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LIST OF ABBREVIATIONS

3MMA	three month moving average
ACU	Asian Currency Unit
ASEAN	Association of Southeast Asian Nations
COE	Certificate of Entitlement
CPF	Central Provident Fund
CPI	consumer price index
CSP	community, social & personal
DBU	Domestic Banking Unit
DLI	Domestic Liquidity Indicator
EIA	Energy Information Administration
EPG	Economic Policy Group
EU	European Union
FDI	Foreign Direct Investment
FI	Fiscal Impulse
GFCF	Gross fixed capital formation
GST	goods and services tax
HDB	Housing Development Board
IMF	International Monetary Fund
IPI	import price index
IPO	Initial Public Offering
ISM	Institute of Supply Management
IT	information technology
LIBOR	London interbank offered rate
m-o-m	month-on-month
NIEs	newly-industrialised economies
NEER	nominal effective exchange rate
NODX	non-oil domestic exports
OECD	Organisation of Economic Cooperation and Development
OPEC	Organisation of the Petroleum Exporting Countries
PMET	Professionals, Managers, Executives & Technicians
PMI	Purchasing Managers' Index
q-o-q	quarter-on-quarter
QE	Quantitative Easing
REER	real effective exchange rate
SA	seasonally-adjusted
SAAR	seasonally-adjusted annualised rate
SIBOR	Singapore interbank offered rate
SOR	swap offered rate
URA	Urban Redevelopment Authority
WTO	World Trade Organisation
WTI	West Texas Intermediate
y-o-y	year-on-year

Preface

The *Macroeconomic Review* is published twice a year in conjunction with the release of the MAS Monetary Policy Statement. The *Review* documents the **Economic Policy Group's (EPG)** analysis and assessment of macroeconomic developments in the Singapore economy, and shares with market participants, analysts and the wider public, the basis for the policy decisions conveyed in the Monetary Policy Statement. It also features in-depth studies undertaken by EPG on important economic issues facing Singapore.

The *Review* was edited by Associate Professor Peter Wilson, and continues to feature our collaborations with academics. We are pleased to have Professor Benjamin Friedman of Harvard University write Special Feature B of this issue, entitled, "Toward a New Understanding of Monetary Policy". We are also grateful to Associate Professor Martin Bodenstein of the NUS Department of Economics for contributing to Box B, which examines inflation dynamics in Singapore using the open economy New Keynesian Phillips Curve (NKPC).

The data used in the *Review* was drawn from the following government agencies, unless otherwise stated: ACRA, BCA, CPF Board, DOS, EDB, IE Singapore, LTA, MOF, MOM, MPA, MTI and URA.

The *Review* may be accessed in PDF format on the MAS website: http://www.mas.gov.sg/Monetary-Policy-and-Economics/Monetary-Policy/Macroeconomic-Review.aspx

The *Review* may also be purchased at major bookstores, online (http://asp.marketasia.com.sg/subscriptions/mainsubindex.asp), or on an annual subscription basis (details can be found on the last page).

Highlights

In a departure from the trend last year, the G3 economies gained momentum in the first half of 2013, while growth in most parts of Asia ex-Japan moderated somewhat. This divergence in relative growth performance is set to continue and will have a bearing on Singapore's near-term prospects. In particular, the outlook for Asia ex-Japan is clouded by ongoing uncertainty regarding the extent of China's restructuring-induced slowdown, as well as the impact of the Federal Reserve's QE tapering on regional capital flows and interest rates. In comparison, the recovery in the advanced economies appears to be on a surer footing, with US and Eurozone growth expected to improve and Japan's recovery likely to remain resilient. Still, several wildcards—such as policy missteps associated with the unwinding of the Federal Reserve's QE measures or a failure to satisfactorily resolve the US budget and debt disagreements in 2014—could present fresh setbacks to the G3 turnaround. Notwithstanding these uncertainties, the Singapore economy should achieve modest growth of 2.5–3.5% for the whole of 2013 and a similar outcome in 2014.

