APPENDIX

HERITAGE AND STABILISATION FUND (HSF)

QUARTERLY INVESTMENT REPORT

JULY TO SEPTEMBER 2022

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[1] This section includes economic data available as at October 27, 2022.

EXECUTIVE SUMMARY

- Since early part of 2022, the global economy has been facing turbulent challenges driven by the inflationary effect of fiscal expansion introduced to deal with the COVID pandemic and the disruptive impact of the Russian's invasion of Ukraine and China's zero COVID policy on economic activity, global trade and supply chains. These factors continued to weigh heavily on global conditions during the fourth quarter of the financial year, stalling the pandemic recovery, pushing inflation to levels not experienced in many advanced economies in 40 years and contributing to a much tighter financial conditions and a cost-of-living crisis.

- According to the IMF's October 2022 World Economic Outlook Report, global GDP is now expected to decline from over 6 per cent in 2021 to 3.2 per cent in 2022 and 2.7 percent in 2023. Available data points to the performance and outlook of growth in the United States (US), the United Kingdom (UK) and the European Union (EU) as the main contributor to the deep revision in the IMF's forecast of global growth.

- After decline of 1.6 per cent and 0.6 per cent in the first and second quarter of 2022 respectively, real GDP in the US, surprisingly, grew by an annual rate of 2.6 per cent in the third quarter. Increases in exports and consumer spending were partly offset by a fall in housing investment. The economy grew during a period of aggressive US Fed's monetary actions to tamed surging inflation and suggested that a continuation of the aggressive monetary stance is needed to slow raging inflation, dimming the outlook for the US economy. In the EU, real GDP slowed to 0.4 per cent in third quarter, down from 0.6 per cent recorded in each of the first two quarters of 2022. Reduced energy supplies from Russia weighed on production and surged in energy and food prices adversely affected household real incomes and consumer demand. In the UK, fall in real incomes and consumer demand, also caused by surging energy and food prices, led to a decline of 0.2 per cent in real GDP in the third quarter of 2022 compared to an increase of 0.2 per cent in the previous quarter. Both the EU and UK are now likely to slip into a recession in the fourth quarter as highest rates of inflation in four decades and rising interest rates will, no doubt, drag on consumer and business spending.

- Inflation, having picked up towards the end of 2021 as the release of COVID-19 savings boosted consumer demand, soared in the first half of 2022 as the Russian's invasion of Ukraine, the sanctions imposed on Russia and China's zero COVID policy placed additional strain on an already tight global supply chains causing energy and food prices to jump. The monetary actions taken in the second quarter of 2022 by the US Fed (total 1.25 per cent rate hike) and Bank of England (50 basis points) failed to slow space of price increases. Despite the actions taken, inflation roared to forty-year highs in the US (9.1 per cent in June), in the UK (10.1 per cent in July) and in the EU (9.8 per cent in July). Major central banks responded by more aggressive monetary tightening in the third quarter of 2022, larger rate increases and a faster pace of the removal of liquidity support to markets.

- The US Fed was the first of the major central banks to move more aggressively to confront the inflation dynamic, raising its benchmark interest rate by 75 basis points in June and again in July and September. In addition, the U Fed doubled the pace at which it planned to reduce its bond holdings from US$47.5 billion to US$95.0 billion per month. The Bank of England (BOE) was slightly less aggressive, increasing its monetary policy rate in increment of 50 basis points in August and September and only signalled it would begin shrinking its balance sheet in October. The BOE's policy rate ended the quarter at 2.25 per cent and the upper-bound of the US Fed fund rate at 3.25 per cent, at levels not seen since 2008. The ECB increased its benchmark lending rate in July by 50 basis points and again in September by 75 basis points, taking rate from zero at the start of quarter to 1.25 per cent at quarter end. While monetary tightening helped to reduce inflation in the US, albeit marginally, to 7.8 per cent in October, the latest data show inflation increasing to 11.1 per cent and 11.5 per cent in the UK and the EU, respectively.

- The persistence of unusually strong inflationary pressures, even in the face of sizable increases in policy interest rates, raised questions as to whether a return of inflation to pre-pandemic levels was possible without interest rates reaching levels that would precipitate a recession. This climate of uncertainty heightened during the third quarter of 2022, sapping investor confidence and contributing to sizable declines in the performance of global markets.

- Global markets ended the quarter lower amid intensifying recession risks brought on by aggressive monetary tightening measures. The US S&P 500 index lost 4.89 per cent while other developed markets, as represented by the MSCI EAFE index, declined by 9.33 per cent. US bond yields surged as investors priced in expectations for US Fed fund rates to move even higher in the coming months. The 2-year US Treasury yield increased by 133 basis points to end the quarter at 4.28 per cent and 10-year yield was up 82 basis points to close at 3.83 per cent. US credit spreads widened during the quarter as growing fears of a recession raised concerns about the quality of corporate credits. Taking into account the higher in yields and wider credit spreads, the US investment grade bond market, as measured by the Bloomberg Barclays US Aggregate index, fell by 4.75 per cent during the quarter.

- The Heritage and Stabilisation Fund (HSF) lost 4.59 per cent for the quarter, with both the fixed income and equity mandates contributing to negative performance (see Table 1). The fixed income mandate declined by 1.97 per cent and equity mandates, 2.49 per cent (see Table 2).

- When compared to its strategic asset allocation (SAA) benchmark, which declined by 4.93 per cent, the Fund outperformed by 0.34 per cent (see Table 2 and Appendix 1). The strategies of external managers were the main contributor to better performance of the HSF relative to its SAA benchmark.

- The HSF was rebalanced during the period and a total of US$250.0 million was transferred from the equity mandates to the fixed income mandates in order to reduce the downside risks to the Fund because of the heightened market uncertainty. In September, the Government contributed roughly US$164.0 million to the HSF in accordance with Section 13 of the HSF Act (2007). In light of the highly uncertain market outlook, the contribution was held in cash (USD fixed deposits) and will be invested once the outlook improves.

- As at the end of September 2022, the total net asset value of the HSF was **US$4,712.4 million**; approximately US$59.0 million lower than the previous quarter's closing value of US$4,771.5 million.

Table 1
Absolute Quarterly Returns
For the period Jul – Sep 2022
/per cent/

	Absolute Return HSF	Absolute Return Benchmark
Composite Portfolio	**-4.59**	**-4.93**
US Short Duration Fixed Income	-1.86	-2.28
US Core Domestic Fixed Income	-4.61	-4.75
US Core Domestic Equity	-4.61	-4.90
Non-US Core International Equity	-8.98	-9.57
Unallocated Cash (USD Fixed Deposit)	0.03	0.00

Table 2
Contributions to Quarterly Returns
For the period Jul – Sep 2022
/per cent/

	3 Months Portfolio Weighted Return to 30-Sep-2022	
	HSF	Benchmark
Composite Portfolio	**-4.59**	**-4.93**
US Short Duration Fixed Income	-0.42	-0.57
US Core Domestic Fixed Income	-1.55	-1.89
US Core Domestic Equity	-0.92	-0.74
Non-US Core International Equity	-1.57	-1.64
Unallocated Cash (USD Fixed Deposits)	0.00	0.00

NB: Differences in totals are due to rounding.

