforts to increase taxes from domestic sources, a sharp decline in corporate tax receipts from the IBFS sector substantially reduced the government's tax base after 2008

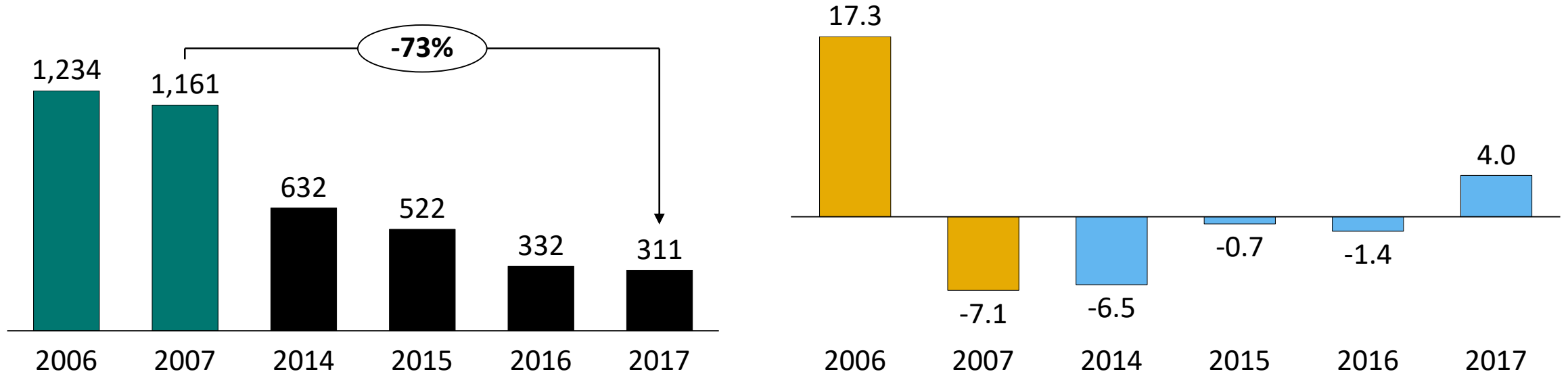
Source: Central Bank of Barbados

PERSISTENTLY DOWNWARD TREND IN INVESTMENT



Indicators of Private Sector Investment

- Net Private Long-term Financial Inflows (BBD Millions)
- Growth in Non-financial, Non-personal Private Sector Credit from Banks (%)



Private sector confidence and the ease of doing business will have to improve to facilitate investment and cushion the negative effects from additional austerity



Financing & Insurance Opportunities

	Retail Finance	ESCO Finance	Project Finance
Energy Efficiency	Consumer loans (Homes and cars) Enterprise loans (building and equipment)	ESCO loans: Investment Capital and operating costs)	Green buildings or industrial upgrades
Renewable Energy	Trade loans and Consumer Loans	ESCO Leasing	RE Generation (small or large scale)



Customization

- This is a diverse group, and different players may have very different financing needs. RE/EE manufacturers may need relatively large amounts of financing with long terms for major capital investments in plant and equipment and/or short-term loans for working capital for production and marketing.



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- On the other hand installers and distributors may require financing for acquiring inventory or to provide financing to their customers. In Barbados, manufacturers and suppliers will likely need Letters of Credit to facilitate import transactions and other foreign exchange services.



Current Financing Options

INITIAL INVESTMENT	\$	55,000.00
EQUITY (20%)	\$	11,000.00
LOAN PROCEEDS	\$	44,000.00
MATURITY		7
INTEREST RATE		7%
ENERGY PRODUCED ANNUALLY		18,250.00
RENEWABLE ENERGY TARIFF	\$	0.42
ANNUAL REVENUE	\$	7,584.70
UN-LEVERED INTERNAL RATE OF RETURN		12.5%
NET CASH OVER LIFE OF LOAN	\$	(45.53)



Un-Levered & Current Financing Cash Flows

	UN -LEVERED	EQUITY FLOWS
Years	12.5% return	7 YEAR (18.5% return)
0	\$(55,000.00)	\$ (11,000.00)
1	\$ 7,584.70	\$ (45.53)
2	\$ 7,584.70	\$ (45.53)
3	\$ 7,584.70	\$ (45.53)
4	\$ 7,584.70	\$ (45.53)
5	\$ 7,584.70	\$ (45.53)
6	\$ 7,584.70	\$ (45.53)
7	\$ 7,584.70	\$ (45.53)
8	\$ 7,584.70	\$ 7,584.70
9	\$ 7,584.70	\$ 7,584.70
10	\$ 7,584.70	\$ 7,584.70
11	\$ 7,584.70	\$ 7,584.70
12	\$ 7,584.70	\$ 7,584.70
13	\$ 7,584.70	\$ 7,584.70
14	\$ 7,584.70	\$ 7,584.70
15	\$ 7,584.70	\$ 7,584.70



Varying Loan Maturities

CHANGING MATURITY	LOAN PAYMENT	LEVERED IRR
ANNUAL DEBT SERVICE (7 YEARS)	(\$7,630.23)	18.5%
ANNUAL DEBT SERVICE (10 YEARS)	(\$5,854.78)	21.8%
ANNUAL DEBT SERVICE (12 YEARS)	(\$5,177.28)	24.43%
ANNUAL DEBT SERVICE (15 YEARS)	(\$4,514.92)	28.41%
ANNUAL DEBT SERVICE (20 YEARS)	(\$3,881.58)	33.56%



Risk Adjusted Return On capital

Spread

Fee Income

Expected Loss = Expected Default Frequency * Loss Upon Default

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Operating Costs

Overhead

Effective Tax Rate

Capital at Risk



Interest Rate Structures

- The interest rate charged on a loan represents a rate that provides the lender with an appropriate risk-adjusted rate of return. Therefore, in order for the interest rates on RE/EE loans to be reduced, there would have to risk mitigation and/or return enhancing mechanisms to ensure lenders are in fact earning appropriate risk-adjusted rates of return.



