JSE Limited

Interim results 2020
**Agenda**

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<th>Time Frame</th>
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<td>18-25</td>
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<td>26-28</td>
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Key Highlights
Unprecedented environment

Global

- Significant monetary and fiscal stimulus around the globe
- Central banks cut interest rates, with many advanced economies close to zero
- Global growth forecasts for 2020 remain weak with downside risk in the event of a second wave of Covid-19 infections
- Since the March crash, US markets have recovered most of their losses
- Renewed fears over escalating tensions between the US and China
- Oil price weakness in March/April has stabilised, assisted by OPEC+ supply cuts

South Africa

- Fiscal stimulus package of R500bn
- GDP growth expected to decline further, with pressure from weaker tax revenue, deteriorating SOEs and higher debt servicing costs
- Rand remains weaker against the dollar, following some recovery from May record low of R19.26
- The FTSE/JSE All Share Index recovered from a low of 34% down for the year to end the first half 4.77% down
- Market flows remain elevated across all asset classes
- Non-residents remain net sellers YTD of South African bonds and equities
- Diluted relevance on the emerging market stage
H1 key financial highlights

Trading & Profitability

- **+22%** YoY growth Group revenue to R1.32bn
- **+19%** YoY growth Operating revenue to R1.27bn
- **+20%** YoY growth Operating expenses to R801m
- **+26%** YoY growth EBIT to R523m
- **+22%** YoY growth NPAT to R485m
- **+22%** YoY growth EPS to 569.1 cents
- **+22%** YoY growth HEPS to 569.0 cents

Cash & Capital

- **R46m** Total capital investment (2019: R33m)
- **+18%** YoY growth Net operating cash flow to R525m
- **R2.2bn** Cash balance (2019: R2.2bn)
## H1 2020 performance

### Market Activity Drivers

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent Change</th>
<th>YOY Growth</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of IPOs*</td>
<td>3</td>
<td></td>
<td><em>(2019: 2)</em></td>
</tr>
<tr>
<td>Equity transactions</td>
<td>37%</td>
<td></td>
<td>(2019: 5%)</td>
</tr>
<tr>
<td>Billable equity value traded**</td>
<td>17%</td>
<td>20% (2019: -15%) published ADV</td>
<td>(2019: -11%)</td>
</tr>
<tr>
<td>Flat</td>
<td>- 3%</td>
<td></td>
<td>Equity derivatives value traded (2019: -5%)</td>
</tr>
<tr>
<td>Bond nominal value traded</td>
<td>27%</td>
<td>+26% YOY growth</td>
<td>(2019: 21%)</td>
</tr>
<tr>
<td>Interest rate derivatives contracts</td>
<td>- 13%</td>
<td>+5% YOY growth Bonds and Financial Derivatives</td>
<td>(2019: -19%)</td>
</tr>
<tr>
<td>Currency derivatives contracts***</td>
<td>- 13%</td>
<td></td>
<td>(2019: 18%)</td>
</tr>
<tr>
<td>Commodity derivatives contracts</td>
<td>- 1%</td>
<td></td>
<td>(2019: 7%)</td>
</tr>
</tbody>
</table>

### Revenue Performance Across Business Areas

<table>
<thead>
<tr>
<th>Business Area</th>
<th>Percent Change</th>
<th>YOY Growth</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Market</td>
<td>+2%</td>
<td>YoY growth</td>
<td></td>
</tr>
<tr>
<td>Equity Market</td>
<td>+3%</td>
<td>YoY growth</td>
<td></td>
</tr>
<tr>
<td>Financial Derivatives</td>
<td>+28%</td>
<td>YoY growth</td>
<td></td>
</tr>
<tr>
<td>Bonds and Financial Derivatives</td>
<td>+18%</td>
<td>YoY growth</td>
<td></td>
</tr>
<tr>
<td>Commodities Market</td>
<td>+5%</td>
<td>YoY growth</td>
<td></td>
</tr>
<tr>
<td>Post Trade Services</td>
<td>+26%</td>
<td>YoY growth</td>
<td></td>
</tr>
<tr>
<td>Information Services</td>
<td>+26%</td>
<td>YoY growth</td>
<td></td>
</tr>
</tbody>
</table>

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*Corporate actions – no new listings

