

Capital, carry, & complacency: key developments in the financial landscape – dynamics of the foreign exchange market and capital flows

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Introduction

In the discussion of the current dynamics of the foreign exchange (FX) market and capital flows in the recent period, what stands out is the combination of a global search for yield – manifest in FX carry trades and narrowing spreads – and a default complacency about risk – manifest in selling volatility and increasing leverage, facilitated by innovations in the products available to more market participants at lower costs, and, until recently, a lesser attention to credit quality and creditworthiness in many deals in order to continue to generate volume in new transactions. Unprecedented liquidity, particularly mushrooming sovereign and retail pools, amplifying the past provision of liquidity by global central banks, and the increasing leverage in financial products and volume of deal flow intersected to provide a self-reinforcing reduction of friction in the system.

Equally important in discussing these dynamics is consideration of developments among agents: central bank policy makers and their policy frameworks and the market practitioners' perceptions of them. The proliferation of more independent, rules-based central banks, operating policy with increasing transparency and less volatility has underpinned an unprecedented increase in synchronous, interdependent economic growth and moderate inflation over a larger portion of the global system. However, one consequence of this signal policy framework success has been that it has also facilitated some of the risk taking in the financial economy. Strong global growth, low volatility, and ample liquidity conditions have combined with financial innovation to impede central bank policy transmission. This impedance has been strengthened and extended by the market perception of the opportunity costs of a more rules- and forecast-based approach in central banking: loss of both the will and capacity for short-term, discretionary market management by central banks against the background of the gradual removal of the unprecedented liquidity provided from 2001–2003. As a result of innovation and liquidity markets have become more short-term oriented at a time when policy is seen as more medium-term focused: in the gap between the two the importance of perception/misperception and uncertainty increases.

The issue of market perception/misperception and the expectations generated from it has been and will remain critical to framing the discussion of the challenges facing policy making in this current cycle: perception/misperception of the economic cycle and its sub-cycles, whether temporal, regional, or sectoral, and how insulated one can remain from the rest; of whether shocks are confined primarily to the financial sector or extend to the real economy; and of the nature of policy frameworks' flexibility and the reaction function at various central banks. One area where the issue poses a question is in the evolving discussion – among central bankers, and between central bankers and market practitioners – on optimal communication and transparency under conditions of uncertainty: whether increased communication and transparency can work against or at least not assist policy execution (and market perception of it) under persistent uncertainty or increasing risks to both inflation and growth. A less often discussed dimension is whether policy frameworks, particularly inflation referencing regimes developed over the last two decades, utilizing their existing policy target frameworks are or will be optimally suited to the current and future cycles: whether policy frameworks are flexible or evolutionary enough to adapt to the challenges of

the evolving market is a source of uncertainty, creating a unique set of conditions for the financial landscape and driving FX dynamics and capital flows.

The uncertainty created in the interplay of central bank policy and market perception is set against and amplified by the historic evolving structural shift in the balance of economic power and the degree of innovation and participation within the global financial system: the increasing integration of major developing economies (particularly in greater Asia, where growth has been the strongest, accumulation of FX reserves greatest, and FX flexibility modest) and the proliferation of the volumes, instruments, complexity, and atomization of participation in the financial system. This shift is creating a critical dimension of additional future uncertainty: uncertainty attending the broad transition away from what has been a structurally constructive environment for policy making over the last decade-and-a-half, largely characterized by tailwinds: i.e. the confluence of increasing globalization of economic factors and trade linkages allowing an unprecedented expansion and deepening of the global economy (in particular characterized by the increasing integration of China and India, of Eastern Europe and the former Soviet Union, and of the post-crisis recovery of East Asia), the elaboration and increasingly widespread success in adopting, operating, and diffusing rules-based central banking frameworks referencing price stability as the *sine qua non* of policy credibility and effectiveness, and the global trend towards increased central bank independence and transparency, in the context of generally more flexible exchange rate regimes. After more than 15 years, however, there is little doubt that we are at or near an inflexion point, transitioning to a less certain and possibly less constructive, more contentious policy environment: i.e. one characterized by an absence of tailwinds and some potentially notable headwinds.

In the developing economies there are the questions around the current and next stages of development, of better balancing of savings, investment, and consumption, and of whether adjustments will take place in terms of deepening and integrating domestic financial markets and increasing flexibility of exchange rate regimes, particularly given the reserves that have been built up and accelerating over the last five years. In the advanced industrial economies there are the questions of how to cope with demographic and underfunded liabilities challenges, the diffusion of economic power to more poles and to previously less-developed countries, and the potential domestic criticisms of globalization, particularly surrounding uncertain or less obvious gains which could fuel protectionist critiques and populist policy responses. For the global system broadly there are the questions of where the non-contentious growth will come from given the paucity of new integrators in contrast with the last two decades (i.e. no new China, FSU and Eastern Europe, or post-crisis Asia), how central bank policy frameworks facing reduced or mitigated policy transmission will evolve to cope with pressure from conditions whereby the global growth rate may not continue to accelerate yet while inflation pressures, despite the proliferation of targeting regimes, may continue to build.

In considering this environment of potentially less constructive conditions, the two intertwined sources of medium-term risk and uncertainty looming for markets in general and for FX and capital flows in particular remain the dynamics and evolution of the US current account deficit and the stores and flows of Asian savings. So far, even in the recent period where global growth and employment have continued to record historic highs despite what is already four quarters of sub-trend growth in the US and an orderly, though not equally distributed, depreciation in the US Dollar, little sustained progress has been made in reducing the pressures in the global system. In fact the symbiosis between US deficit and Asian saving and recycling dynamics is still reinforcing the pressures in the system.

The present transition period is defined by coming to terms with less capacity for policy to “manage” the near term, under conditions of greater uncertainty, and with more unintended consequences, against the background of the continuing structural power shift. These challenges will be steeper and potentially more problematic in the future if the current multi-year, globally synchronous recovery and expansion slow sooner and more significantly than

expected, or if it becomes less synchronous, accentuating the lack of substantive success in reducing global imbalances. Given the scope for market misperception, such an outcome could further reduce the already constrained room for policy maneuver, highlighting existing tensions in an environment of policy transmission impedance and uncertainty.

1. Key developments in the financial landscape

The discussion of key developments in the financial landscape can be distilled to one of capital, carry, and complacency. That is, the dynamics in foreign exchange and capital flows have been a function of liquidity in the system, carry opportunities created both by the liquidity in the system and by rate differentials among key economies, and complacency about the persistence of a low volatility environment. This low volatility environment, stemming from and driven by liquidity conditions, has facilitated, focused, and reinforced the attention of the market on the global search for yield. An added dimension of this complacency, which also derives from liquidity in the system and views on its structural character, is directly related to global central bank policy making and strikes to the heart of the most interesting element: the perception-expectation dynamic between the market and policy makers: in this case, regarding complacency, the perception that policy is at the mercy of liquidity.