SECTION 1 – INTERNATIONAL ECONOMIC ENVIRONMENT

Global economic growth prospects deteriorated further as unrelentingly high inflation prompted most major developed central banks to significantly tighten financial conditions. Ongoing disruptions to trade stemming from Russia's invasion of Ukraine and China's extended Covid-19 shutdowns placed additional strain on supply chains. Against this backdrop, the International Monetary Fund (IMF), in its World Economic Outlook (October 2022), projected a steep slowdown with global growth estimated to fall from 6.0 per cent in 2021 to 3.2 per cent in 2022. The report highlighted the fragility of the global environment citing heightened monetary, fiscal and geopolitical risks. The deceleration is forecasted to be widespread and with headwinds likely to persist into 2023, many countries are expected to experience a two-quarter contraction in real gross domestic product either this year or next.

Following two consecutive quarters of negative growth, the US economy expanded by an annualised rate of 2.6 per cent quarter on quarter during the three months to September 2022. Robust exports and consumer spending outweighed a decline in housing investment. The service sector remained resilient supported in part by strong wage growth and rising consumer confidence. The unemployment rate edged modestly lower to 3.5 per cent in September from 3.6 per cent in June. On the inflation front, the CPI declined to 8.2 per cent in September from 9.1 per cent in June amid lower fuel costs. However, there were signs of price increases becoming more entrenched with Core CPI, which excludes food and energy, adding 0.7 percentage points to end the quarter at 6.6 per cent.

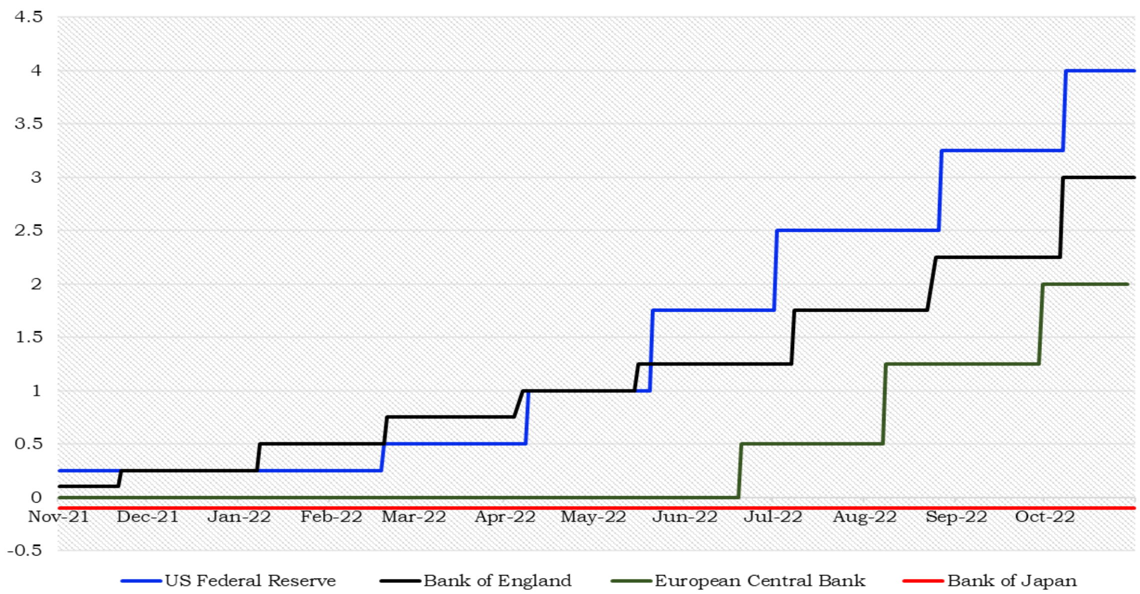
In the UK, economic activity faltered during the third calendar quarter following a modest expansion of 0.2 per cent during the three months to June. Retail sales declined by 1.5 per cent in September month on month as the rising cost of living drove households to curtail non-essential spending. The slump in production output grew with the S&P Global/CIPS UK Manufacturing Purchasing Managers Index (PMI) contracting to 48.4 points in September from 52.8 points in June. Nonetheless, businesses continued to hire, helping to push the unemployment rate down to a near 50-year low of 3.5 per cent in August. At the end of the quarter, a new source of economic and political uncertainty emerged following plans by the recently formed government to enact large scale unfunded tax cuts which destabilised financial markets and triggered significant turmoil.

The Eurozone economy grew during the first six months of 2022 due to a rebound in activity following the lifting of COVID restrictions. However, during the quarter ending September there was a steep downturn in business activity with the S&P Global Euro Area Composite PMI falling to 48.1 points from 52.0 points in June. Recession risks intensified with Russia's indefinite closure of its largest gas pipeline (Nord Stream 1) to Europe. The surge in fuel costs drove inflation up to 9.9 per cent in September from 8.6 per cent in June and prompted some governments to introduce policies aimed at reducing the burden on households and corporations.

In Asia, Japan took additional steps to re-open its economy following the pandemic. The removal of COVID related controls on businesses fuelled an expansion of 3.5 per cent (annualised) in the three months to June. This positive momentum continued into the quarter ending September as household spending grew for the third consecutive month in August by 5.1 per cent. Inflation remained the lowest among the major economies with prices rising by a modest 3.0 per cent in September due in part to the steep decline in the yen. Elsewhere, China's economy recovered from widespread COVID lockdowns to grow by 3.9 per cent year-on-year in the three months to September. However, the virus is likely to remain a headwind given the strict measures enforced under the country's zero COVID approach.

Major central banks reiterated their commitment to combat inflationary pressures while acknowledging the negative impact on growth. The Fed continued to raise rates at an accelerated pace, delivering 75 basis points hikes in July and September to bring the target range to 3.00 per cent – 3.25 per cent (see Figure 1). In addition, the Fed plans to double its balance sheet reductions to US$60.0 billion a month for US Treasuries and US$35.0 billion for agency mortgage-backed securities. Similarly, the BOE increased interest rates twice over the quarter in 50 basis points increments. Following its seventh consecutive hike in September, its key interest rate reached its highest level since 2008 at 2.25 per cent. The committee acknowledged that the economy may already be in the early stages of a recession but with inflation expected to peak around 11.0 per cent in 2022, additional measures would be necessary to stem the rise in prices. Compounding already challenging policy decisions, the BOE announced an emergency two-week intervention to purchase long-dated bonds in an effort to restore stability in the wake of the government's fiscal package proposal. Despite these events, the BOE confirmed it would begin selling its government bond holdings at the end of October as initially planned.

Figure 1
Monetary Rate Movements of Major Central Banks
/Per cent/



Source: Bloomberg

The ECB began its rate hike cycle in July, increasing its benchmark lending rate, for the first time in seven years, from zero to 0.50 basis points (see Figure 1). An additional 75 basis points hike in September brought the benchmark lending rate to 1.25 basis points. Policymakers assessed that further rate raises would be necessary given the outlook for inflation to stay well above the central bank's 2.0 per cent medium-term target for an extended period. In contrast to its peers, the BOJ maintained its accommodative stance and kept its interest rate target unchanged at -0.10 per cent for short-term interest rates and 0.00 per cent for the 10-year government bond yield.