**Published trading statistics \(\%\) (2019: -15%) published ADV\(\%\) 17% to R24bn (2019: R20bn) Billable ADV\(\%\) 15% to R30bn (2019: R26bn)

***Post the ITaC implementation in April 2019 the methodology used to calculate contracts traded changed to exclude deal management statistics
H1 2020 key takeaways

Operational resilience and stability enabled uninterrupted trading, clearing and settlement environment

Revenue performance largely reflects near-term impact of market volatility in response to COVID-19

Growth in other income driven by foreign exchange gains adds revenue diversification

Low growth macro environment places greater impetus to diversify revenue and drive quality earnings

Annualised impact of ITaC and increased risk landscape spend

High cash-flow conversion & earnings quality, driven by the strength of the business model

CAPEX spend driven by our focus on the trading engine upgrade and the new master data reference system

Cash and cash equivalents maintained

High cost growth owing to non-recurring and unusual cost items
JSE response to the impact of the pandemic

- Maintained operational resilience
  - Smooth transition to remote working practices
  - Management of short positions and appropriate and responsive margin adjustments
  - Aligned our business continuity practices with market participants to ensure stable operations
  - Record trading days led to a significant increase in the number of circuit breakers being triggered, without systems downtime

- Pro-actively addressed regulatory issues
  - Economic impact of the pandemic led to some issuers suspending dividend payments and others seeking suspension of their listings as they entered business rescue proceedings
  - Increased secondary capital raises
  - Temporarily adjusted our Listings Requirements to allow for an extended period for the publication of annual results, and the payment of distributions by REITs
  - Facilitated expedited listings and capital raising by introducing written resolutions for the issue of shares for cash

- Demonstrated commercial agility
  - Provided relief measures including fee reductions in certain market segments and flexible payment arrangements for distressed clients
  - Reduced trading fees for small caps to encourage trading in lower liquidity stocks
  - Launched our first digital annual general meeting solution and virtual training app for issuers

- Responded to the social crisis
  - Donated JSE trading revenues earned over two days across to SA Solidarity Fund in partnership with market participants
Key operational developments during the period

- Published amendments to Debt Listings Requirements for the final round of public consultations
- Introduced the sustainability segment
- Partnered with a service provider in Hong Kong to assist us in our data distribution to increase our footprint in Asia
- Moved JSE data management platform onto the new platform for cash bond data
- Announced new data pricing structure for retail brokers
- Launched FTSE Russell fixed income indices
- Enhanced the listed Jibar futures product
Business Review
Revenue % changes calculated on unrounded figures

**Revenue**

Revenue ↑ 2% to R75m (2019: R73m) owing to higher annual listing fees. May and June have been marked by an increase in activity in corporate actions.

New IPOs have come under pressure in H1 2020 owing to volatile market conditions:

- 3 corporate actions, 74 new ETFs, 4 new ETNs, 133 new warrants and structured products (2019: 2 listings; 4 ETFs; 0 ETNs; 116 warrants and structured products)
- Delistings: 14 (2019: 13) largely owing to the constrained operating environment
- 211 new bonds listed (2019: 337). Total nominal value of listed bonds was R3.3tr (2019: R2.9tr)
- Published amendments to Debt Listings Requirements in the Government Gazette for the final round of public consultations.
Revenue & Billable value traded

Revenue ↑ 26% to R260m (2019: R206m) this follows an increase in billable value traded and more central order book activity

- Billable value traded ↑ 17%
  - Number of transactions and deals increased – average deal size has come down
  - Increased growth in on-order-book trades, resulting in higher effective pricing
- Colocation activity contributed 48% of overall value traded (2019: 39%), with 30 racks (2019: 32)
- Trading engine upgrade planned for completion in H2

Revenue & Effective rate

Revenue % changes calculated on unrounded figures
Effective rate after implementation of the new billing model
Capital Markets: Bonds and Financial Derivatives

**Equity derivatives – Revenue & Value traded**
- Revenue: R2.9tr
- Equity derivatives value traded: 11% of total revenue (2019: 13%)

**Currency derivatives – Revenue & Contracts traded**
- Revenue: R35m

**11% of total revenue (2019: 13%)**

Revenue ↑ 5% to R136m (2019: R130m)

Equity derivatives revenue increased to R71m (2019: R70m). Activity in the first half of the year began to skew towards hedge trades and total-return products. We also saw a surge in bespoke products:
- Value traded ↓ 3%
- Open interest down ↓ 4%

Currency derivatives ↑ 4% to R27m (2019: R26m) largely owing to an increase in activity in volatile markets.