The starting point for any discussion with market practitioners has been the structural and cyclical sources of liquidity and how they have been evolving, which is to say increasing for several years – from the sovereign side, the retail side, and the financial side. In fact, this starting point is often not even articulated anymore; it has become a default assumption. For several years the factor fuelling the attention given to the liquidity in the system was the unprecedented accommodation from global central banks in response to the bursting of the investment led and equity bubble in 2000–2001, which was then exacerbated by the impact of September 2001, and prolonged by accounting and research scandals and the war which together further dampened the environment for risk taking into 2003. After three years of normalization, that central bank cyclical liquidity condition has changed – the first variable in the equation to do so. In fact, it is potentially entering a new phase, as the global central banking stance has transitioned from extreme accommodation, to the phased, measured removal of accommodation, to the approach of some of neutrality, and finally to questions of policy restrictiveness in theoretical and prudential terms for others. What remains to be seen is how the evolution of this policy making, as it affects with a lag, will interact with the evolution of the other variables in the equation – sovereign, retail, financial.

One global expansion, many different starting points and sensitivities

Central banks have been tightening policy for some time but where they are rate-wise and why they are tightening differs, and each of these banks has faced periods of misperception in the market. In thinking about the present spectrum of core and peripheral advanced industrial economy banks, they can be grouped as either vanguard or rearguard in terms of when they got started and where they are currently located:¹ the BoE is the core bank in the vanguard group but the group more notable for the “vanguard of the vanguard” peripherals is led by the RBNZ and the RBA. In the rearguard, the ECB is the core bank but this group also has interesting peripherals such as the SNB, Riksbank and the BoC. Two important core banks – the BoJ and the Fed – sit at the margins or between the two groups. The broad

¹ This is not a comment on policy efficacy or credibility.

contour of the policy trajectory has been similar across the spectrum: a policy of normalization, conducted gradually but consistently until a zone of more or less neutral observation is reached (allowing observation of the past policy as it affected with a lag and to observe various global elements affecting their economies, including developing country growth, commodity demand, and global liquidity), before an extended period considering whether to tweak policy in either a more or less restrictive direction.

The BoJ can be seen as at the tail-end of the rearguard group, falling farther behind a still hiking SNB. Some, indeed, would put the BoJ in its own class and question even whether the bank has truly escaped the shadow of the ZIRP (zero interest rate policy) and deflation and whether it can further normalize policy, particularly if the global cycle were to peak before much more normalization can be effected. From a global relative perspective the BoJ certainly looks rearguard, if even that; but from a relative Japanese perspective it could be seen as vanguard or at least anticipatory, rather than reactive. I note this distinction because in the market it is a sport of sorts to dismiss the BoJ as hopeless or at least helpless, as not having a real and financial economy to work with and so ultimately incapable of joining the league of normal central banking. But against the experience of the late 1990s and the beginning of this decade, one could argue that the BoJ has demonstrated elements of clearly forward-looking policy aimed in part at creating new expectations and joining other normalizing banks.

Most importantly, there is the case of the Fed. Acting as the fulcrum, the Fed lies between the two main groups with its actions and the market perceptions of the prospects for its action as critically important to the environment and scope for both vanguard and rearguard policy making. The Fed can be seen as an out-of-phase core bank of the vanguard group in the way that it initiated its easing cycle in 2001, the way it has approached and conducted the normalization of policy off the extreme accommodation of 1% from 2004, in 2005 and 2006 when it was almost the only bank conducting policy rate changes (while the rearguard banks retained their accommodative policy stances and vanguard banks were in their period of neutralized observation), and in the present period of observation with restrictive leanings for 15 months.

As mentioned, the vanguard-rearguard phenomenon is temporal relative to the last several years rather than qualitative. What is shared across the spectrum from the RBNZ to the BoJ is that each bank has bucked market assumptions over this cycle in terms of starting, staying in train, or delivering additional policy after having stopped. Markets have repeatedly tried to fit the present and the future of this cycle into the experiences of past cycles, effectively defaulting to using the past cycle as an inductive template for assumptions about and context for viewing current cycle policy, creating multiple individual and collective misperception events. Markets have also over-predicted activity. Sometimes this has been primarily a function of a backward-looking default in the market against forward-looking, medium-term policy framework focused policy action (or inaction). At other times the misperceptions have come from the struggle to interpret how various structural or environmental forces are intersecting with individual economies – e.g. liquidity, commodities, etc.

2. Changes in the landscape of the business of FX

Along with the issues of market psychology, policy framework basis and communication, and global economic integration, it is important to note some of the ways in which the business of FX has been transformed in recent years and how these changes and the sheer growth of the market are affecting the transmission and deployment of capital in global banking and integration, with implications for carry, liquidity, transparency, and uncertainty.

The primary transformations which are taking place include structure, process, and product offerings at banks and brokers, ventures between banks, brokers, and other providers aimed

at driving and capturing electronic business, the proliferation of new trading strategies that rely on increasingly rapid executions harnessing increased computing power, and the rise of new target growth markets among retail, institutional, and sovereign customer bases.

As with other industries there may be a period of adaptation where technological advances outstrip the ability of management structures, processes, and techniques to absorb and fully harness them.

Bank transformation, integration

Banks have been undergoing unprecedented general consolidation at the national and international level and consolidating various types of business to try to drive efficiencies, reduce costs, and capture more business, whether from investment banking, sales and trading, private equity, hedge funds, or asset management and insurance. Within banks there has been a drive to consolidate previously separate businesses such as FX and Interest Rates and Commodities franchises under one umbrella to maximize efficiencies, capture synergies, and develop new products. There has been a similar trend towards integrating previously separate geographical centers under global remits based in key money centers. Finally, within banks as within the market there has been a tendency to blur the line between previously distinct G3/G10 and Emerging Markets (EM) businesses. Integration has been reinforced both in EM countries as business growth has come from expansion of EM business, and through the increasing scope and scale of EM products available to clients globally, but particularly those in mature markets looking to enhance yield and diversification.

Increased electronic deal flow

One of the areas of particularly notable recent growth is in acquisitions and ventures between banks and online trading platforms and electronic communications networks (ECNs). Some recent examples include ICAP's acquisition of EBS, as well as the creation of FX MarketSpace, a venture between the CME (Chicago Mercantile Exchange) and Reuters. Examples of alliances between banks and online trading platforms include Deutsche Bank with FXCM and ABN with OANDA. Additional deals mooted involve Goldman Sachs Asset Management and HotSpotFX, and Barclays and UBS have also been mentioned as looking to ally with partners.² Two key drivers for many of these link-ups are the increasing role of electronic broking and the competition for market share and cross-selling to the increasingly large retail investor business. Current survey research suggests that 56% of all FX trading was done electronically in 2006, with estimates rising to 75% for 2010.³ Not to be left out, it has been suggested that central banks have also seen the utility of the ECNs, with the RBNZ mentioned as having used Reuters to intervene in spot Kiwi on June 11.⁴

New customers, products, and trading segments

Beyond the past strength of FX-dedicated hedge funds on the buy-side, the number and nature of participants has noticeably broadened. Central banks themselves are now bigger players than ever, in addition to those increasing overlay, and asset managers looking to enhance international returns through aggressive trading of FX. There has been an increase in the number and complexity of instruments, new platforms and venues for transactions, a

² Darlow J (2007): "GSAM jumps on Hotspot FX bandwagon", *FXWeek*, p 2, June 11.