SECTION 2 – CAPITAL AND MONEY MARKET REVIEW

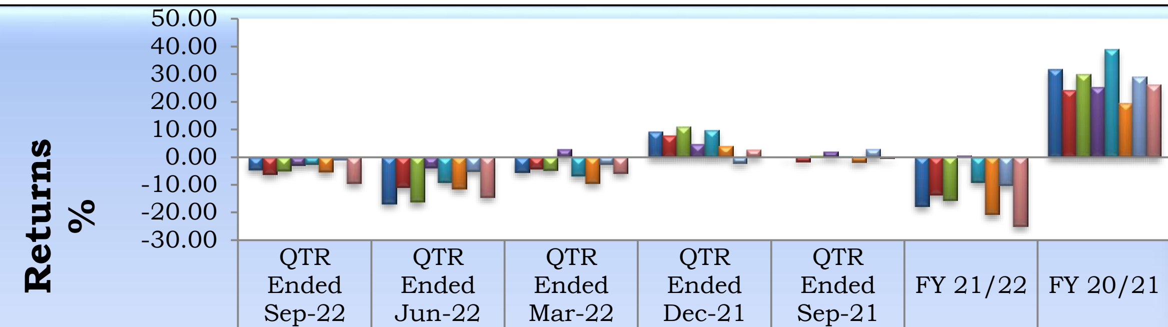
Global equity and fixed income markets rallied in July with the possibility of weaker economic growth potentially leading the Fed to reduce interest rates in the latter half of 2023. Hopes for a less restrictive monetary policy stance faded in August with the Fed's strong commitment to combat inflation at the Jackson Hole summit of central bankers. Stocks and bonds plummeted as investors adjusted expectations to reflect higher interest rates for longer with the sell-off accelerating into the end of September.

In comparison to the previous quarter, average market volatility declined as the initial shock from the Russia-Ukraine war dissipated. The US Chicago Board Options Exchange Volatility Index (VIX) averaged 24.79 points for the quarter when compared to an average of 27.33 points during the prior three months. Similarly, the European measure of investor anxiety, the Euro Stoxx 50 Volatility Index (VSTOXX), moved modestly lower to 26.37 points from the previous quarter's average of 28.71 points.

The US Standard and Poor's (S&P) 500 index fell by 4.89 per cent with equity losses mounting following a brief reprieve during July (see Figure 2). The index reached a new low for the year and recorded its worst monthly decline since the pandemic in September, sinking by 9.34 per cent. Consumer discretionary and energy sectors positively contributed to performance while the communication services and real estate sectors were the largest detractors.

Non-US developed stock markets, as represented by the MSCI EAFE index, plummeted 9.33 per cent, when measured in US dollars (see Figure 2). Exposure to local currencies significantly hindered performance given the strong appreciation of the US dollar over the quarter. In comparison, the MSCI EAFE (USD Hedged) index lost a modest 2.81 per cent. Regionally, European equity markets continued to suffer amidst a worsening outlook as the deepening energy crisis increased the risk of a severe recession. Over the quarter, Germany's DAX index and France's CAC 40 index declined by 5.24 per cent and 2.50 per cent, respectively. Meanwhile in Asia, Japan's Nikkei 225 index performed relatively better than the other major indices with a loss of 0.94 per cent.

Figure 2
Total Returns on Equity Indices
/Per cent/



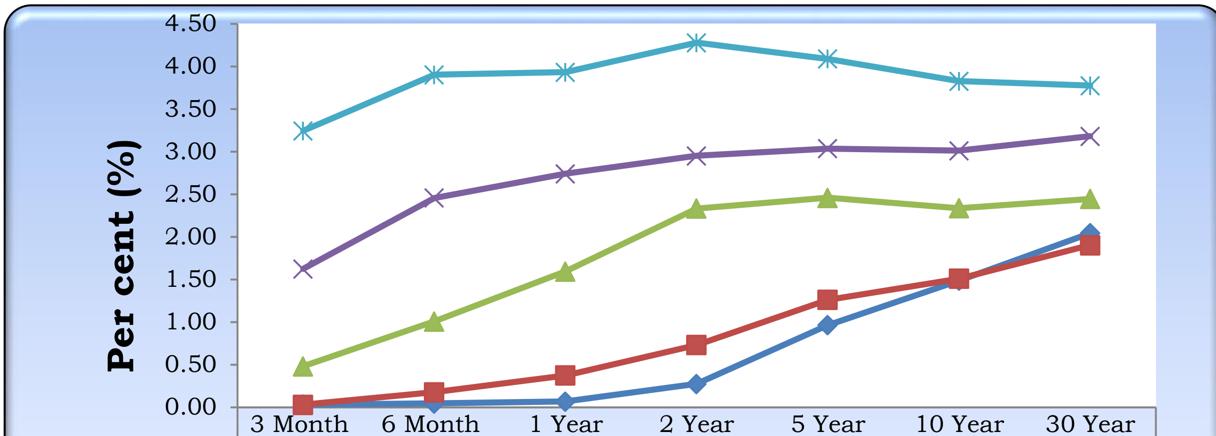
	QTR Ended Sep-22	QTR Ended Jun-22	QTR Ended Mar-22	QTR Ended Dec-21	QTR Ended Sep-21	FY 21/22	FY 20/21
Russell 3000	-4.47	-16.71	-5.28	9.27	-0.10	-17.65	31.86
Dow Jones	-6.17	-10.78	-4.10	7.87	-1.46	-13.40	24.15
S&P 500	-4.89	-16.11	-4.60	11.02	0.58	-15.50	29.99
FTSE 100 - UK	-2.80	-3.80	2.89	4.75	1.94	0.78	25.31
CAC 40 - France	-2.50	-8.92	-6.68	9.86	0.44	-8.95	38.96
DAX 30 - Germany	-5.24	-11.31	-9.25	4.09	-1.74	-20.62	19.59
Nikkei 225 - Japan	-0.94	-5.02	-2.42	-2.10	3.02	-10.12	29.14
MSCI EAFE	-9.33	-14.34	-5.77	2.72	-0.34	-24.82	26.27

Source: Bloomberg

In the US fixed income market, US treasury yields increased significantly over the quarter as the Fed's commitment to curb persistently high inflation drove expectations for interest rates to rise further and remain at elevated levels for some time. The 2-year yield surged 133 basis points to end the quarter at 4.28 per cent, while the 10-year yield added 82 basis points to close at 4.09 per cent (see Figure 3). The widening inversion between the 2-year to 10-year segment of the curve strengthened expectations for a recession given similar events have preceded downturns in the past.

The broader US fixed income market, as represented by the Bloomberg Barclays US Aggregate Bond Index, declined for a third consecutive quarter, falling by an additional 4.75 per cent in the three months to September (see Figure 4). The steep rise in interest rates and wider credit spreads pushed bond prices lower. At the sub-sector level, Mortgage Backed Securities (MBS) lost 5.35 per cent as the Fed moved to accelerate its balance sheet reductions in September. US Corporate Bonds retreated 5.06 per cent given the sectors' greater sensitivity to the economic cycle and higher interest rate risk. Meanwhile, the Asset Backed Securities sector benefitted from its lower duration profile and recorded a modest decline of 1.34 per cent.