Interest rate market revenue ↑ 15% to R38m (2019: R33m) as bond nominal value remained flat. Q1 surge and Q2 fall-off accompanied by lower liquidity and lower price volatility. Bond futures activity increased:
- Bond nominal value of R18tr (2019: R18tr)
- Interest rate derivatives contracts traded ↑ 27%
- Bond ETP nominal value traded of R244bn (2019: R182 billion)
- Revenue from the bond ETP contributed R4 million
- Repositioned the listed Jibar futures product

Revenue % changes calculated on unrounded figures
### Capital Markets: Commodity Derivatives

#### Revenue & Contracts traded

- **Revenue**: 3% of total revenue (2019: 4%)
- **Contracts traded**: 3% to R41m (2019: R40m) on the back of good weather, which has improved the outlook in the local grains market
  - Contracts traded ↓ 1% to R1.7m (2019: 1.8m)
  - Value traded ↑ 7% to R423bn (2019: R396bn)
  - The grains market is expecting its second-largest harvest on record
  - Deliverable diesel product expected to go live in H2

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Revenue & Number of transactions

17% of total revenue (2019: 15%)

Revenue ↑ 26% to R198m (2019: R158m) following an increase in the number of transactions and smaller transaction sizes

- Trades ↑ 37% to 49m (2019: 35m)
- BDA operating software was upgraded

Revenue % changes calculated on unrounded figures

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Revenue & Effective rate

20% of total revenue (2019: 18%)
Revenue ↑ 31% to R240m (2019: R183m) owing to the increased billable value traded and higher on-order-book activity in the Equity Market

- Reflects only Equity Market clearing fees
- In 2020, JSE Clear will submit its licence application to become an independent clearing house
- OTC central counterparty clearing house (OTC CCP): analysis and design is progressing well and preparation for licence application is under way
Information Services: Includes market data sales

Revenue breakdown

<table>
<thead>
<tr>
<th>Year</th>
<th>Market Data</th>
<th>Indices</th>
<th>Revenue overstatement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>129</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>107</td>
<td>10</td>
<td>-10</td>
</tr>
<tr>
<td>2018</td>
<td>117</td>
<td>17</td>
<td>-10</td>
</tr>
<tr>
<td>2019</td>
<td>129</td>
<td>27</td>
<td>-10</td>
</tr>
<tr>
<td>2020</td>
<td>152</td>
<td>31</td>
<td>-10</td>
</tr>
</tbody>
</table>

15% of total revenue (2019: 16%)

Revenue ↑ 18% to R183m (2019: R156m) largely owing to annual price increases, foreign exchange gains on USD-denominated revenue and new business

- 24 new clients have signed up for market data products
- Net new passive tracking mandates decreased to 1 (2019: 9)
- Index-tracking assets under management decreased by 2% from R552bn to R541bn (2019: 11%)
- Transferred fixed income indices to FTSE Russell
- Launched new data pricing structure for retail brokers
- Moved JSE data management platform onto the new platform for cash bond data
- Increasing our footprint in Asia: Partnered with a service provider in Hong Kong to assist us in our data distribution
- Analytics: Completed phase 1 of the trade analytics proof-of-concept solution
Financial Review
### Financial performance H1

