



NEDBANK
CIB

THE RISE AND FALL OF THE EURODOLLAR SYSTEM

SEPTEMBER 2016

Neels Heyneke

Senior Strategist

Tel : +27 11 535 4041

Nheyneke@Nedbank.co.za

Mehul Daya

Strategy: Research Analyst

Tel : +27 11 295 8838

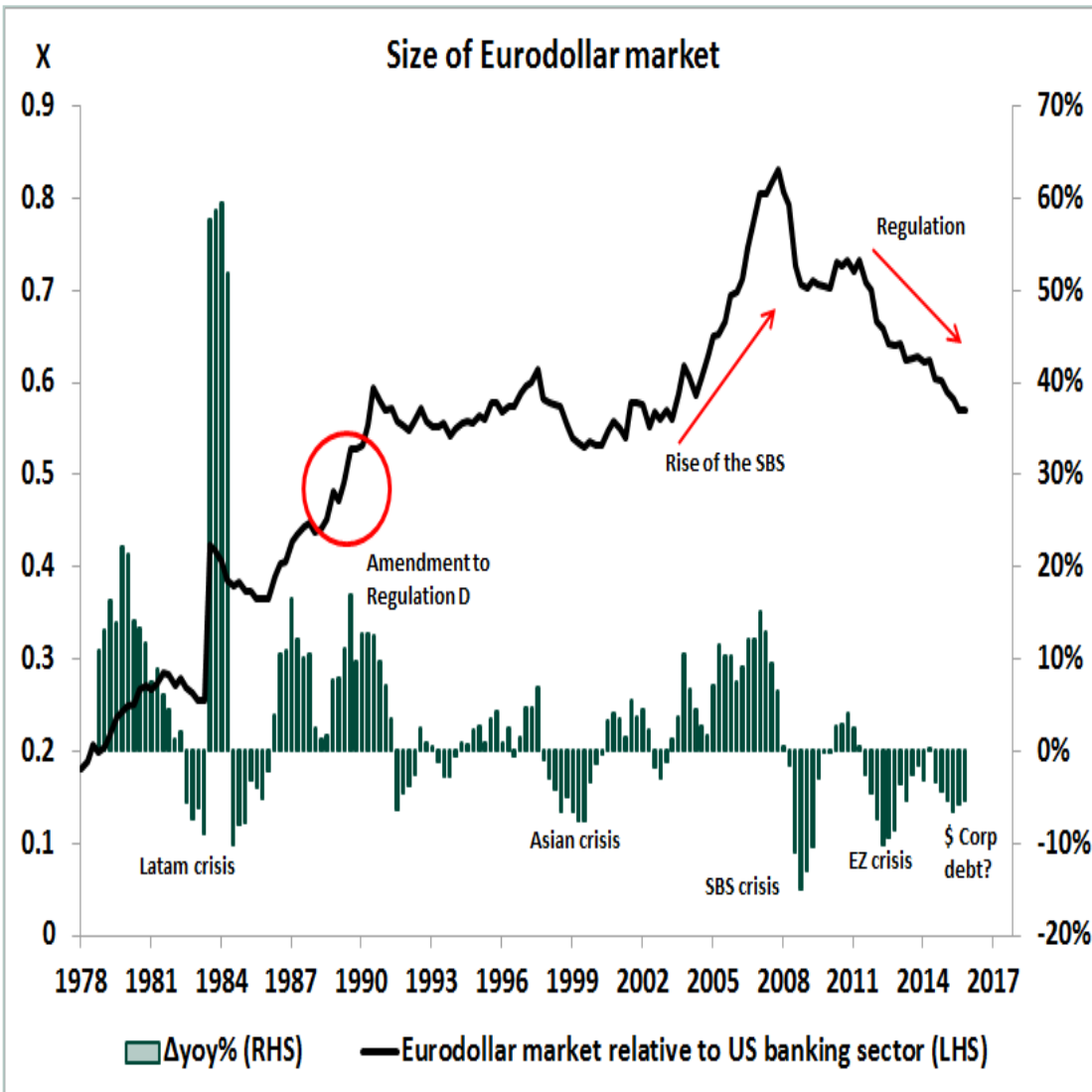
MehulD@Nedbank.co.za

SUMMARY

- The Clinton-Gore campaign slogan in 1992 was “it is the economy stupid”. We believe the slogan in the aftermath of the debt cycle peaking in a world of ZIRP and NIRP should be “it is the quantum of money stupid”. The reason being, in the current low-growth world, central bankers are failing to lift the velocity of money and collateral, and ever increasing new regulations are **slowing down the financial system’s ability to generate enough money/credit**.
- In this report we have a closer look at the rise and fall of the Eurodollar system and its link to dollar liquidity, as well as the value of the dollar and the effect thereof on the SA markets.
- In 2011, the mechanisms and size of the shadow banking system became known, now it is the turn of the Eurodollar system. The Eurodollar system originated in the 1950s as a dollar payment system outside of the US. This system started to take off in the 1980s as the Financialization process began, and then gained further traction amid a regulatory arbitrage in 1990. In the late 1990s, the system evolved from a **payment system to a source of funding** - especially for the shadow banking system and the carry-trade. We believe investors still underestimate the importance of the dollar in the global financial system as well as the effects changing regulations have on the dollar creation process. **When the Fed hikes, the damage will not just be local to the US, but will be global in our opinion.**