³ Robinson S (2007): "Expert hails algo trading", *FXWeek*, p 2, July 16.

⁴ Robinson S (2007): "RBNZ uses Reuters to intervene in spot market", *FXWeek*, p 4, July 2.

proliferation of volume in buy-side and proprietary activities, of exposure among non-traditional and passive investors (asset management, pension funds gaining mandates for exposure to FX and FX overlay products, as well as to more international exposure), and a very substantial growth in retail business, with the expectation of further acceleration.⁵

An example of some of the new products on offer include Citi's recently launched "Alpha" and "Beta" FX indexes, six tradable FX indexes employing active management and FX options to generate returns via "trend, carry, emerging market carry, economic factor model, long volatility and short volatility" strategies in the former case, and "G10 carry, emerging markets carry, and purchasing power parity strategies" in the latter.⁶

One major new trading segment that is driving growth and pushing the harnessing of technology and application development forward is algorithmic trading. Because of the quantitative component and the requirement for millisecond-measured execution, this new segment of growth is particularly suited to maximizing access to the fastest electronic networks and best integrated platforms, which banks and others are developing in house or seeking to ally externally with in order to capture volume. It is one of the primary drivers of increased buy-side volumes.

One footnote, given the turmoil in the CDO (collateralized debt obligation) and CLO (collateralized loan obligation) markets over the past several weeks: the launching in May of the first rated CFXO (collateralized foreign exchange obligation). This instrument had maturities of three to five years, with an underlying portfolio basket of 10 currency pairs at a time selected by the manager from a slate of 25–30 currencies from G10 and most liquid EMs, and was expected to pay coupons of 80–100 bps on the AAA-rated tranche and return 20% on the equity tranche. Not surprisingly, the notation of the launch highlighted the marketed customer base as "insurance companies, pension funds, private clients and banks" and state that regionally strong institutional investor demand was expected in Western and Eastern Europe.⁷

Volumes and volatility

FX volumes continue to rise dramatically and highlight the trends in the space. Notable drivers include the continuing rise of FX as an asset class, the above-mentioned proliferation and facilitation of algorithmic trading strategies, the gains in retail and passive institutional growth, and the acceleration in carry trades. This aggregate strength can be seen in some survey-based data from 2006, collected by Greenwich Associates, where overall volumes were reported as 17% higher, driven by retail volume gains of 54% (bettering the 40% growth in 2005) and 23% growth among fund managers and pension funds, both of these groups in contrast with more muted growth among hedge funds and corporates (7% and flat, respectively v 2005).⁸ More recent BIS data covering the first quarter of 2007 highlight the strength of favored carry trade currencies, in particular the Kiwi, Aussie, Yen, and Swissie: while overall trading volumes for listed FX derivatives contracts saw 26% growth, Kiwi contracts more than doubled, Aussie volumes increased 85%, Yen 65%, and Swissie 42%.⁹ The most recent data from June volumes at the CME illustrate the acceleration in 2007 v 2006, as recent volatility in currency, interest rate, and credit markets contributed to record volumes

⁵ Robinson S (2007): "New technology boosts retail fx volumes", *FXWeek*, p 2, July 23.

⁶ Gordon-Walker A (2007): "Citi launches advanced alpha indexes", *FXWeek*, p 2, July 2.

⁷ Gordon-Walker A (2007): "Merrill Lynch launches first rated CFXO", *FXWeek*, p 1+, May 7.

⁸ Gordon-Walker A (2007): "Retail investors drive strong FX trading volumes", *FXWeek*, p 1+, May 21.

⁹ Robinson S (2007): "BIS report highlights trade growth", *FXWeek*, p 8, June 18.

for both voice and electronic brokers: at the CME average daily volumes in FX products were up 41% v June 2006, while average daily volumes in electronic broking were up 48%. ICAP's electronic broking crossed the \$1 trillion threshold on June 7 and 8 (v \$842 billion average in June, up 32% v last June) as the RBNZ intervened and Aussie and Cable volumes were also driven higher.¹⁰

3. Cases

Two representative currency cases – the New Zealand Dollar, the “Kiwi”, and the Canadian Dollar, the “Loonie” – are presented to capture some of the contending issues that have been observed in conversations with market practitioners regarding the interplay of specific domestic and common global currency drivers; the perception/misperception dynamic and some of the inductive assumptions regarding policy and policy makers; as well as FX market environmental elements regarding mandates which may have amplified the observations and be indicative of continuing contributing factors going forward.

The cases of the Kiwi and the Loonie over the last 12–18 months illustrate episodes where the same currency can trade very differently depending on which among many and changing factors become primary drivers in market perception and pricing: where on the rate policy spectrum a bank is, how active or inactive the bank is perceived to be, how sensitive the economy is perceived to be to regional trade and financial linkages, and whether other asset markets' trends become drivers (e.g. commodities).

Kiwi: from pillar to post

There is perhaps no better example over the last 12–18 months of a bank buffeted so strongly by a presumptive market, the nexus of specific domestic and common international developments, evolving data and forecasts, and challenging policy choices and their communication than the Reserve Bank of New Zealand (RBNZ). And throughout the period, the currency and capital flows issue has been a particularly salient factor, never less than in the last two months as global sentiment joined with consecutive policy rate hikes from already the highest level among advanced industrial countries (with apologies to Iceland) to produce a further acceleration in the appreciation of the Kiwi, up from levels already described as unsustainably and unjustifiably high. This confluence of domestic and international factors forced upon policy makers the challenge of acting to try to affect one-way sentiment by backing up words with intervening action to sell its currency, even as it became clear that it was not yet done hiking the policy rate. As we have seen again, even more recently, in the case of the Bank of Korea, the RBNZ is not alone in this predicament and it is not inconceivable that it might be joined by other central banks.

This episode has been remarkable also in terms of the discussion of the changing landscape of global participation of market practitioners initiating or increasing exposure to peripheral country currency trading – a development akin to the expansion of mandates to increase exposure to EM among previously more strictly mandated portfolios. And the performance over the past year may only encourage more of such participation given portfolio managers' desire to find something that “moves” and “trends”.