**Figures contain rounding differences**

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2019</th>
<th>% Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td>1 265</td>
<td>1 065</td>
<td>19%</td>
</tr>
<tr>
<td><strong>Other income</strong></td>
<td>58</td>
<td>19</td>
<td>&gt;100%</td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td>1 324</td>
<td>1 084</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Personnel expenses</strong></td>
<td>(267)</td>
<td>(238)</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Other expenses</strong></td>
<td>(534)</td>
<td>(432)</td>
<td>23%</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td>(801)</td>
<td>(670)</td>
<td>20%</td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>523</td>
<td>414</td>
<td>26%</td>
</tr>
<tr>
<td><strong>EBIT %</strong></td>
<td>39%</td>
<td>38%</td>
<td>1 pt</td>
</tr>
<tr>
<td><strong>Net finance income</strong></td>
<td>104</td>
<td>108</td>
<td>- 4%</td>
</tr>
<tr>
<td><strong>Share of profit from associate</strong></td>
<td>33</td>
<td>28</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Profit before income tax</strong></td>
<td>660</td>
<td>550</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Income tax expense</strong></td>
<td>(173)</td>
<td>(152)</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Profit from continuing operations</strong></td>
<td>486</td>
<td>398</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Discontinued operations</strong></td>
<td>(1)</td>
<td>0</td>
<td>&gt;100%</td>
</tr>
<tr>
<td><strong>NPAT</strong></td>
<td>485</td>
<td>398</td>
<td>22%</td>
</tr>
<tr>
<td><strong>NPAT %</strong></td>
<td>37%</td>
<td>37%</td>
<td>-</td>
</tr>
<tr>
<td><strong>EPS (cents)</strong></td>
<td>569.1</td>
<td>466.3</td>
<td>22%</td>
</tr>
<tr>
<td><strong>HEPS (cents)</strong></td>
<td>569.0</td>
<td>466.1</td>
<td>22%</td>
</tr>
</tbody>
</table>
Trends

H1 total revenue

- Total revenue
- EPS
- HEPS

Revenue as a % total

- Primary Markets: 6% (2019: 7%)
- Equity Market: 22% (2019: 21%)
- Back-Office Services (BDA): 17% (2019: 15%)
- Equity Clearing and Settlement: 20% (2019: 18%)
- Bonds and Financial Derivatives: 11% (2019: 13%)
- Company Services: 0% (2019: 1%)
- Commodity Derivatives: 3% (2019: 4%)
- Information Services: 15% (2019: 16%)
- Funds Under Management: 3% (2019: 4%)
- Colocation: 1% (2019: 3%)

H1 operating expenses

- Personnel expenses
- Other expenses

End June headcount

- Exit headcount
- 18 Contractors converted

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Operating expenditure bridge

H1 2019 operating costs: Rm 670
- ITaC annualised impact
- Trading system and other technology licences capitalised as intangible assets

Depreciation: 31
+5%

Technology: 9
+11%

Other operating costs: Rm 33
+5%

H1 2020 recurring operating costs: Rm 743
- COVID-19-related spend, including donations and support
- Executive committee changes
- Legal fees: Competition Tribunal
- Growth in leave provision

Non-recurring and/or atypical costs: Rm 58
+9%

H1 2020 operating costs: Rm 801
- Costs related to higher market activity, including pass-through cost (Strate)
- Annual salary increases
- Marketing

Figures contain rounding differences
Operating expenditure breakdown

Breakdown:
- Personnel costs: 12% or R29m to R267m (2019: R238m)
  - Executive committee changes resulted in restraint and retention costs of R17m (2019: R1m)
  - Leave pay provisions: R8m to R11m (2019: R3m)
  - Gross remuneration: 2% or R5m to R214m (2019: R209m). Average headcount at 396 (2019: 397)

- Technology costs: 9% or R12m to R150m (2019: R138m)
  - Additional spend on risk landscape of R10m to R16m (2019: R6m)
  - New project and infrastructure software support R7m to R12m (2019: R5m)
  - Annualised impact of ITaC support and maintenance of R7m to R10m (2019: R3m)
  - Offset by a decrease in contractor costs of R9m to R17m (2019: R26m)

- Depreciation and amortisation: 34% or R31m to R121m (2019: R90m)
  - Annualised impact of ITaC amortisation of R33 million (2019: R11 million)
  - The amortised impact of software and other licenses capitalised as intangible assets of R11 million (2019: R0 million)

- General expenses: 29% or R59m to R263m (2019: R204m) largely owing to:
  - Strate ad valorem fees, SWIFT charges and clearing and settlement fees increased by R16m as a result of higher market activity
  - R14m of COVID-19-related cost for Solidarity Fund
  - Legal and professional fees increased by R9m, mainly owing to the legal preparation for the Competition Tribunal hearings

Total operating expenses up 20% to R801m (2019: R670m)