- The **shortage in the total pool of dollars** in the world (post Basel) has been evident in the widening FX basis swap since October 2014 when the Fed stopped adding to its balance sheet. A hike in the Fed funds rate is likely to trigger a period of dollar strength similar to 2014, which would then act as a rate hiking cycle on all the non-US dollar debt (which is now in excess of \$10 trillion). The South African economy and markets would then not just be affected by the changing \$-rand exchange rate, but also by the consequences of the shrinking pool of dollars on the global carry-trade.
- In December 2015 our view was not to extrapolate the weakness of 2014/15 into 2016, and we expected a major corrective rally in risk assets. Apart from the local political storm around the firing of minister Nene, the risk-on phase we expected materialised and rather textbook ABC-patterns played out in most risk markets. **The targets of this risk-on phase have been met and we are now calling an end to this risk-on phase.** The major driver of this is our expectation of a rally in the US dollar.
- Our **fair value models** for the local currency and local bonds have been on a rollercoaster ride amid the volatility in the residual item (which we assume to be politics and other factors that our model might not be capturing). Currently our FV on the **USD/ZAR is 15.05** (next three months). Given our assumptions on global dollar-liquidity and our highly correlated relationship with the US 10-yr government bond and corporate spreads, we expect **SA bond yields** to rise to **9.5%** in the next three months.
- **The next dollar bull phase is about to start in our opinion, and if the euro-\$ breaks below 1.10, we would strongly advise that portfolios de-risk and investors hold more cash. Stocks globally that generate dollars will do much better than companies with a dollar cost base (including dollar debt).**