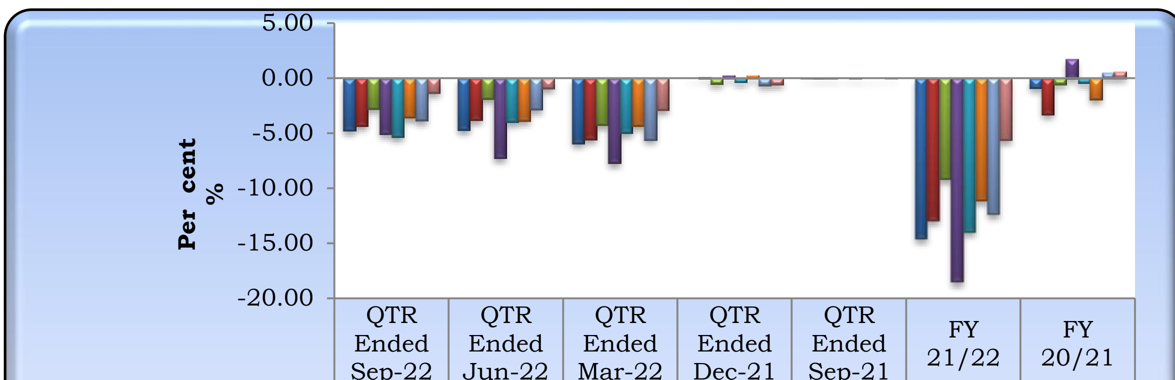
Figure 3
US Treasury Curve
/Per Cent/



	3 Month	6 Month	1 Year	2 Year	5 Year	10 Year	30 Year
Sep-21	0.03	0.05	0.07	0.28	0.96	1.49	2.04
Dec-21	0.03	0.18	0.38	0.73	1.26	1.51	1.90
Mar-22	0.48	1.01	1.60	2.33	2.46	2.34	2.45
Jun-22	1.63	2.46	2.74	2.95	3.04	3.01	3.18
Sep-22	3.25	3.90	3.93	4.28	4.09	3.83	3.78

Source: Bloomberg

Figure 4
Returns on Fixed Income Indices
/Per Cent/

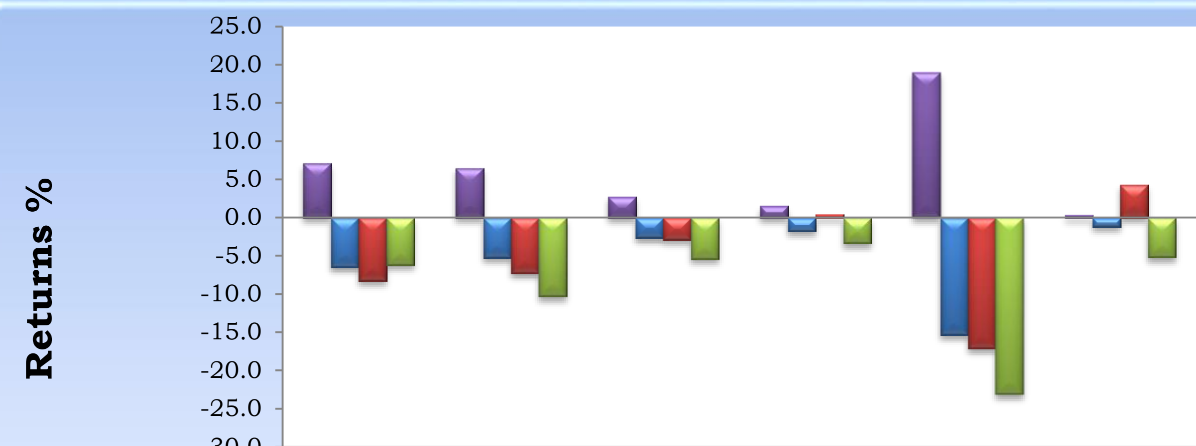


	QTR Ended Sep-22	QTR Ended Jun-22	QTR Ended Mar-22	QTR Ended Dec-21	QTR Ended Sep-21	FY 21/22	FY 20/21
Barclays US Aggregate	-4.75	-4.69	-5.93	0.01	0.05	-14.60	-0.90
US Treasury	-4.35	-3.77	-5.58	0.18	0.09	-12.94	-3.30
Agencies	-2.77	-1.89	-4.24	-0.53	0.08	-9.14	-0.56
US Corporate	-5.06	-7.26	-7.69	0.23	0.00	-18.53	1.74
US MBS	-5.35	-4.01	-4.97	-0.37	0.10	-13.98	-0.43
G7 Bonds (Hedged)	-3.60	-3.87	-4.33	0.26	-0.04	-11.12	-1.92
US CMBS	-3.85	-2.85	-5.59	-0.64	-0.03	-12.38	0.52
US ABS	-1.34	-0.91	-2.88	-0.57	0.05	-5.61	0.59

Source: Bloomberg

The US dollar strengthened considerably when compared against the currencies of its major trading partners (see Figure 5). The Dollar Spot Index (DXY) appreciated by 7.10 per cent due to a combination of safe haven demand, relatively higher interest rates and expectations for the US economy to better withstand the current macroeconomic environment. Heightened political uncertainty added to the British Pound's decline, driving the currency to weaken 8.28 per cent versus the US Dollar. The Euro depreciated by 6.22 per cent amid the worsening energy crisis. At the same time, the Japanese Yen fell to a 24-year low against the dollar, extending its fall by 6.22 per cent given the widening policy divergence between the BOJ and the Fed.

Figure 5
Foreign Exchange Returns for Major Currencies vis-à-vis the US Dollar
/Per Cent/



	QTR Ended Sep-22	QTR Ended Jun-22	QTR Ended Mar-22	QTR Ended Dec-21	FY 21/22	FY 20/21
DXY CURNCY	7.10	6.48	2.76	1.53	18.98	0.37
EURUSD CURNCY	-6.51	-5.27	-2.66	-1.81	-15.35	-1.20
GBPUSD CURNCY	-8.28	-7.31	-2.91	0.43	-17.10	4.29
JPYUSD CURNCY	-6.22	-10.34	-5.41	-3.34	-23.12	-5.23

Source: Bloomberg

SECTION 3 – PORTFOLIO PERFORMANCE

Strategic Asset Allocation

Table 3 reports the actual mandate weights of the HSF's Investment Portfolio relative to its approved SAA for the quarter ended September 2022 and the previous three (3) quarters.

During the three months ending September 2022, fluctuations in the market values of the Fund's investments, the rebalancing of the HSF and a deposit made to the HSF, held in cash, contributed to the changes in the mandate weights. Combined, this reduced the size of the overall underweight to fixed income securities and corresponding overweight to equities as at the end of the quarter. At the mandate level, the US Core Domestic Equity mandate had the largest overweight position of 4.44 per cent while US Core Domestic Fixed Income mandate held the largest underweight position of 6.38 per cent (see Table 3).

Table 3
Portfolio Composition relative to the Approved SAA[2]
/per cent/

	Asset Class		Dec-21	Mar-22	Jun-22	Sep-22
		Target Weight SAA	Actual % of Fund	Actual % of Fund	Actual % of Fund	Actual % of Fund
Portfolio Weights	US Short Duration Fixed Income	25.00	18.05	18.63	20.54	23.54
	US Core Domestic Fixed Income	40.00	31.25	31.10	32.76	33.62
	US Core Domestic Equity	17.50	26.21	26.08	24.07	21.94
	Non-US Core International Equity	17.50	24.49	24.20	22.63	17.44
	Unallocated Cash (USD Fixed Deposits)	0.00	0.00	0.00	0.00	3.46

Totals may not sum to 100 due to rounding.

[2] The Board's approved investment policy allow the mandate weights to deviate from the approved SAA weights by +/- 5 per cent.

Following continuous reviews, the Board concluded that extreme financial market volatility would likely persist given the high uncertain outlook. Against this backdrop, the Board determined that it would be appropriate to rebalance the HSF to help mitigate potential downside risks to the Fund. A US$250 million rebalancing exercise was successfully completed in August, which achieve the main goal of reducing the Fund's allocation to risky equity investments in favour of safer and more liquidity short duration market positions in the fixed income mandates. To support the goal of the rebalancing exercise, the mandate weights were allowed to deviate from the approved SAA deviation limit of +/- 5.0 per cent.