The experience of the last six months stands in contrast to the six months following the previous moves by the RBNZ at the end of 2005. At that time many of the same market

¹⁰ Robinson S (2007): “Currency volatility sparks record trading volumes”, *FXWeek*, p 2, July 9.

participants were convinced that the policy rate of 7.25% would prove the death knell for the Kiwi and further tighten the noose around the New Zealand economy, making it more likely that the RBNZ would sooner have to admit the coming of a sustained easing cycle. This view was being reinforced to a degree by the coincident expected easing cycle priced for the BoE, based on market assumptions about the necessity of a sustained easing cycle in the context of housing, credit, employment, and sentiment tailing off and in the presence of an over-valued currency. The predominance of this type of view of the RBNZ's presumed policy trajectory was reflected graphically in both the rates and currency markets: the money market curve became inverted by more than 120 bps and the Kiwi weakened 17% (against the US Dollar) in less than four months (by 22% against the Yen).

The turn in this tide of sentiment came from a reconsideration of both domestic and international developments. Domestically, as burgeoning signs of a second wind to the economy emerged, the gap was narrowed between what the markets had assumed and what the RBNZ was seeing and forecasting. This domestic reconsideration came in the context of and was amplified by external environment developments: notably developments in the US and Japan which dramatically altered market perceptions and assumptions about growth, inflation, and central bank policy, and from this attention to yield differentials and implications for carry. In the US, the spring 2006 inflation scare and market assumption of a Fed falling behind the curve and potentially needing to go to a 6% policy rate were challenged by the Bernanke Fed's elaboration of a pre-emptive, forward-looking and forecast-based holding of the policy rate at 5.25%, the sharp initial correction in the third quarter in housing, along with the pressure on consumption and business investment sentiment from new record highs in energy and other commodity costs. In Japan, the success of the BoJ's ending of QEP (Quantitative Easing Policy) and emergence from ZIRP gave way to the worse than expected reduction in the recalculation of inflation in August 2006 and then earlier and stronger challenges to the BoJ's baseline outlook for both stable positive inflation and the strengthening of domestic demand on the basis of consistent increases in wages flowing through to consumption and sentiment.

The last six months have provided another set of episodes where market perception and expectations created room for significant reorientation risk as the RBNZ delivered additional policy to the upside. As recently as February there was still some debate among market participants as to whether the RBNZ would deliver *any* additional policy and, if so, how necessary, credible, or effective it would be given the long period of policy inactivity. Some in the market had seen a case for the RBNZ to hike in the fourth quarter of 2006 (expectations of a hike rose to ~66% at the peak in October 2006) and saw its failure to deliver as an indication of timidity in face of non-tradable inflation and persistent strength in property, activity, and sentiment, but perhaps mitigated by attention to the strength of the currency and the risk that additional policy would exacerbate existing, and already worsening imbalances.

Even after late February 2007, when the market recognized the likely move in the policy rate up from 7.25%, the battle only migrated to whether that move would or could be described as sufficient, again with quite a lot of discussion among market participants as to the issue of the RBNZ having been on the sidelines for more than a year. As it became clear that neither the risk re-appraisal consequent of the market-joined events in US subprime credit nor China A-share equities were impacting the domestic drivers of policy in New Zealand, and with some help from heightened attention to the potential requirement for additional policy in Australia, the next battle was over how strong a third wind was blowing in the New Zealand economy and how much additional policy would be necessary to contain it, particularly given the aggravating issue of the continued high level of the currency.

The perception and expectation dynamic in the market was clear in conversations with market practitioners, who came to the conversation with views which included that the RBNZ should have done more earlier – this from a combination of post-hoc fitting as well as a certain nostalgia for the imagined past, and past policy makers: e.g. “Brash (previous RBNZ Governor) would have done 50s and he'd already be cutting by now” was a sometimes

common refrain.¹¹ Ironically, despite having seen the RBNZ as too timid in moving away from 7.25%, many of these same people did not expect back-to-back moves (in March and April 2007) based on the view that the RBNZ would not act on an OCR review meeting and would instead wait for a policy statement meeting (i.e. wait three months between moves rather than six weeks). This assumption was further shattered when the RBNZ delivered a third and ultimately fourth consecutive move, the last one, to 8.25% in late July, coming even as the currency had strengthened – despite physical intervention to sell the Kiwi in June by the RBNZ – and also in the face of noises coming from the Finance Minister regarding potential alteration of the RBNZ’s policy target agreements.

Beyond the idiosyncratic elements relating directly to New Zealand conditions and RBNZ policy, the issue of global risk re-appraisal and carry trade unwind episodes have also been strongly witnessed in the Kiwi market. For a period of time in late February and March, it became immaterial that the RBNZ had hiked to 7.5% and could conceivably have more work to do than previously imagined; equally immaterial was the weakness in Japan and the fact that the BoJ had barely cobbled together the consensus to move its OCR to .5% and looked like having gotten that second move away from ZIRP at the cost of being unable to deliver additional policy any time soon. Such fundamental elements, conducing to the risk of the widening of the carry differential over the rest of 2007 at both ends of the Kiwi/Yen cross, were pushed to the background as the sudden global risk re-appraisal unilaterally strengthened the Yen and weakened the Kiwi (Kiwi/Yen weakened by nearly 10% in 10 days in late February and early March 2007).

But the February–March risk re-appraisal episode, like many such episodes over the past few years, proved short-lived. Speculative carry positions were rinsed, but the underlying policy stories at both ends of the cross were only reaffirming the outflows and eventually even the acceleration of Japanese retail investor participation in the carry trade. Soon after, speculative positions returned in the context of abundant global liquidity and a widening of the rate differential by an additional 75 bps, firmly reinforcing the fundamentals of the carry driver: Kiwi/Yen strengthened more than 25% over 12 weeks as weak data and questions about when the BoJ would be able to move again lingered and, over the same period in NZ, the acceleration in housing, higher than expected dairy payments, and stronger data underpinned the three additional tightenings by the RBNZ.

Loonie: in the shadow of a weak US and commodity volatility

A second case to consider in terms of market dynamics and the impact of policy perception is that of the Canadian Dollar, the “Loonie”, over the last 12–18 months. It has generally gained less attention (than say the Kiwi or Aussie) not least since the Bank of Canada (BoC) had, until recently, been inactive; and from a carry perspective, the Loonie suffered not only from negative carry versus the US Dollar but also stood out against other dollar-bloc currencies or commonwealth currencies (Kiwi, Aussie, Sterling) for its low rates. Furthermore, the Loonie and broader Canadian story has been viewed more often in terms of non-domestic drivers: i.e. caught either in the shadow of the presumed weakness of the US story or driven by commodity trends, particularly in energy. But it is exactly with regard to the shadow of the overly pessimistic view of the US story, or at least the several bouts of over-

¹¹ Incidentally, this script has been interchangeable over the last year with the Fed (“Greenspan would have hiked beyond 5.25% and would already be cutting”), the BoE (“Eddie George would have moved sooner, more strongly to staunch inflation...”) and even, and most recently, the RBA, in the context of April’s non-move after the “obvious” signal of the speech in March by Malcolm Edey (“Macca would have gone sooner, without hesitation...”). Such are the fertile and at times conspiratorial minds that populate the global trading community, where the tendency is to seek extremes and confrontation: boring or consistent policy is, well, boring, and often lousy for volatility and trading.

prediction of Fed policy easing, and the commodity story that makes the Loonie interesting to observe for the periods when it has broken out of this presumptive correlation and gained attention. When those external drivers have reached turning points there have been opportunities for the domestic conditions to come to the fore and drive de-coupling from US expectations. What stands out over the last 12–18 months is the shifting of the market-perceived drivers and the assumptions built around them regarding price and policy, both in absolute and in relative terms.