**Growth & breakdown**

<table>
<thead>
<tr>
<th></th>
<th>H1 2019</th>
<th>H1 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>General expenses</td>
<td>R670m</td>
<td>R801m</td>
</tr>
<tr>
<td>Technology costs</td>
<td>238</td>
<td>150</td>
</tr>
<tr>
<td>Personnel costs</td>
<td>138</td>
<td>121</td>
</tr>
<tr>
<td>Depreciation</td>
<td>90</td>
<td>267</td>
</tr>
<tr>
<td></td>
<td>204</td>
<td>263</td>
</tr>
</tbody>
</table>

Figures contain rounding differences
Total capital expenditure

**CAPEX growth & breakdown**

- **R174m**
  - H2 forecast - grow the business: 77
  - Grow the business: 98

- **R140m**
  - H2 forecast - maintain the business: 16
  - Maintain the business: 43

**R46m total capital investment (H1 2019: R33m)**

**Grow the business**
- Integrated Trading and Clearing (ITaC) project 1 – 2018, 2019
- ETP for government bonds – 2018
- Colocation – 2018, 2020
- MIT dark trading functionality – 2019
- Tick data in the cloud – 2019
- Commodity derivatives: new diesel contract – 2019, 2020
- Bonds repo migration to MTS – 2020
- OTC CCP – 2020

**Resilience and growth enablement**
- Business as usual (BAU) largely infrastructure (including revenue-generating kit) – 2018, 2019, 2020
- Smart regulation – 2019, 2020
- New master reference data – 2019, 2020
- MIT upgrade – 2019, 2020
- Clearing system enhancements – 2019, 2020
- Mainframe migration – 2020

*Figures contain rounding differences*
Quality of earnings for H1
Continued strength in cash generation

Earnings have been adjusted for non-cash items (depreciation, amortisation, forex profit/loss, impairments, goodwill write-down)
*Includes the effect of exchange rate fluctuations on foreign-denominated cash held and proceeds from sale of treasury shares
Looking ahead
Strategic priorities

1. Co-creation for growth
   - Growing shared prosperity

2. Trusted marketplace

3. National agenda

Supporting pillars

Enhanced stakeholder experience through collaborative value creation and the highest quality of service delivery

Attract and retain diverse top talent to enable an exchange of knowledge to support a transition from the markets of today to the markets of tomorrow
**H2 2020 strategic priorities**

**Partner to co-create for inclusive and sustainable growth** and balance equity market concentration risk

- Drive inorganic growth strategy
- Progress integration of LMS into the JSE*
- Deliver new products and services in Capital Markets and Information Services
- Investigating an OTC surveillance and clearing market offering

**Run trusted markets, products, and services** by ensuring market quality, settlement assurance, governance, operational availability and resilience

- Improve operational resilience
- Increased focus on cybersecurity
- Upgrade equities trading engine
- Increased focus on regulation of issuers
- Implement new Debt Listings Requirements
- Standard listings: prepared a memorandum to consider allowing LSE standard listings

**Lead by example on the national agenda** and promote #SAInc as a global investment destination by partnering with the public and private sector

- Deliver impactful corporate social investment, and financial literacy education
- Lead on the sustainability agenda: Introduced a sustainability segment
- Partner with the government on SA Inc. and promote South Africa as an attractive investment destination

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*Transaction is subject to outcome of Competition Tribunal appeal*
Questions
Appendix
## Balance sheet as at 30 June

<table>
<thead>
<tr>
<th>Category</th>
<th>Six months ended</th>
<th>Year ended</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 June 2020</td>
<td>30 June 2019</td>
</tr>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-current assets</td>
<td>1 690</td>
<td>1 611</td>
</tr>
<tr>
<td>Property and equipment</td>
<td>154</td>
<td>188</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>584</td>
<td>511</td>
</tr>
<tr>
<td>Investment in associate</td>
<td>298</td>
<td>273</td>
</tr>
<tr>
<td>Other non-current assets</td>
<td>654</td>
<td>639</td>
</tr>
<tr>
<td>Current assets</td>
<td>51 153</td>
<td>42 684</td>
</tr>
<tr>
<td>Margin deposits</td>
<td>47 729</td>
<td>39 400</td>
</tr>
<tr>
<td>JSE Clear Derivatives Default Fund deposit</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Trade and other receivables</td>
<td>576</td>
<td>537</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>2 197</td>
<td>2 199</td>
</tr>
<tr>
<td>Other current assets</td>
<td>151</td>
<td>48</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>52 843</td>
<td>44 295</td>
</tr>
<tr>
<td><strong>Equity and liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total equity</td>
<td>3 716</td>
<td>3 608</td>
</tr>
<tr>
<td>Stated capital</td>
<td>(27)</td>
<td>(48)</td>
</tr>
<tr>
<td>Reserves</td>
<td>550</td>
<td>513</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>3 193</td>
<td>3 143</td>
</tr>
<tr>
<td><strong>Non-current liabilities</strong></td>
<td>301</td>
<td>375</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>48 826</td>
<td>40 312</td>
</tr>
<tr>
<td>Margin deposits</td>
<td>47 729</td>
<td>39 400</td>
</tr>
<tr>
<td>JSE Clear Derivatives Default Fund contribution</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Other current liabilities</td>
<td>697</td>
<td>512</td>
</tr>
<tr>
<td><strong>Total equity and liabilities</strong></td>
<td>52 843</td>
<td>44 295</td>
</tr>
</tbody>
</table>