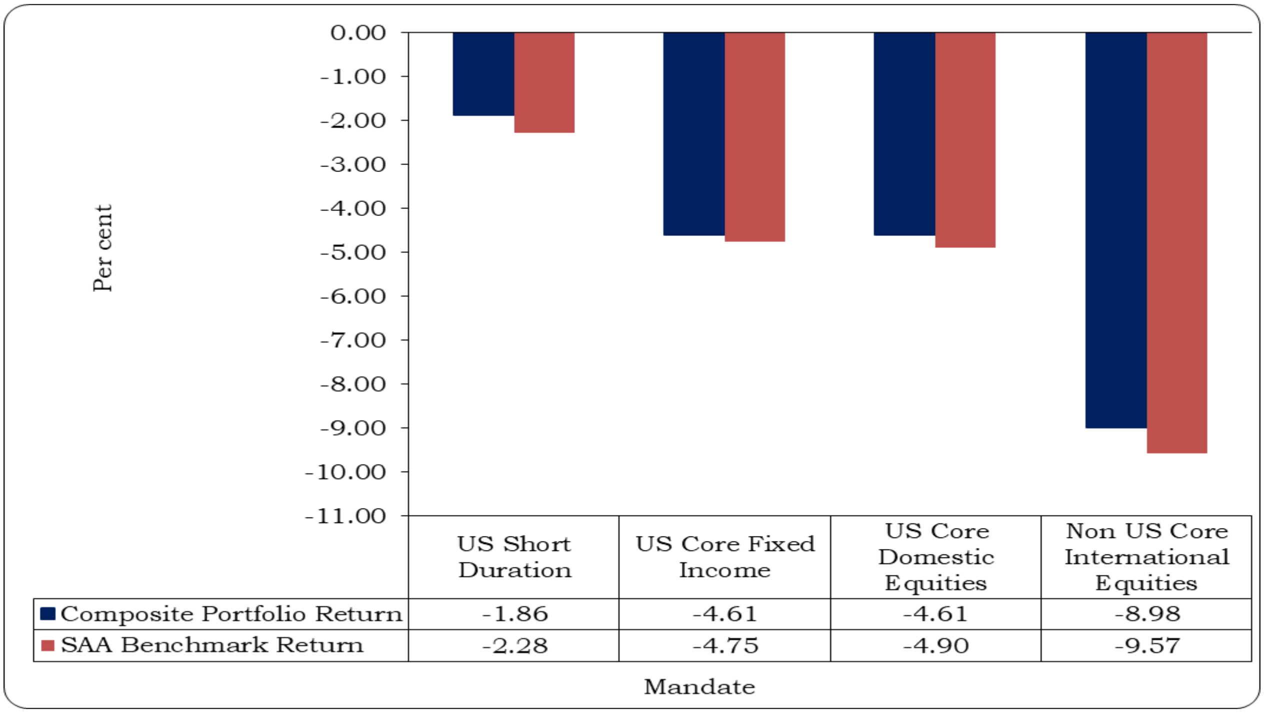
A contribution of approximately US$164.0 million was made to the HSF in September, 2022. In keeping with the Board's stance to reduce the downside risks to the Fund, the contribution was not allocated to the existing HSF's mandates and was held in cash, USD fixed deposits. The Board will determine the appropriate allocation of the cash once market outlook improves. As at the end of September, unallocated cash represented 3.46 per cent of the net value asset of the Fund.

The total net asset value of the Fund as at the end of September 2022 was **US$4,712.4 million**, compared to US$4,771.5 million at the end of the previous quarter. Of this total, the Investment Portfolio and unallocated cash was valued at US$4,711.2 million, while the remaining portion was held in operating cash accounts to meet the day-to-day expenses that arise from the management of the Fund.

Performance of the Investment Portfolio

During the fourth fiscal quarter of 2022, the HSF's Investment Portfolio returned -4.59 per cent due to negative performance within both the fixed income and equity mandates (see Figure 6).

Figure 6
Absolute Returns by Mandate
For the period Jul – Sep 2022
/per cent/



	US Short Duration	US Core Fixed Income	US Core Domestic Equities	Non US Core International Equities
Composite Portfolio Return	-1.86	-4.61	-4.61	-8.98
SAA Benchmark Return	-2.28	-4.75	-4.90	-9.57

When compared with its SAA benchmark[3], which declined by 4.93 per cent, the HSF outperformed by 0.34 per cent. External managers' strategies were the main contributor to excess returns delivering in aggregate, positive relative performance across both the fixed income and equity mandates.

The **US Core Domestic Equity** mandate fell by 4.61 per cent over the quarter ending September 2022. This compared to a decline of 4.90 per cent for its SAA benchmark, the Russell 3000 ex-Energy index (see Figure 6). Stock selection in the health care, financial and consumer discretionary sectors added to performance while, stock choices in the utilities and real estate sectors detracted. The net asset value of the mandate ended September 2022 at **US$1,033.7 million**, down from US$1,147.9 million at June

[3] The SAA benchmark is a blended benchmark, which comprises of the Bank of America/Merrill Lynch US Treasury 1-5 Years Index (25%), Bloomberg Barclays US Aggregate Bond Index (40%), Russell 3000 ex Energy Index (17.5%), and MSCI EAFE ex Energy Index (17.5%).

30, 2022. The decrease in the net asset value was partly due to the rebalancing outflow totaling US$70.0 million during the quarter.

The **Non-US Core International Equity** mandate lost 8.98 per cent over the quarter and outperformed its SAA benchmark (see Figure 6), the MSCI EAFE ex Energy index, by 59 basis points. Positive stock selection contributed to performance however, overall country positioning in Norway and the United Kingdom detracted from performance. During the quarter, the mandate's net asset value decreased by $257.90 million to **US$821.4 million** as at the end of September 2022. Rebalancing outflows amounting to US$180.0 million contributed to the mandate's lower net asset value.

The **US Short Duration Fixed Income** mandate returned -1.86 per cent over the fourth quarter of the financial year. The mandate outperformed its SAA benchmark (see Figure 6), Bank of America Merrill Lynch US Treasury 1-5 year index, by 42 basis points. The portfolio's short duration positioning contributed to positive returns relative to the SAA benchmark, while exposure to high quality credit sectors detracted modestly as spreads widened over the period. The net asset value of the mandate as at September 30, 2022 was **US$1,109.0 million**, up from US$979.7 million as at the end of the prior quarter. The increase in the net asset value resulted from a rebalancing inflow of US$150.0 million.

The longer duration **US Core Domestic Fixed Income** mandate fell by 4.61 per cent while its SAA benchmark, the Bloomberg Barclays US Aggregate Bond index, declined by 4.75 per cent (see Figure 6). Interest rate strategies that reduced the portfolio's duration were positive for performance. In addition, an underweight to mortgage backed securities and security selection within investment grade corporates added to excess returns. The net asset value of the mandate as at the end of the quarter was **US$1,584.0 million** compared to **US$1,562.2** million three months earlier. Rebalancing inflows of US$100.0 million were largely offset by market losses over the period.

SECTION 4 – COMPLIANCE AND PORTFOLIO RISKS

Compliance

Following extreme market events that transpired at the beginning of the pandemic in March 2020, the managers in the US Core Domestic Fixed Income mandate continued to operate above the risk target relative to the benchmark, as stated in the investment guidelines. The Central Bank, as manager of the Fund, aims to bring the managers back in compliance with the investment guidelines as soon as feasible. These managers continue to be closely monitored by the Central Bank and frequent discussions are held regarding the market environment and portfolio positioning.