Interest Rate Structures

- The expected losses on a loan portfolio are typically a function of:
- The Expected Default Frequency;
- The Expected Loss on Default;



Immediate Risk Mitigators

- Assign Renewable Credits Directly To Lenders;
Reduce Expected Default Frequency;
- Use of Central Bank Loan Guarantee Scheme
(Industrial Credit Fund) to Reduce Loss On default;
- Clarity of Insurance Issues;



Risk Mitigation

- The following changes were made to the ICF for the specific purpose of supporting private sector lending to energy projects:
- **The interest rate for loans under the Industrial Credit Fund has been set at 2.00%, one percentage point below the normal ICF rate.**
- **The maximum guarantee cover has been set at 100% for the factoring of receivables for energy projects under the Trade Receivables Liquidity Facility.**
- **Loans to individuals for goods and services in respect of energy projects are eligible for guarantee coverage under the Guarantee Scheme for Businesses.**



Recommendations

- Use of Central Bank Loan Guarantee Scheme to Reduce Risk to Lenders;
- Assign Renewable Credits Directly To Lenders;
- Clarity of Insurance Issues;
- Extend maturities to at least 10 years;
- Leasing facilities for RE Solutions;
- Securitized Loans For Government;
- Securitized Bonds For General Public;



Insurance

- To adequately provide risk coverage and resilience for the island's emerging RE sector over the next decade the following insurance products for RE investments will be required:
- **Construction All Risks (CAR)/ Erection All Risks**
- **Delay in Start Up (DSU)/Advance Loss of Profit (ALOP)**
- **Operating All Risks/ Physical Damage**
- **Machinery Breakdown (MB)**
- **Business Interruption**
- **General/Third-Party Liability**
- **Warranty Insurance**



Insurance

RE Technology	Risks
Large PV	<ul style="list-style-type: none">• Component breakdowns (e.g. short circuits).• Weather damage.• Theft/vandalism.
Wind Power	<ul style="list-style-type: none">• Long lead times and up-front costs (e.g. planning permission and construction costs).• Critical component failures (e.g. gear train/ box, bearings, blades etc).• Wind resource variability.• Offshore cable laying.



Insurance

RE Technology	Risks
Biomass/WTE	<p>Fuel supply availability/variability.</p> <ul style="list-style-type: none">• Resource price variability.• Environmental liabilities associated with fuel handling and storage.
Biogas	<ul style="list-style-type: none">• Resource risk (e.g. reduction of gas quantity and quality due to changes in organic feedstock).• Planning opposition associated with odour Problems



Recommendations

- An urgent and intensive RE insurance awareness drive targeted at regulators, insurance companies and RE investors.
- Introduction of specific insurance products providing cover against the specific presented to Solar and Wind RE installations by extreme climate events.
- Creation of an internet based online matching platform that links producers, installers, service and maintenance providers, insurers, financing organizations and the government. BREAA can source the financing as the concept and blueprint are already available.



Recommendations

- Establishment of an insured risk assessment quality assurance and installation inspection checklist for systems in Barbados. This checklist will be completed by independent installers/inspectors in the Renewable Energy industry and will assist in assuring insurers and financial institutions that the assets and investments will be insuring and financing are comprised of the appropriate quality and installed to the requisite technical standards to provide the stated returns and durability.
- Introduction of a RE insured Risk training program for underwriters to assist with them with the upsurge in RE insurance business over the next decade.
- Introduction of a RE financing training programme for financial institutions to capitalize on the increase in Reinvestments over the next decade.
- Creation of a claims data database for all losses.



Recommendations

- Creation of guidelines in conjunction with the GIAB and FSC for the mandatory cover of insured risk coverage for grid interconnected RE generating systems. This recommendation is essential as in a the new liberalized market with distributed generation and independent power producers now all forming part of the island's energy network, as opposed to a single entity in the form of a utility company. There is now increased risk of disruption to the entire due to the diversity of the power generation suppliers.
- Examination of the linkages between the suggested industry products in the toolkit and the existing Integrated Disaster Risk Management Framework of prevention, preparation, response and recovery.



Recommendations

- Creation of a new financing instruments ideally suited from a credit risk perspective for the small to medium sized Renewable Energy Investments of less than 500kw of installed capacity and less than BDS\$2,000,000.00 in value. This will require the extension of loan maturities to at least 10 years, as well as the possible reduction in interest rates.



Insurance Road Map

- Creation of a Technical Working Group on RE Financing and Insurance. The working group should include senior officials from the Ministry of Energy, Fair Trading Commission, Insurance Industry, Banking and Credit Union Industry, GIZ and BREA;
- Provision of a full underwriting and policy tool for RET;
- Staging of a one day workshop to create awareness of RE insurance products and international best practices among local insurance providers and RE investors;
- Staging of a one day workshop with policymakers and regulators on regulatory matters related to RE insurance;
- Development of training materials for RE risk underwriting.

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The Sustainable,
Resilient Future We
All Want!