FEATURE CHART: THE EURODOLLAR MARKET

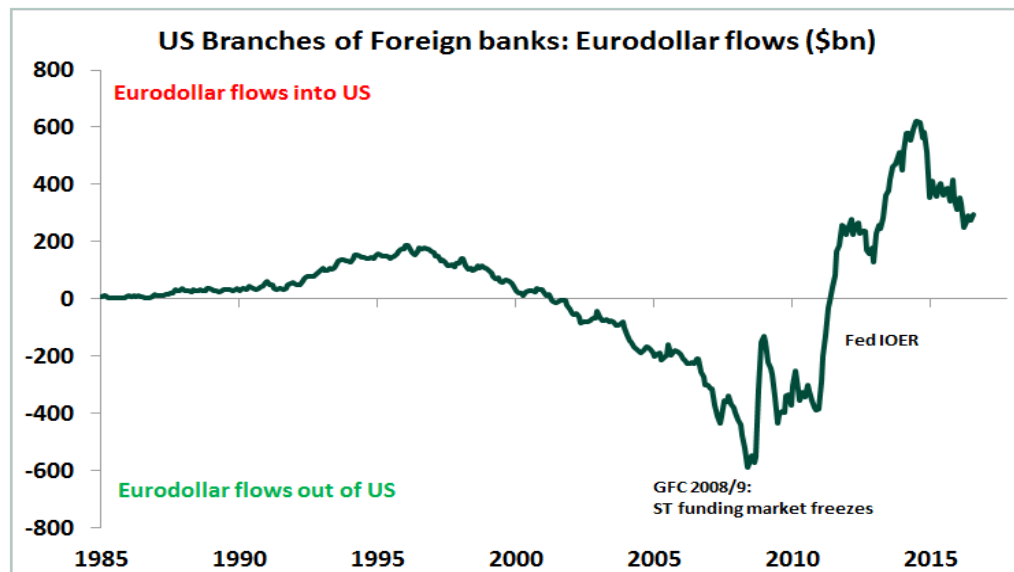
FROM A PAYMENT SYSTEM TO A FUNDING SYSTEM



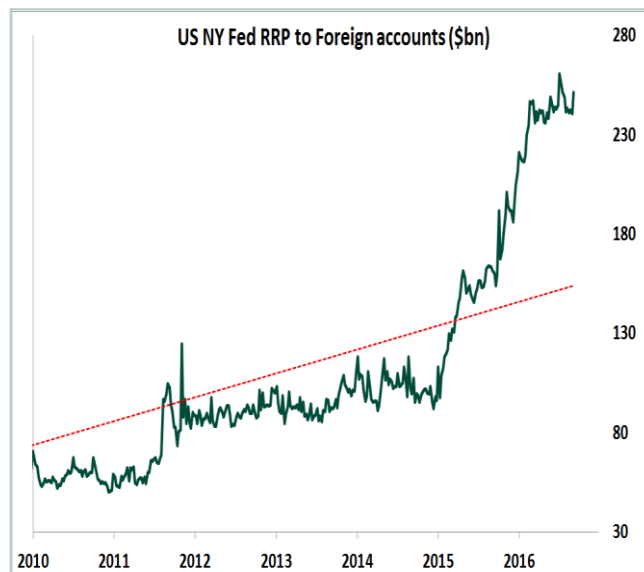
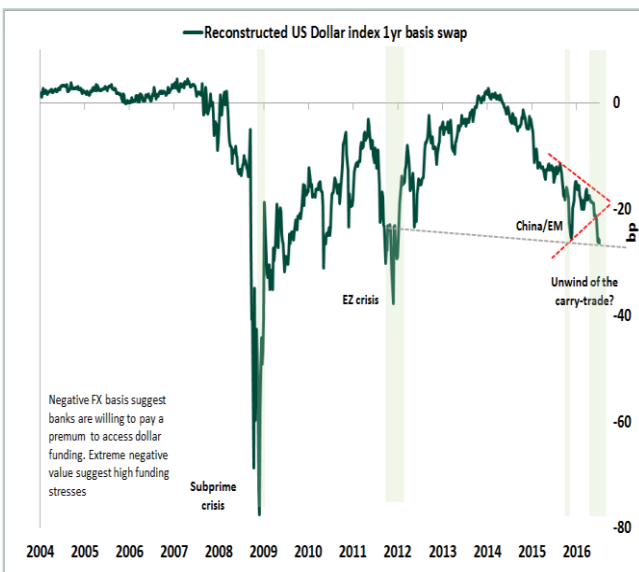
- **Eurodollars** are unsecured deposits which are held outside of the US. They are therefore not under the jurisdiction of the US and consequently lack the regulation of the Federal funds market. The Eurodollar market has evolved throughout the decades and has become the heartbeat of the world's dollar based financial system. It originally developed after World War II as a **payment system** as a result of both the Marshall Plan and also the expansion in international trade.
- However the Eurodollar market exploded after 1990, triggered by an **amendment to Regulation D** which meant that net Eurodollar deposits had a zero reserve requirement. The Eurodollar market also became an important source of funding for US banks, having grown in this role from half of (in the 1980s) to nearly equivalent the size of the Federal funds market currently. This led to the rapid rise in the Eurodollar market as a **source of funding for US and global banks**, rather than required reserve balancing for international trade.
- Since cross-border transactions in US dollar can take place in many forms (i.e. pure offshore transactions, and round-trip transactions) and also for many reasons (i.e. international trade or to source funding for a carry-trade), it is very difficult to estimate the exact size of the Eurodollar market. Making the issue more complicated is the boom in the derivatives market which started in the late 1990s.
- However with the help of the BIS we can estimate the size of the market from bank claims (in USD) of foreign banks, US interbank transactions and net foreign banking offices in US. **We find that the Eurodollar market is substantial and peaked at 0.87 times the size of the total US banking system.** It is very noticeable that when the growth in the Eurodollar market slows, there is a financial crisis somewhere in the world.
- **This shrinking pool of money has been, and will remain, the driver of the dollar bull trend since the GFC.**