In the spring of 2006, as the US faced an inflation spike and the market over-priced expectations of Fed tightening, market expectations about BoC policy were likewise marked up after an initial hesitation. Then, as would be seen again this past April, domestic data and a strengthening theme in commodities conduced to strengthen the Loonie ~7%, pushing it above 91 cents/US Dollar, before the disappointment of building hopes for an additional summer move to 4.5%, which were then further amplified by the subsequent disappointment of Fed tightening assumptions in July for 5.5% in August. As a result, the Loonie quickly weakened along with and even relative to the US Dollar.

For much of the period from August 2006 until this past March the Canadian money market, with a few exceptions, traded closely with US market assumptions about the Fed in light of risks to the US economy. Specifically, the episodes over-predicting risks of Fed easings were mirrored in the pricing of the policy horizon of the BoC and the weakening of the Loonie in absolute and relative terms. The weakening became even more pronounced as energy prices sharply corrected between September 2006 and January 2007 and as Canadian GDP disappointed, joining with the intensification of perceived US weakness after ISM first printed below 50 in November, which was seen through the lens of past cycle experiences as signaling proximity of Fed easings and reinforced a pre-existing attention to a period of six months between a last Fed tightening and the presumptive beginning of a subsequent easing cycle.

The Loonie's weakness continued well into March 2007, despite initial signs of a basing in commodities, as US factors still predominated, with the escalating concern with US subprime credit problems extending the drag from housing. It was only at the end of March that a significant de-coupling started to occur. The transformation was notable less for what was new and surprising than for successfully distracting the focus from the US weakness driver, and distinguishing Canadian economic strength, as well as seeing the amplifying effect that could come from the commodity driver. The first catalytic event was the domestic data surprise from February CPI (reported in March) which forced a reconsideration of assumptions of benign domestic inflation. When this was followed by further signals of strengthening activity, a set of reinforcing elements for appreciation was in place.

Throughout the spring, prospects for solid growth and somewhat higher inflation forced a further reconsideration: that the BoC would remain stuck at 4.25%, while the Fed was still seen as at best remaining on hold. The concomitant re-pricings in the currency and the money markets were consolidated as the BoC signaled and delivered the policy tightening to 4.5%, without ruling out further policy, and further by the rebound in crude prices to a record in late July. The Loonie strengthened more than 7% in as many weeks. After having substantially underperformed in the first quarter of 2007, the Loonie gained 13.5% against the US Dollar (and more than 20% against the Yen) in the period between late March and late July.

4. The current turmoil

As one closing, real-time example of the tension between perception and expectations, and the operation of market psychology during a crisis, here below is a presentation of direct initial feedback from market practitioners on the events of Thursday and Friday August 9–10 2007 regarding the responses from various central banks – both verbal and physical – to the acute

illiquidity and the extraordinary blow-out of critical interbank lending rates. Three distinct general judgments were expressed, particularly in comparing and contrasting the responses from the ECB and the Fed.

ECB as leader; Fed as laggard

In this view, some were strongly of the opinion that it was the ECB which demonstrated leadership and resolve in immediately providing a formal statement of support bolstered by the massive amount of available liquidity provided to the system in the initial tender and in the generous collateral acceptance, which together provided a sense that the bad situation would not be allowed to metastasize. The size of the liquidity provided, both on the Thursday and again on the Friday (August 9–10) may have been questioned by some, but it was seen as appropriate both to meet a physical need and to provide needed psychological bolstering. Among those holding this view, there was a concomitant opinion that the Fed did not demonstrate leadership and that, in particular in not issuing a statement and only providing modest additional liquidity (on Thursday August 9), it allowed an already fragile situation to deteriorate further and create additional risks to the global system as Friday opened in Asia and Europe.

One key perception articulated by partisans of this view was that the ECB was quickly able to distinguish between short-term liquidity and less immediate monetary policy; and in making clear that the tender on Thursday was aimed at stabilizing short-term liquidity without question, it also maintained policy flexibility such that the signaled expected tightening of the policy rate at the September ECB meeting might still be executed and that the two actions would not necessarily be viewed as contradictory.

In contrast, the Fed was seen as having left liquidity and monetary policy still confused and ending up bolstering neither: i.e. its actions – and inaction in terms of no formal statement until Friday August 10 – resulted in the short-term illiquidity problem persisting, if not worsening, and the expectation that near-term, if not immediate, monetary policy easings would be required being not only not dispelled, but intensified. Some took this critique further in suggesting that the confusion of liquidity and monetary policy was something shared by both Greenspan and Bernanke and that the current response could be seen as a direct result of the former: i.e. Greenspan was seen as too quick to provide too much liquidity and confidence by easing monetary policy and not making a distinction between the two, which then created additional medium-term problems for both liquidity and policy, whereas Bernanke's response was seen as still confusing the two but in the opposite direction – in providing too little liquidity and confidence and still not bolstering monetary policy – and taken as a demonstration of clear opposition to the Greenspan response function.

Fed as measured; ECB as too accommodating

An alternative, equally strongly held opinion was that the ECB may have over-reacted and provided too much liquidity, thus introducing a risk of moral hazard, while the Fed acted prudently and maintained a degree of flexible response which could be modulated as events unfolded and additional feedback from the market was obtained. In this view the Fed reacted but did not over-react and did not inject moral hazard, though this at the risk of being seen as insufficiently sensitive to the nature and risks of the dislocations in the interbank funding market. The subsequent statement and provision of additional liquidity on three occasions on Friday was seen again as a prudent response, reflecting the feedback over the preceding 24 hours and creating the necessary stability without injecting moral hazard. In this view the ECB actions over the two days were seen as at one extreme, the BoE's lack of statement or additional liquidity operations at the other extreme, and the Fed in the middle, joined to lesser degrees by the BoC, BoJ, and RBA.

To each their own

A less judgmental, though minority view held that both ECB and Fed responses reflected the conditions in each market at the time and given the respective systems and instruments: i.e. that the triggering event first arose in Europe, European banks had been and were still the most vulnerable to the specific illiquidity, even though the underlying problem stemmed from US subprime credit, and the fact that the ECB operated on one-week repos on Tuesdays necessitated the larger, broader, and more explicit response; whereas, the Fed confronted a less extreme immediate problem, was not captive to one-week repos, and was able to judge by the time the US market opened that the problem was less acute for the US, though perhaps in part as a result of the previous ECB action. Some noted that the size and nature of the ECB tender created a condition at the US market open which generated a default expectation of a similar statement and response from the Fed, and the absence of such led to a renewed deterioration in conditions, opening up questions for some in the market that, whatever the responses, there ought to have been better or at least more clearly coordinated actions among the core central banks to avoid the appearance of a lack of coordination and thus being seen as adding to the destabilization and uncertainty in the market.