The above represents a condensed version of the Group balance sheet. Please refer to the condensed consolidated interim financial statements for the statutory version.
# Financial metrics H1

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating margin</td>
<td>39%</td>
<td>38%</td>
<td>49%</td>
<td>41%</td>
<td>47%</td>
</tr>
<tr>
<td>EPS</td>
<td>569.1</td>
<td>467.0</td>
<td>654.5</td>
<td>490.9</td>
<td>599.7</td>
</tr>
<tr>
<td>HEPS</td>
<td>569.0</td>
<td>466.1</td>
<td>654.6</td>
<td>488.9</td>
<td>585.1</td>
</tr>
<tr>
<td>EBITDA</td>
<td>644</td>
<td>504</td>
<td>637</td>
<td>511</td>
<td>614</td>
</tr>
</tbody>
</table>
Multi-year depreciation profile

Existing assets | ITaC 1 | Application of IFRS 16 on lease | Change in accounting treatment | 2020 capex envelope

2018A
- Existing assets: 84
- ITaC 1: 25
- Application of IFRS 16 on lease: 39
- Change in accounting treatment: 92
- 2020 capex envelope: 71

2019A
- Existing assets: 92
- ITaC 1: 240
- Application of IFRS 16 on lease: 38
- Change in accounting treatment: 73
- 2020 capex envelope: 83

2020F
- Existing assets: 89
- ITaC 1: 249
- Application of IFRS 16 on lease: 39
- Change in accounting treatment: 74
- 2020 capex envelope: 83

2021F
- Existing assets: 73
- ITaC 1: 240
- Application of IFRS 16 on lease: 38
- Change in accounting treatment: 74
- 2020 capex envelope: 83

2022F
- Existing assets: 44
- ITaC 1: 202
- Application of IFRS 16 on lease: 38
- Change in accounting treatment: 74
- 2020 capex envelope: 83

2021 and 2022 do not include depreciation from investment in those years
Technology costs: 4-year growth trend
Increased spend on risk landscape; ITaC annualised impact offset by lower net contractor spend

Technology costs breakdown

<table>
<thead>
<tr>
<th>Year</th>
<th>SW Maintenance and licences</th>
<th>External services</th>
<th>Contractors (net)</th>
<th>Hardware maintenance and support</th>
<th>Connectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>R126m</td>
<td>5</td>
<td>12</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>2018</td>
<td>R116m (↓ 8%)</td>
<td>6</td>
<td>7</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>2019</td>
<td>R138m* (↑ 19%)</td>
<td>5</td>
<td>10</td>
<td>26</td>
<td>36</td>
</tr>
<tr>
<td>2020</td>
<td>R150m (↑ 9%)</td>
<td>4</td>
<td>11</td>
<td>17</td>
<td>47</td>
</tr>
</tbody>
</table>

Technology cost H1 2020

New and incremental spend:
- Risk landscape: R10m
- Infrastructure support: R7m
- ITaC post-go-live costs (timing): R7m
- BDA processing capacity and software: R4m

Offset by:
- Contractors (net): (R9m)
- Accounting treatment: (R6m)

*Figures contain rounding differences

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JSE liquidity

Monthly liquidity: 2011 to 2020

Monthly liquidity: 2011 to 2020

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