THE EURODOLLAR MARKET

TIDE REVERSES POST 2008/09 FINANCIAL CRISIS



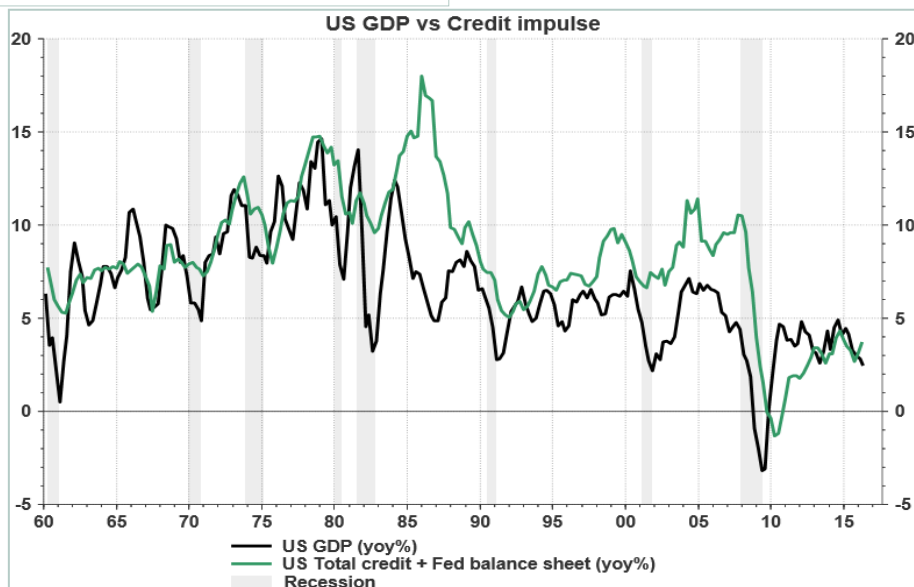
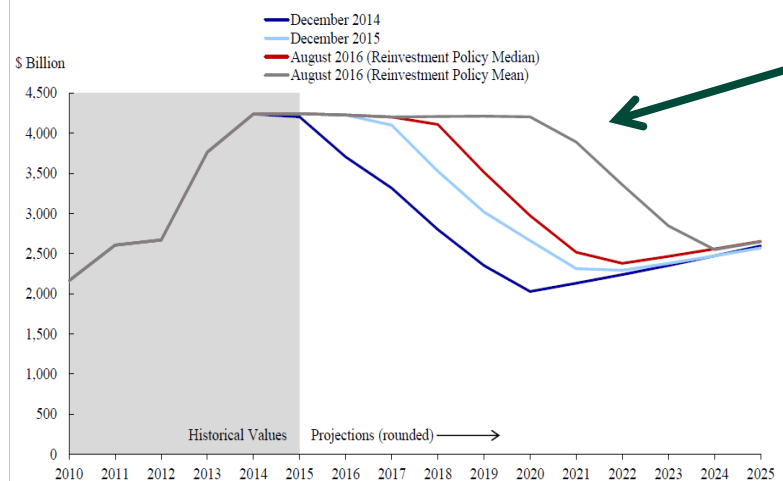
- The US trade deficit supplied the world with an adequate amount of US dollars but in the late 1990s, in the new age of financial innovation, the growth in the Eurodollar market exploded. **At the peak in late 2008 US branches of foreign banks were raising \$600bn in US wholesale money markets and transferred these dollars to fund the shadow banking system and other carry-trade transactions.**
- However, post the 2008/09 financial crisis, with the introduction of new banking regulations and the Fed's facility to pay **IOER** (interest on excess reserves), a flood of Eurodollars has been flowing back into the US - leaving the global financial system with a **shortage of dollar liquidity**.
- Evidence of the global dollar liquidity shortage is evident across financial markets: the FX USD basis swap rallying, US securities failing to deliver, the shrinking overnight repo market and of course the stronger US dollar.
- The **NY Fed's foreign reverse repo program** has grown to **\$250bn** in a short space of time, reflecting the demand for USD in overseas funding markets. With this, the Fed has become both the supplier of dollars and a user of them. The Fed is trying its best to alleviate the pressure on the dollar shortage, while also trying to regain control of the dollar which it lost post the start of the banking deregulation.