Are the events of the last few days (acute perception of system-wide funding problems) and the last few weeks (second wave of subprime-sourced but broad scale risk re-appraisal) likely to prove a watershed event for market practitioners and central bank policy makers alike? Without yet having any perspective it is still possible to sketch the framework of the debate and risks, and it again encapsulates the issues of capital flows, carry, and complacency. On the one hand, there is a case that might be made that this current episode is merely a different magnitude version (longer-lasting, more deeply and extensively impacting) of past episodic bouts of risk re-appraisal over the past few years, where short-term illiquidity issues will be overcome, risk re-pricing will be prudential and ultimately beneficial, but the fundamental drivers of structural liquidity will be re-asserted and attention will again be re-focused on carry and the search for yield, though likely with somewhat less gearing. On the other hand, there is a case that might be made where unintended consequences of misperceptions, among both market practitioners and policy makers, result in adverse and reinforcing dislocations under conditions of multiple equilibria, where both bad credits and good credits face correlation risk and markets go beyond temporary illiquidity and affect solvency and the basic allocation of funding, contributing to a systemic shock that could have implications for months if not years to come. However the current turmoil is resolved a key determinant will be psychology – both in the market and in policy making.

5. Market feedback

In the course of recent meetings in Europe, North America, and Asia, we have asked members of our client base¹² to offer their views and feedback on issues related to the dynamics of FX and capital flows.

FX

- The biggest mistake made this year and in recent periods has been to look for a unified field theory in FX... looking for a broad-based and consistent explanation rooted in fundamentals of policy frameworks and current account positions and

¹² A cross-section of banks, hedge funds, and asset managers.

models of under-/over-valuation. If you expected fundamentals to predominate you have been carted out amidst the relentless, insidious depreciation of the Yen, albeit punctuated by brief but sharp corrections... and this despite the ending of Quantitative Easing Policy (QEP), subsequent first exit from Zero Interest Rate Policy (ZIRP), the promise of continued normalization of policy, and in context of the healthiest Japanese economy in more than 15 years with a large current account surplus and huge reserve position... this is a market notable for its distraction from such fundamentals and attention to carry and liquidity conditions.

- Perception creates its own reality these days... take the US Dollar from beginning of May through early July – the period prior to the latest bout of housing-credit-initiated concerns and risk re-appraisal: a period of increasing yields, a steepening of the curve, and the capitulation regarding the idea of Fed cuts... already, going into the June Fed meeting, the dollar's slight rally (~2% in dollar index) had nearly entirely evaporated after the benign core CPI print mid-month and then was dealt a further blow from the outcome of a non-event: the manufactured tension about the Fed's re-focusing of its inflation attention towards headline versus core. The Fed was actually confirming in its more sanguine view on growth, still steadfast in its attention to inflation as the predominant policy risk, with not a whiff of a move from 5.25% nominal rates and with some greater confidence in deceleration of core inflation (i.e. likely higher real rates). And yet, when the imagined alteration of inflation focus did not occur it opened up a gulf (>2% depreciation to new multi-year lows in less than two weeks).
- Leveraged positions have been squared; there is risk aversion... some days; but there have been quick reversion days... people don't want to hold positions as long and it is harder to get out of large positions. But you also see an appetite to re-load carry positions. The real question is "do you see turbulence beyond 2–3 months?" (turbulence that forces a change in strategy). So far you have created p&l volatility but you haven't seen a full-fledged withdrawal from the market.
- FX as a portfolio asset, and investors looking to diversify, means it has generally spread all over the globe, funding with G10 Yen/Swiss and long carry in EM: there is no longer a real distinction between those asset classes; it is totally blended. It is now a total Portfolio Approach, driven by liquidity – liquidity drives everything – and willingness and need to invest. Not looking at contagion spreading from one country to another, but as soon as spreads widen someone is tempted to come in and close it. Argentina was trading at implied 20% last week and it sure was tempting to some deep pockets. No fear of sustained blow-up or contagion fuels this. In addition, funds have FX as part of a broader portfolio, so linkages to other market moves are a stronger variable now relative to what is going on in a given country's economy. For example, in a CDO blow-out last week funds needed to make a margin call, and as the FX market is so liquid – a blow-out there means that the spread widens from 2 to 5 pips, not like CDOs where the price disappears – they liquidated their carry trades to cover margins. With calm, the reverse has happened. So you had for example the Nikkei selling and yen strengthening – not weakening – because it was part of the CDO liquidity story, not a "sell Japan" story.
- If you come to trade FX in Asia after working in North America or Europe... you'd better have a hobby! (re: absence of volatility in the market)
- A much larger percentage of G10 FX is being transacted electronically, even over this last year or two; the buy side uses the API software provided to get prices between the bid/ask of banks and find the best buyer/seller. Banks are starting to get more sensitized and throw unprofitable customers out now. Even CTAs, who are traditionally seen as liquid market trend followers, trade every instrument that is available on the IMM and FINEX: USD/BRL, EUR/HUF, USD/ZAR, USD/MXP, and

even within developed markets they will trade more exotic EUR/NOK for example rather than EUR/USD. Would say up to 40% of volume that is going through now is EM related.

- The key question to be answered in the next year or two is whether or not Asian currencies – not only China's, though the scope of Chinese move will be a key factor – appreciate in a meaningful way and whether their economies diversify growth more towards consumption and see a fall in savings. If this doesn't happen the tensions already present will only multiply and increase the risk of a greater dislocative adjustment later.

Carry

- “Mrs Watanabe is not panicking” (re: retail carry trade)... it is not by and large a leveraged trade and they have had a great run over the last few years. This is hard to dislodge from the standpoint of yield and in the absence of confidence in local returns. And it is further reinforced by retail banking in Japan: they don't have anything better to flog to retail clients, so banks will keep flogging it.
- As long as we are in a relatively liquid environment over the medium term, despite bouts of illiquidity, people will look to put the carry trade on, particularly if equities and fixed income are going to trade sideways.