Chapter 1 begins with an analysis of recent developments in the external and domestic economies. In Singapore, the firm pace of activity in the first half of the year faltered in mid-2013 and GDP contracted mildly in the third quarter. This pullback was broad-based, with the trade-oriented sectors slackening alongside their domestic consumer-facing counterparts. The former saw a sharper downturn as regional economic activity softened, exacerbating the reaction of financial markets over the timing of Fed tapering. Furthermore, an analysis of growth dynamics using the approach in McConnell and Perez-Quiros (2000) shows that although the Singapore economy has moved to a lower medium-term growth path since 2010, this has not been accompanied by a commensurate decline in the volatility of GDP growth. This contrasts with the experience of other countries, where both growth and volatility were lower than their historical averages.

Chapter 2 focuses on recent developments in the labour market and prices. Domestic cost pressures have persisted, largely as a result of the tight labour market. With slowing foreign worker inflows, firms have increasingly turned to the resident workforce to fill job vacancies. As a result, even though the resident population expanded more slowly in H1, residents accounted for the bulk of job gains, quickening the pace of wage growth. Meanwhile, consistent with the pickup in CPI-All Items and MAS Core Inflation, disaggregated CPI data shows that inflationary forces in the economy have become relatively more broad-based recently, amid a strengthening in the cost pass-through. To examine the inflation dynamics more fully, Chapter 2 also contains a box item prepared in collaboration with Associate Professor Martin Bodenstein from the National University of Singapore. In this box, a reduced-form version of the open economy New Keynesian Phillips curve is estimated and the results show that inflation dynamics tend to be forward-looking in Singapore, a finding that is broadly similar to that in other open economies. In addition, agents appear to systematically take into account anticipated changes in marginal costs, highlighting the role of expectations in driving inflation and the importance of monetary policy in providing an effective nominal anchor.

Chapter 3 discusses the economic outlook, both global and domestic. Despite a divergence in growth prospects, the present sluggishness in emerging Asia is unlikely to negate the positive effects of a recovery in the developed countries on the Singapore economy. Detailed data on the domestic value added of production shows that Singapore's exports remain more closely tied to final demand in the G3 economies than to final demand in emerging Asia. In the short term, therefore, a stronger pickup in the advanced economies should provide some support to the domestic electronics industry as well as to trade-related services. However, the anticipated rise in labour demand will come up against binding labour supply constraints across more sectors of the Singapore economy, leading to stronger wage increases. Given that domestic costs are also expected to pass through more strongly into consumer prices, there is likely to be some upward pressure on MAS Core Inflation, which is projected to come in at 1.5–2.0% in 2013 and 2–3% in 2014. The continuation of the appreciating stance of MAS' exchange rate policy will, however, help to moderate inflationary pressures and anchor inflation expectations, whilst facilitating the ongoing restructuring of the economy.

Also included in Chapter 3 is a box item that analyses the compositional shifts in trade flows within Asia over the last decade. As China steps up its domestic capabilities in intermediate goods production, the rest of Asia is expected to face stiffer competition. Even so, the analysis shows that there is scope for ASEAN economies, in particular, to re-orientate themselves towards the manufacture of consumption goods in order to meet rising demand from an increasingly affluent population in the region.

This issue of the *Review* includes two Special Features. Special Feature A highlights the use of nowcasting models to resolve the problems of mixed frequency and missing data which arise when more up-to-date monthly information is used alongside quarterly indicators, such as real GDP. Two main approaches to nowcasting are evaluated. The first, which has been the main approach until recently, uses bridge equations; while the second, and more recent approach, utilises a dynamic factor model proposed by Mariano and Murasawa (2003). Applying the criteria of relevance, timeliness and correlation, five monthly indicators were chosen as inputs into the nowcasting models. The results show that both approaches to nowcasting can be used on their own, or in combination, to produce GDP growth projections on a timelier basis, pending the release of official data.

This *Review* ends with a Special Feature by Professor Benjamin Friedman of Harvard University entitled, "Toward a New Understanding of Monetary Policy". Current models of monetary policy are not only incapable of incorporating the most widely accepted accounts of how the Global Financial Crisis occurred, but are unable to satisfactorily analyse the policy responses taken by policy-makers in the wake of the crisis. In this timely conceptual piece, Professor Friedman introduces a tractable model of monetary policy that also has pedagogical value. The model distinguishes between the interest rate that the central bank actually sets (the policy interest rate) and the interest rate at which households and firms regularly borrow (the private interest rate). In two comparative static exercises, he uses this model to illustrate the transmission channel through which unconventional monetary policy affects economic activity and prices.

The next issue of the *Review* will be released in April 2014.

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