US FED BALANCE SHEET PROJECTIONS

IT IS THE QUANTUM OF THE MONEY AND NOT JUST THE PRICE THAT MATTERS

Figure 7 – Projected SOMA Domestic Securities Holdings



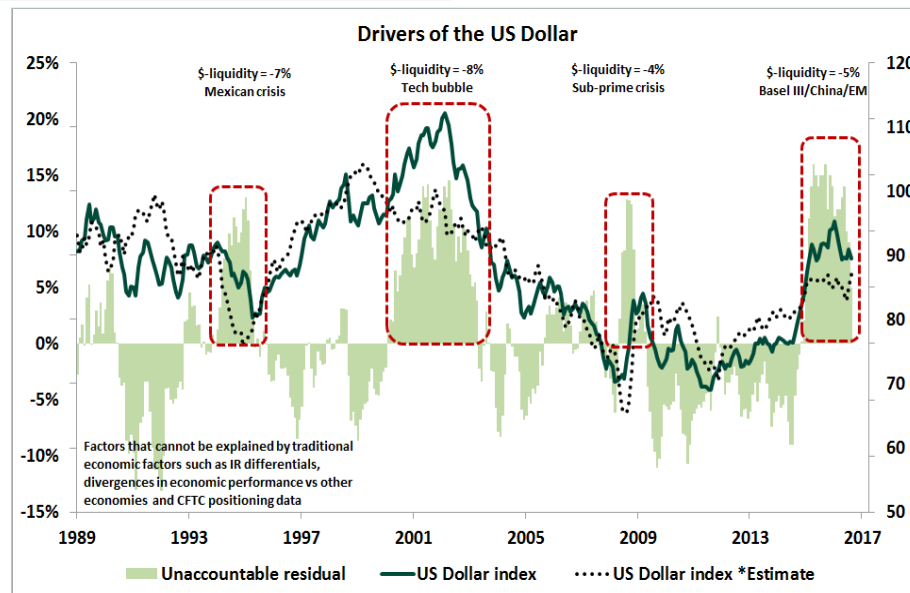
- The standard response by the Fed has been that it is their intention to shrink their balance sheet. **The Fed's own projection is, however, that it will be years before the unwinding starts.** We do not believe that they will have the opportunity to do so soon, as the latest research from the Fed indicates the natural rate will remain lower than originally anticipated. It is evident that the Fed is trying to keep the annual change in total credit (including their own balance sheet lately) more or less the same as the change in the GDP. The Fed's balance sheet is here to stay for quite a while - until the global economy has reached escape velocity. Bernanke in his latest blog also suggest it is a good idea for the Fed to have a big balance sheet to control money market rates, seeing as the Fed funds rate is not effective anymore.
- Regulations are destroying dollars;** if the Fed shrinks its balance sheet and changes the price of dollars, a strong dollar and a recession will likely be the consequence.
- The **BoJ statement** on 29 July 2016 included two noticeable points: a) Increasing the size of the Bank's lending program to support growth in US dollars and b) Establishing a new facility for lending securities to the financial industry (to be pledged as collateral for the US Dollar Funds - Supplying Operations). These statements and activities confirm the shortage of dollars in Japan. But it is not just Japan that is short of dollars, Europe and especially the rest of Asia are also very short.