Credit

- No one has a good handle on the current credit spread blow-out... there are manifold uncertainties... at least with LTCM (Long-Term Capital Management in 1998) you knew the root cause was off-the-run treasuries and the problem was that everyone was in the same trade. Today you just don't know... you know the risk is coming from nominally AAA-rated stuff that is dodgy but you don't know where it all turns up, when, or how much even those who are exposed – e.g. in commercial paper or money markets – know that they are exposed and whether they had a sense of the potential scale of the risks when they loaded up on this stuff, even if only as enhanced-yield short-term parking for dollars.
- It is premature to say that the worst is over in the credit sphere. The initial subprime crisis became a wider credit problem, then a funding crisis gradually taking out any/all structures built on low volatility/guaranteed liquidity assumptions. Risk in the market now is on two fronts: one is what you have seen to date: the high yield (“toxic waste”) credits move the most savagely and to the point where they have now become cheap. Banks are in fact starting to take on long positions on some of these instruments because pricing has become so conservative. That in part is why Wednesday was one of the heaviest issuance days of the year in the US credit markets. Against that, however, some of higher rated credit, whilst wider, has not moved enough. Those have to feel more pain because the real damage to credit will occur when end investors in structured credit products start to want out. These are the Belgian dentists who have three-year/five-year and most recently 10-year deals looking for yield. Look to Europe for guidance on this as Europe is the big buyer of debt, at both wholesale and retail level. If Europe starts looking for an exit and banks don't/can't hold this back on the books (because they can no longer fund them on their own balance sheet) then the investment bank originators will have to try and break the structures down into individual credits again and sell those back into the market on that basis, no doubt cascading on top of the backlog of issuance that is building up during this current bout of dislocation. That is when the trouble will really start, and when the credit markets will be most vulnerable to locking up. Once that

difficult period is negotiated then there is a belief that the markets will settle down and the machinery will kick back into life, though with a normal rather than incredibly flat credit curve... which is what officials have been asking for these past couple of years. It will be interesting to see how central banks work around trying to establish just how much additional tightening of monetary policy this shift back to steeper credit curves equates to.

6. Issues and questions for further discussion¹³

- Sustained illiquidity, risk of contagion: Will the current bout of credit market turmoil, illiquidity, and risk re-appraisal be different, create a sea-change – for market practitioners and central bankers alike – in the approach to capital flows, carry, and risk, or will the strength of structural liquidity and a search for yield be reasserted? Can being more reactive rather than proactive create as many problems as it avoids (moral hazard avoided but at greater risk of illiquidity becoming more entrenched, more difficult to restore)?
- Liquidity antagonism and policy communication: Between short-term systemic cyclical liquidity challenges and optimal monetary policy in the context of unprecedented structural liquidity, can central banks in the current environment differentiate between providing short-term systemic-functioning liquidity and operating medium-term macro monetary policy and communicate the difference, even/especially when they are perceived as contradictory (e.g. ECB, RBA, BoJ, BoC adding day-to-day liquidity against backdrop of actual or potential macro policy tightening)? Will market practitioners give such central bank actions credence or is there a risk of perceived moral hazard?
- Retrospective myopia: There is a tendency to try to fit the present and future into past experiences and cycles – nostalgia for increasingly less applicable past analogues. Policy makers may be increasingly more forward-looking in their approach to making policy but many in the market start from the point of putting the current economic cycle and policy into the context of past cycles and the lessons or expectations gleaned from them.
- Capacity constraints, productive allocation of factors: Whether global capacity constraints are resolved in terms of investment in productive new capacity or whether they add more inflationary impulses that have to be countered by more restrictive monetary policy.
- Inflation tension: Tensions underlying the discussion and interpretation of recent trends in core and headline data and their effect on policy formulation and implementation. What if the current energy and agriculture impulses are not temporary shocks but structural transformations in the context of the global growth trend of the last two decades, the scarcity of resources, and increased costs of extraction, particularly now and going forward as more and more of the developing world increases consumption and becomes more urbanized, and thus more energy intensive?
- Sovereign liquidity: Sovereign pools of FX reserves: how will the continued expansion of sovereign pools develop; how well will the flows be intermediated and

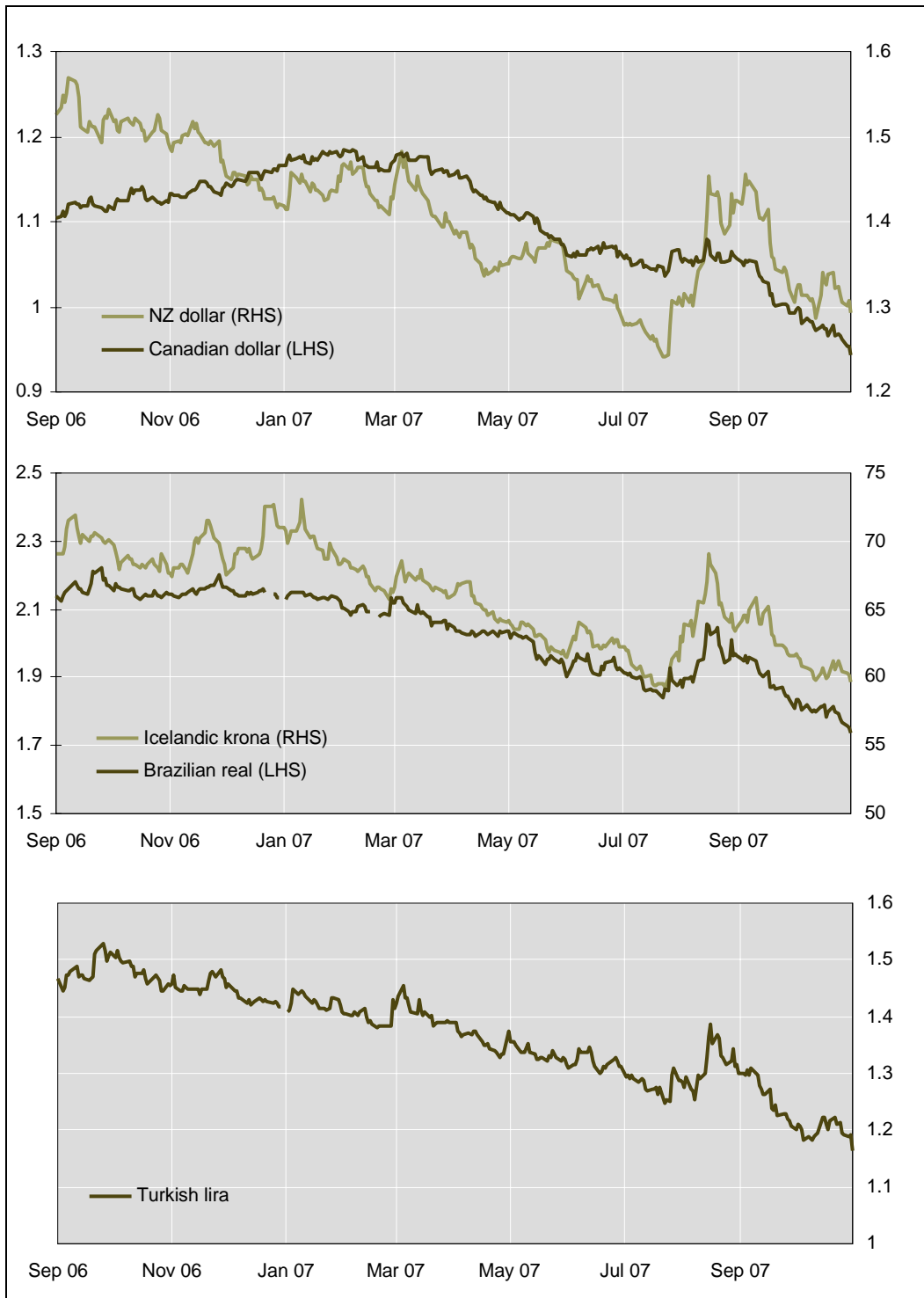
¹³ Based on recent meetings and conversations with market practitioners.

distributed; do international fora facilitate agreement on best practices, and if so, how; and how do sovereign investment funds seeking increased returns affect capital flows and investment – impedance of policy or facilitation of stability?