During the quarter, the rebalancing of the HSF resulted in lower deviations of the mandate weights from the approved SAA. As at September 30, 2022, however, one mandate remained above the allowable +/- 5 per cent deviation (see Table 3). The Board approved the mandate's weight deviation from the +/- 5 per cent limit. The Board also approved the treatment of the contribution made to the HSF in September by agreeing not to allocate it to the existing HSF's mandates, holding the contribution instead in USD fixed deposits. The Board took both decisions in order to provide better downside risk protection to the HSF during a period of high market uncertainty. The Central Bank will continue to monitor the Fund's asset class exposures and provide monthly updates to the Board.

Portfolio Risks

The main risks for the HSF portfolio are credit, concentration, interest rate, and currency risks. The following paragraphs give a description of how these risks are mitigated.

Credit Risk

Within the **money market portion** of the Fund, credit risk is minimised by the strict adherence to the following standards: (i) all counterparties must have a minimum credit rating of either A-1 from the Standard and Poor's rating agency or P-1 from Moody's Investors Services; and (ii) a maximum exposure limit for counterparties of no more than 5.0 per cent of the market value of the portfolio.

For **fixed income instruments**, credit risk is mitigated by the use of credit concentration limits as well as minimum credit quality ratings. Bonds must have an investment grade rating as defined by Standard and Poor's, Moody's Investors Services or Fitch Ratings Incorporated. Should the required ratings on an existing fixed income security fall below the minimum standards, the security must be sold within an agreed upon timeframe. Table 4 below shows the average credit quality of the US Short Duration and US Core Fixed Income Portfolios as at September 30, 2022.

Table 4
Average Credit Rating

Mandate	Portfolio	Benchmark
US Short Duration	**AA+**	**AA+**
US Core Fixed Income	**A+**	**AA**

Concentration Risk

Concentration or diversification risk is minimised by investing across various asset types and holding a large number of positions within an asset class. The aim is to minimise risk and/or maximise return by investing in a wide cross-section of asset classes and positions that would each react differently to the same market event. As such, it is likely that when one has strong returns, another may have lower returns to the same market event.

The HSF is currently invested across five (5) asset groupings as follows: US short duration fixed income; US core domestic fixed income; US core domestic equity and non-US core international equity and USD fixed deposit (unallocated cash). Concentration risk is also minimised within asset groups by approved market exposure and issuer holding limits. For the **equity portfolios**, this risk is managed by imposing a maximum percentage holding of 3.0 per cent of any security's outstanding shares, as well as a maximum sector deviation relative to the benchmark of 5.0 per cent.

Interest Rate Risk

Interest rate risk is managed using a weighted average effective duration limit on the respective portfolios. For the US Short Duration Fixed Income mandate, the allowable range is six months longer or shorter than the weighted average duration of its respective benchmark. While the US Core Domestic Fixed Income mandate has an allowable range of 12 months longer or shorter than the weighted average duration of its respective benchmark. Table 5 shows the weighted average duration for the US Short Duration and US Core Domestic Fixed Income portfolios as at September 30, 2022.

Table 5
Weighted Average Duration
/Years/

Mandate	Portfolio	Benchmark
US Short Duration	**2.12**	**2.55**
US Core Domestic Fixed Income	**6.04**	**6.20**

Currency Risk

Currency risk is managed by containing and managing the exposure to non-US dollar instruments. For the fixed income mandates, no more than 10 per cent of the market value of the portfolio can be invested in securities denominated in currencies other than the US Dollar. For these mandates, non-US dollar currency exposure is fully hedged into the US Dollar. However, the effectiveness of the hedge may vary depending on market conditions.

For the US Core Domestic Equity mandate, no more than 5 per cent of the market value of the portfolio can be invested in securities denominated in currencies other than the US Dollar. The performance benchmark for the Non-US Core International Equity portfolio is the custom MSCI EAFE ex-energy Index. The index comprises of equity securities of issuers domiciled in developed markets countries, excluding the US and Canada. Where benchmark securities are quoted in currencies other than the US dollar, the Fund accepts the currency risk. For this mandate, however, managers can hedge up to 15 per cent of the market value of their currency exposure into the US dollar, the base reporting currency for the HSF. At the end of September 2022, the currency exposure for this portfolio was 98 per cent of its market value. During the quarter, all the portfolios were within their respective limits.

Appendix I
HSF Portfolio - Historical Performance

Quarter End	Current Returns			Financial YTD			Annualised Return Since Inception		
	Portfolio	Benchmark	Excess	Portfolio	Benchmark	Excess	Portfolio	Benchmark	Excess
	%	%	bps	%	%	bps	%	%	bps
FY 2010									
December	0.96	0.89	6.65	0.96	0.89	6.65	3.72	3.78	-6.16
March	1.61	1.68	-6.20	2.59	2.58	0.49	3.95	4.03	-7.76
June	-1.83	-1.89	6.05	0.71	0.64	6.69	3.07	3.12	-5.18
September	5.33	5.08	24.73	6.07	5.75	31.93	4.37	4.35	2.06
FY 2011									
December	2.29	2.21	8.15	2.29	2.21	8.15	4.70	4.65	4.13
March	1.62	1.54	7.24	3.94	3.79	15.68	4.81	4.76	5.72
June	1.88	1.81	6.68	5.89	5.67	22.91	4.98	4.91	7.00
September	-4.82	-4.28	-53.66	0.79	1.14	-34.89	3.57	3.63	-6.29
FY 2012									
December	2.74	3.03	-28.52	2.74	3.03	-28.52	3.97	4.08	-12.00
March	5.04	4.46	57.50	7.92	7.63	29.29	4.78	4.78	-0.08
June	-0.90	-0.60	-30.42	6.95	6.98	-3.72	4.37	4.43	-6.13
September	3.53	2.98	55.03	10.73	10.18	55.02	4.68	4.65	2.07
FY 2013									
December	1.49	1.45	4.11	1.49	1.45	4.11	4.88	4.83	4.76
March	3.29	2.90	39.19	4.82	4.38	44.01	5.23	5.12	11.20
June	-0.30	-0.69	39.05	4.51	3.66	84.64	4.97	4.80	17.26
September	3.95	3.47	47.35	8.63	7.26	137.06	5.40	5.16	24.01
FY 2014									
December	3.95	2.66	129.38	3.95	2.66	129.38	5.80	5.37	42.67
March	1.46	1.30	16.28	5.47	4.00	147.73	5.80	5.37	43.52
June	2.56	2.30	25.90	8.17	6.38	178.44	5.96	5.51	45.76
September	-0.48	-0.73	25.31	7.65	5.60	204.51	5.69	5.22	47.69
FY 2015									
December	2.25	1.63	62.27	2.25	1.63	62.27	5.81	5.26	54.46
March	2.29	2.25	3.95	4.60	3.92	67.71	5.92	5.39	53.34
June	-0.02	-0.51	49.43	4.58	3.39	119.07	5.74	5.16	57.93
September	-2.02	-2.19	16.83	2.47	1.13	134.06	5.31	4.73	58.12