US DOLLAR INDEX AND FAIR VALUE MODEL

THE DOLLAR HAS NOW REMAINED TOO LONG ABOVE THE 30-YR TRENDLINE TO BE A FALSE BREAK

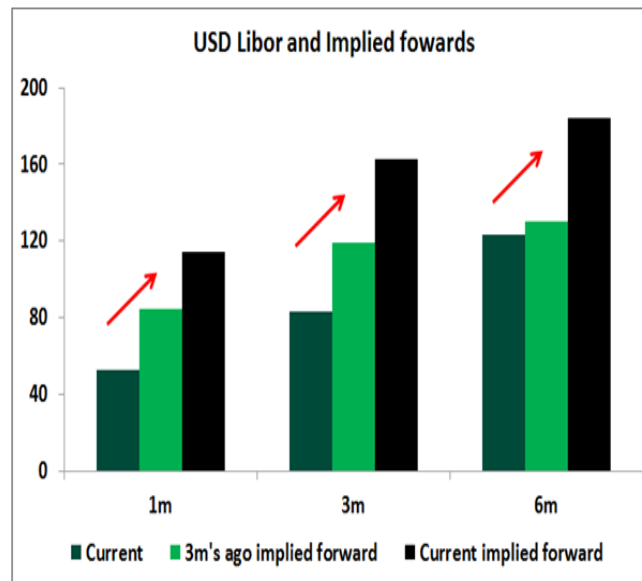
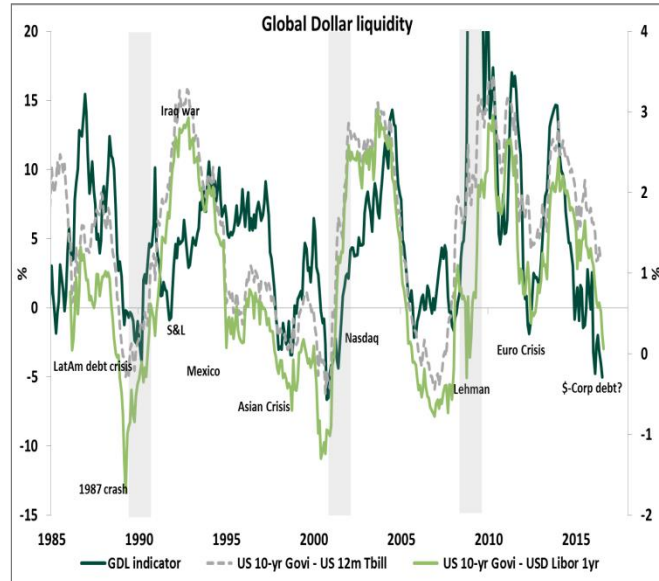
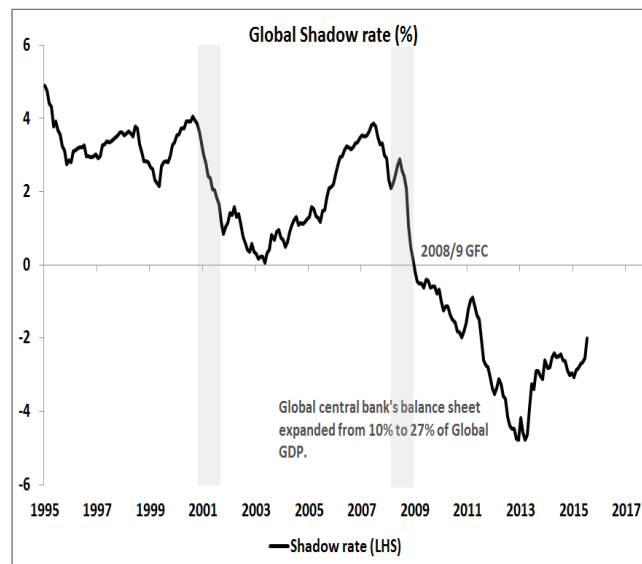
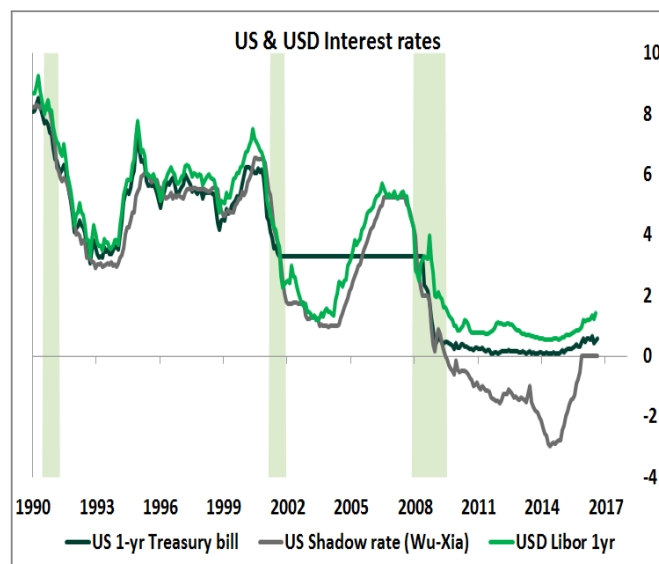


- The dollar has now spent 18 months above the trendline from the Plaza Accord top in 1985. Technically this pattern has now become a continuation pattern.
- We believe the pressures on the dollar will not dissipate post the 14 October 2016 money market rule changes. **We cannot see where a higher velocity will come from, with funds moving from prime to government bond funds, cutting off the funding of the Eurodollar system.**
- There is some good news though, the dollar is now less overvalued after the consolidation phase of the last 18 months.