- Central bank control: Are central banks losing control, or will they in future (or do they matter as much as before, at least in the near term), particularly strict targeters? Has policy become less effective even as or because it has become more ordered, or is it merely a question of different lags in policy transmission/impedance? Is this a temporary issue of impedance or something likely more structural? If policy has become less effective, is it an issue that can or should be addressed by the central banks or is it simply an objective fact of life that has to be acknowledged and adapted to by agents?
- New contagion risks: We need to think about confronting new contagion risks in a fundamentally less controllable environment. Given the sheer size and degree of integration of the global economic and financial systems and the acceleration of trading volumes, and given less predominance of one source of bailout consumption or liquidity provision, how should/will market practitioners and/or policy makers adapt/respond? Are current practices and frameworks for monitoring risks in the system sufficiently adapted to the changes in the nature of lending (more dispersed, less concentrated – spreading out risks on the one hand but also meaning that there is no small group of connected lenders that can call time out and focus on orderly workouts)?
- Cycle risk: 2008... the end of the upgrades? Is there downgrade risk? Could it be brought forward to the latter part of 2007? What if it is not enough to clearly make a case for global policy reversal? In other words, what if we get through the illiquidity episode in terms of stabilizing primary lending quickly and eventually start working out broader credit inventory and indigestion issues, but still have to pay in terms of a hangover effect, one dampening the currently still extraordinarily positive global forecasts? What if policy, even boring, measured policy, even after having been impeded for long periods by massive liquidity, inverted yield curves, etc.... what if that past and current policy does catch up with its lag on a maturing global cycle facing some sustained tests to confidence, but only just? And what if, paradoxically, this global lagged policy tightening is amplified by busted conundra, as nominal curves disinvert despite an absence of unstable, uncontained inflation, such that what tightening that hits a decelerating global economy is magnified by the long sought after re-pricing of risk, only coming slightly more suddenly and less orderly than the ideal? For good measure, what if there is a bit more atmospheric uncertainty – say from a bit of post-Olympics indigestion in China, some post-power transfer indigestion in Russia, some geopolitical and US political – and global populist protectionist noises get louder, mixing with the increased financial market risk aversion, continued corporate risk aversion, and continued food and energy inflation pressure on policy frameworks? Is anyone really ready for the party to end with a whimper?

Spot exchange rates (Sep 2006–Oct 2007)

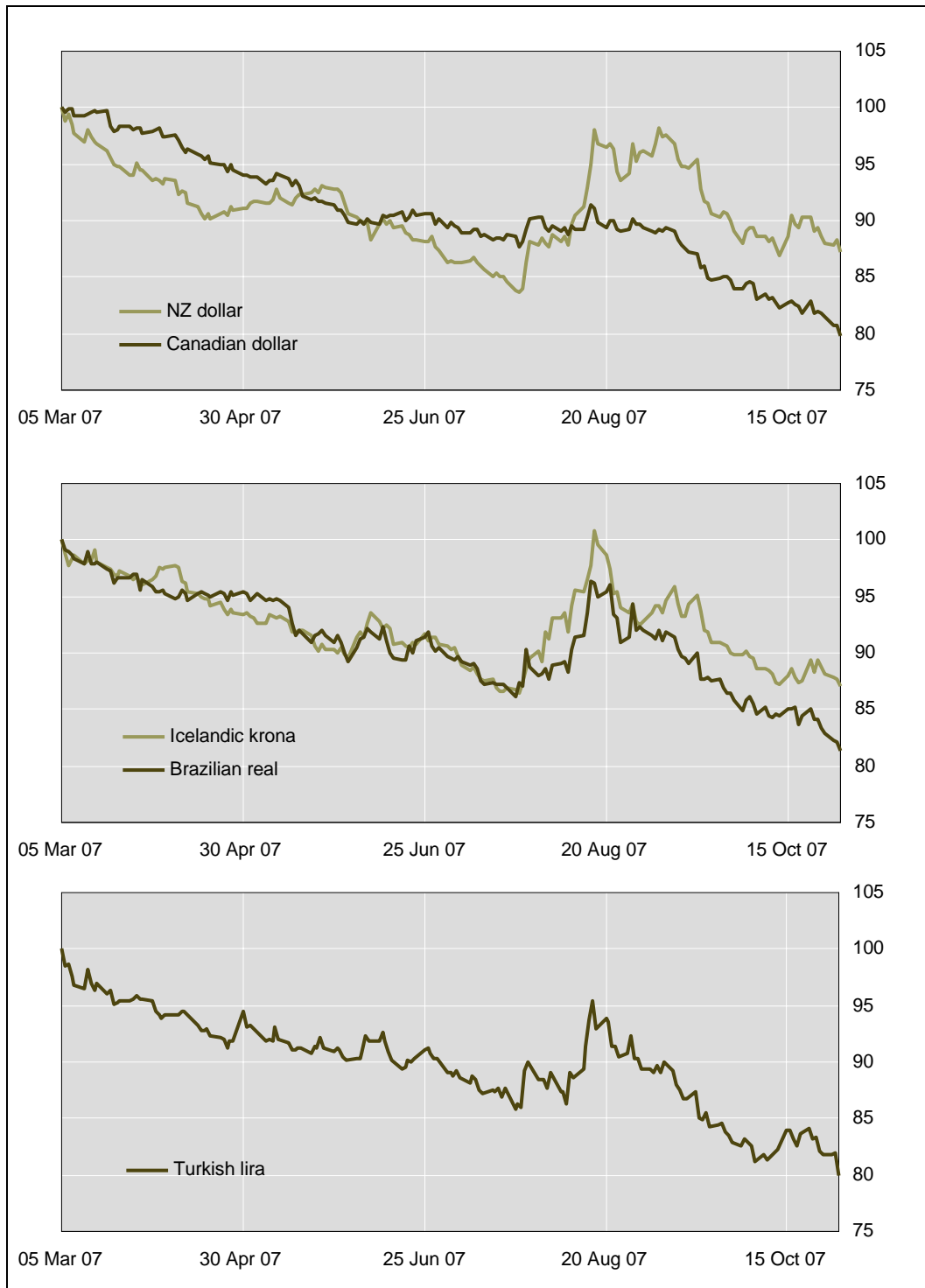
In currency per US dollar



Source: Bloomberg.

Spot exchange rates (5 Mar–30 Oct 2007)

5 March 2007 = 100; a rise in the index indicates depreciation against US dollar



Source: Bloomberg.