Quarter End	Current Returns			Financial YTD			Annualised Return Since Inception		
	Portfolio	Benchmark	Excess	Portfolio	Benchmark	Excess	Portfolio	Benchmark	Excess
	%	%	bps	%	%	bps	%	%	bps
FY 2016									
December	1.68	1.67	0.22	1.68	1.67	0.22	5.36	4.79	56.52
March	0.80	1.26	-46.14	2.48	2.95	-46.70	5.30	4.80	49.64
June	0.80	1.11	-30.92	3.30	4.09	-78.90	5.24	4.79	44.83
September	2.45	2.12	32.85	5.83	6.29	-45.72	5.37	4.89	47.33
FY 2017									
December	-0.46	-0.98	51.92	-0.46	-0.98	51.92	5.17	4.66	51.64
March	3.17	2.92	24.41	2.69	1.91	77.74	5.37	4.84	52.92
June	2.74	2.44	30.00	5.50	4.40	110.45	5.51	4.97	54.69
September	2.61	2.06	54.78	8.25	6.55	170.48	5.64	5.05	58.79
FY 2018									
December	2.24	1.83	40.22	2.24	1.83	40.22	5.72	5.11	61.32
March	-0.55	-0.94	38.21	1.67	0.88	78.91	5.53	4.90	63.49
June	0.26	0.21	5.36	1.94	1.09	84.52	5.43	4.81	62.52
September	1.81	1.54	27.02	3.79	2.65	113.37	5.47	4.84	63.61
FY 2019									
December	-4.69	-3.54	-114.99	-4.69	-3.54	-114.99	4.93	4.41	51.33
March	5.93	5.61	31.25	0.96	1.88	-91.66	5.33	4.79	53.03
June	3.01	3.26	-25.10	4.00	5.20	-119.99	5.47	4.97	49.95
September	1.05	1.27	-21.70	5.10	6.54	-144.08	5.44	4.97	47.15
FY 2020									
December	3.62	3.20	41.90	3.62	3.20	41.90	5.63	5.13	49.64
March	-7.33	-5.51	-182.43	-3.98	-2.48	-149.43	4.90	4.58	32.73
June	8.62	7.57	104.53	4.30	4.90	-60.38	5.46	5.06	39.94
September	3.74	2.98	76.36	8.20	8.03	17.42	5.65	5.20	45.01

Quarter End	Current Returns			Financial YTD			Annualised Return Since Inception		
	Portfolio	Benchmark	Excess	Portfolio	Benchmark	Excess	Portfolio	Benchmark	Excess
	%	%	bps	%	%	bps	%	%	bps
FY 2021									
December	6.43	5.50	93.52	6.43	5.50	93.52	6.02	5.51	51.10
March	1.28	0.08	119.45	7.79	5.58	220.73	6.00	5.41	59.10
June	4.00	3.09	90.18	12.10	8.85	324.76	6.19	5.54	64.60
September	-0.31	-0.09	-22.00	11.75	8.75	299.80	6.05	5.44	61.82
FY 2022									
December	2.97	1.98	99.31	2.97	1.98	99.31	6.16	5.48	67.75
March	-5.69	-5.44	-25.12	-2.89	-3.57	68.04	5.64	5.00	64.44
June	-9.91	-7.81	-209.37	-12.51	-11.10	-140.61	4.83	4.36	47.24
September	-4.59	-4.93	34.58	-16.52	-15.49	-103.41	4.43	3.95	48.73

Notes:

(1) Differences in totals are due to rounding.
(2) In August 2009, International Equities and Fixed Income Securities were added to the HSF portfolio. The performance benchmark for the HSF portfolio became a blended benchmark which comprise, Bank of America/Merrill Lynch US Treasury 1-5 Years Index, US One-month LIBID Index, Barclays US Aggregate, Russell 3000 ex Energy, and MSCI EAFE ex Energy.
(3) In January 2011, the HSF Portfolio achieved its Strategic Asset Allocation where the portfolio was invested in four assets classes. US Short Duration Fixed Income (25), US Core Fixed Income (40), US Equity (17.5) and Non-US International Equity (17.5).
(4) With effect from the quarter ended December 2012, the Annualised Returns Since Inception were computed using a geometric average and not the previously used arithmetic average. For comparative purposes, prior period annualized returns since inception shown above were computing using a geometric average.

Appendix II

Heritage and Stabilisation Fund
Portfolio Valuation (USD)

Valuation Date	Net Asset Value	Total Comprehensive Income	Accumulated Surplus & Unrealised Capital Gains/Losses	Contributions / (Withdrawals)
Annual Portfolio Valuation				
September 30,2007	1,766,200,701	41,966,361	41,966,361	321,706,043
September 30,2008	2,888,421,556	68,412,770	110,379,131	1,054,174,457
September 30,2009	2,964,686,478	76,248,691	186,755,766	-
September 30,2010	3,621,984,041	177,645,460	364,361,226	477,344,263
September 30,2011	4,084,016,158	9,715,841	374,074,067	451,400,519
September 30,2012	4,712,376,278	420,693,705	794,770,772	207,550,846
September 30,2013	5,154,027,747	399,007,950	1,193,778,722	42,414,251
September 30,2014	5,533,425,248	379,167,024	1,572,945,746	-
September 30,2015	5,655,143,565	120,639,605	1,693,585,351	-
September 30,2016	5,584,246,290	305,452,096	1,999,037,447	(375,050,860)
September 30, 2017	5,762,544,777	429,475,446	2,428,512,893	(252,548,048)
September 30, 2018	5,965,847,092	203,717,910	2,632,230,803	-
September 30, 2019	6,255,349,599	288,837,111	2,921,067,914	-
September 30, 2020	5,731,799,397	457,090,777	3,378,158,691	(979,853,158)
September 30, 2021	5,463,893,835	624,178,449	4,002,337,140	(892,714,533)
September 30, 2022	4,712,444,758	(913,456,918)	3,088,880,222	163,994,499
Quarterly Portfolio Valuation				
December 31, 2014	5,653,895,156	120,509,077	1,693,454,823	-
March 31, 2015	5,779,420,631	125,471,133	1,818,925,956	-
June 30, 2015	5,774,951,169	(4,765,278)	1,814,160,678	-
September 30, 2015	5,655,143,565	(120,575,327)	1,693,585,351	-
December 31, 2015	5,744,963,957	90,833,573	1,784,418,924	-
March 31, 2016	5,787,343,363	42,134,260	1,826,553,184	-
June 30, 2016	5,454,568,405	42,838,704	1,869,391,888	(375,050,860)
September 30, 2016	5,584,246,290	129,645,559	1,999,037,447	-

Appendix II

Heritage and Stabilisation Fund
Portfolio Valuation (USD)

Valuation Date	Net Asset Value	Total Comprehensive Income	Accumulated Surplus & Unrealised Capital Gains/Losses	Contributions / (Withdrawals)
Quarterly Portfolio Valuation				
December 31, 2016	5,555,039,859	(29,605,256)	1,969,432,191	-
March 31, 2017	5,473,047,983	170,609,885	2,140,042,076	(252,548,048)
June 30, 2017	5,619,311,033	146,006,897	2,286,048,973	-
September 30, 2017	5,762,544,777	142,463,920	2,428,512,893	-
December 31, 2017	5,888,599,170	124,900,387	2,553,413,280	-
March 31, 2018	5,852,789,288	(36,468,342)	2,516,944,938	-
June 30, 2018	5,863,070,206	12,336,541	2,529,281,479	-
September 30,2018	5,965,847,092	102,949,324	2,632,230,803	-
December 31,2018	5,683,219,683	(486,810,763)	2,349,137,950	-
March 31, 2019	6,016,429,263	333,123,750	2,682,261,700	-
June 30, 2019	6,194,328,757	177,424,921	2,859,686,621	-
September 30, 2019	6,255,349,599	61,381,293	2,921,067,914	-
December 31, 2019	6,478,340,872	222,180,512	3,143,248,426	-
March 31, 2020	5,925,283,653	(473,394,404)	2,669,854,022	(79,853,158)
June 30, 2020	5,817,072,795	493,393,358	3,163,247,380	(600,000,000)
September 30, 2020	5,731,799,397	214,911,311	3,378,158,691	(300,000,000)
December 31, 2020	5,888,114,410	355,398,920	3,733,557,611	(198,943,283)
March 31, 2021	5,661,689,420	67,788,202	3,801,345,814	(293,771,250)
June 30, 2021	5,583,193,276	220,867,117	4,022,212,931	(300,000,000)
September 30, 2021	5,463,893,835	(19,875,791)	4,002,337,140	(100,000,000)
December 31, 2021	5,623,159,544	158,986,912	4,161,324,052	-
March 31, 2022	5,299,527,705	(323,446,707)	3,837,877,345	-
June 30, 2022	4,771,488,412	(527,955,978)	3,309,921,367	-
September 30, 2022	4,712,444,758	(221,041,145)	3,088,880,222	163,994,499

Appendix III

Summary Characteristics of Composite Benchmarks
Fixed Income Benchmarks

Key Characteristics	Bloomberg Barclays US Aggregate Index	Merrill Lynch 1-5 Index
Total Holdings	12,641	154
Coupon (%)	2.58	1.62
Duration (Years)	6.20	2.55
Average Life (Years)	8.52	2.68
Yield to Maturity (%)	4.75	4.25
Option Adjusted Spread (bps)	62	-1
Average Rating (S&P)	AA	AA+
Minimum Rating (S&P)	BBB	AA+

Equity Benchmarks

Key Characteristics	Russell 3000 (ex-Energy)	MSCI EAFE (ex-Energy)
Total Holdings	2,840	771
Earnings Per Share (EPS Growth 3-5yr fwd.)	13.0	8.10
Price Earnings (P/E fwd.)	16.4	12.99
Price / Book (P/B)	3.2	1.50
Weighted Average Market Capitalisation* (Bn)	412.3	70.0

*Market capitalisation is a measurement of the size of a company (share price x the number of outstanding shares). The weighted average market capitalisation of a stock market index represents the average size of the firms comprising the index where each is weighted according to its market capitalisation.

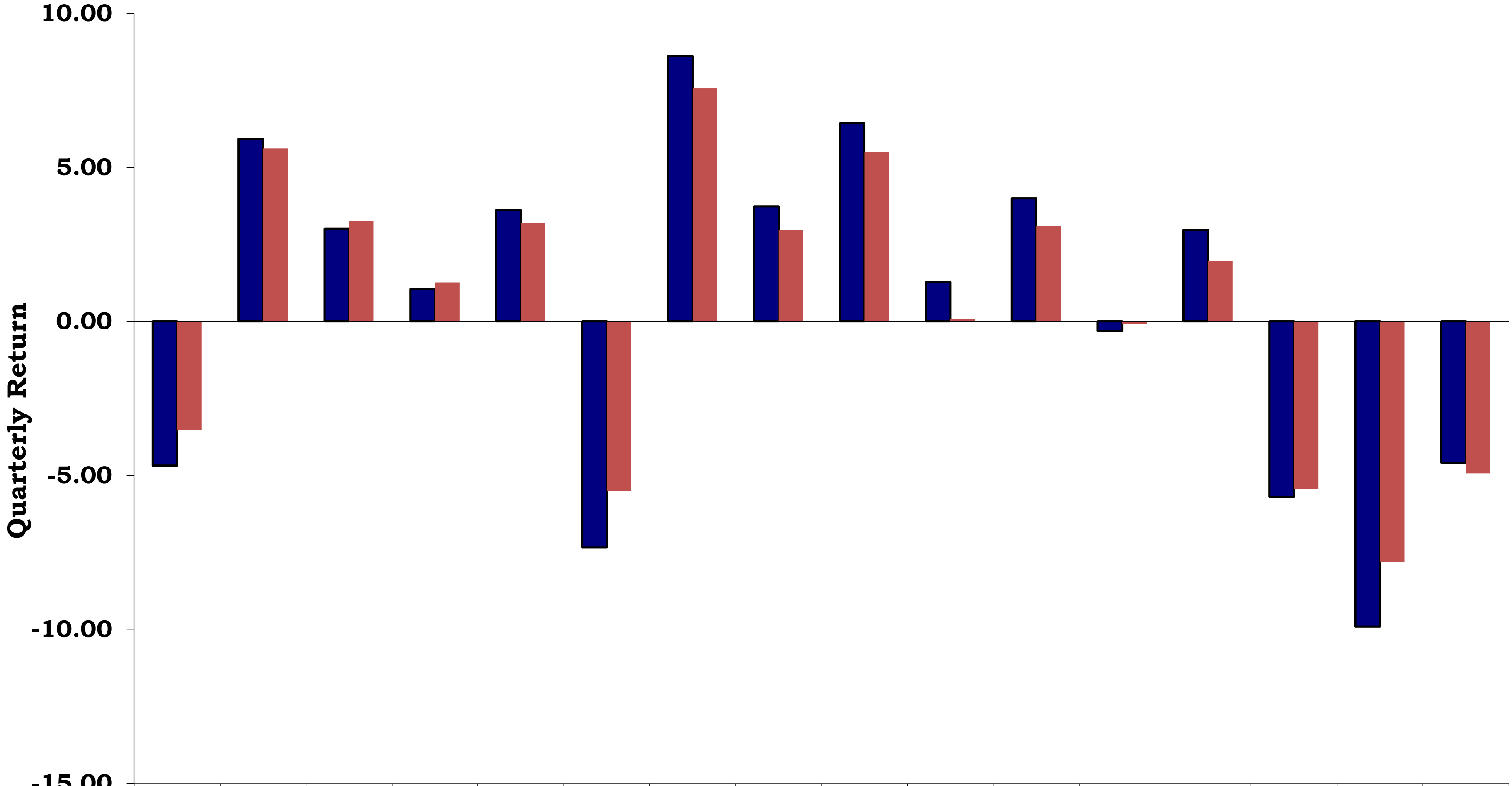
Appendix IV

Summary of the Fund's Net Asset Value by Mandate /US$ Million/

	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22
Total Fund Value	**5,463.9**	**5,623.2**	**5,299.5**	**4,771.5**	**4,712.4**
Total Value of Equity	**2,685**	**2,850**	**2,663**	**2,227**	**1,855**
US Core Domestic Equity	1,341	1,474	1,381	1,148	1,034
Non-US Core International Equity	1,344	1,377	1,282	1,079	821
Total Value of Fixed Income	**2,778**	**2,772**	**2,634**	**2,542**	**2,693**
US Short Duration Fixed Income	1,021	1,015	987	980	1,109
US Core Domestic Fixed Income	1,757	1,757	1,647	1,562	1,584
Unallocated Cash (USD Fixed Deposits)	**--**	**--**	**--**	**--**	**163**
Total Value of Operating Cash	**1**	**1**	**2**	**2**	**1**

NB: Differences in totals are due to rounding.

Appendix V
HSF Portfolio and SAA Benchmark Quarterly Returns
/per cent/



	FY2019 Q1	FY2019 Q2	FY2019 Q3	FY2019 Q4	FY2020 Q1	FY2020 Q2	FY2020 Q3	FY2020 Q4	FY2021 Q1	FY2021 Q2	FY2021 Q3	FY2021 Q4	FY2022 Q1	FY2022 Q2	FY2022 Q3	FY2022 Q4
HSF Portfolio	-4.69	5.93	3.01	1.05	3.62	-7.33	8.62	3.74	6.43	1.28	4.00	-0.31	2.97	-5.69	-9.91	-4.59
Benchmark	-3.54	5.61	3.26	1.27	3.20	-5.51	7.57	2.98	5.50	0.08	3.09	-0.09	1.98	-5.44	-7.81	-4.93