US DOLLAR YIELD CURVE

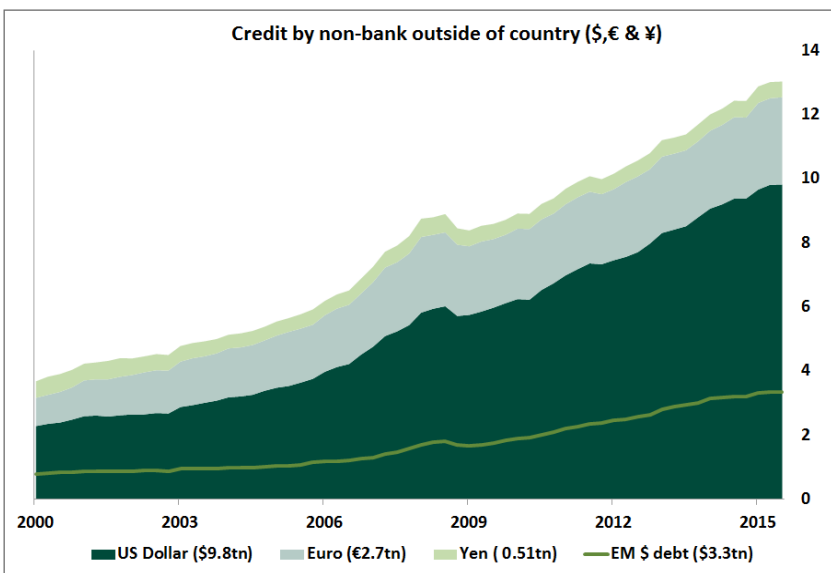
MONETARY TIGHTENING IN STEALTH



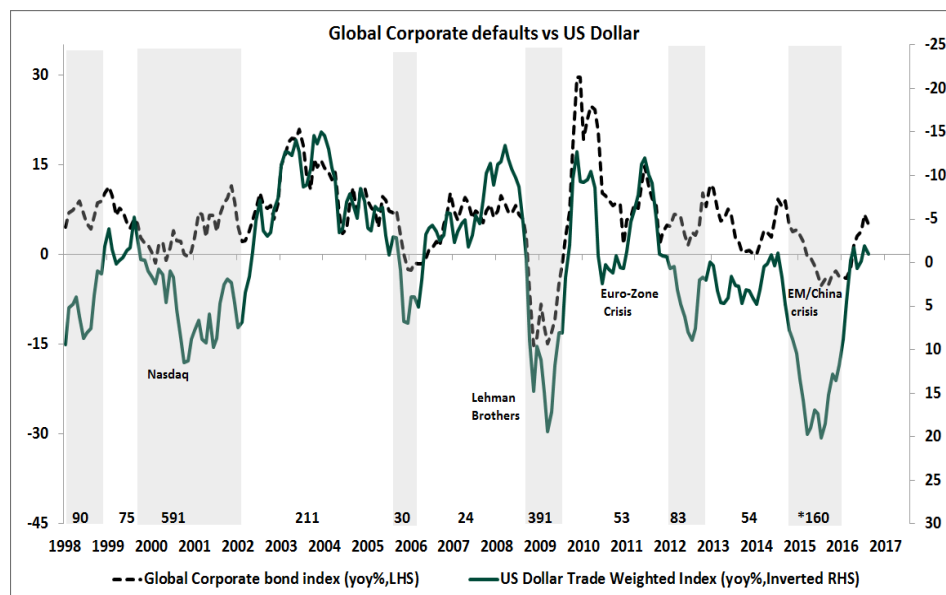
- Pre-1998, the era before shadow banking and when the world had a rising velocity of money, there was only one rate to monitor - the Fed funds rate. Post the GFC, in a world of extraordinary monetary policy and a changing regulatory environment, the interest rate market has become more complex. The shadow rate, which was a gauge of the QE process, is back at zero and there is no need for it any more as rates are back above zero again. But it does point out that the entire stimulus effect of the QE process reversed post the taper statement (in an effective 3% rate hike). Furthermore, the Fed is trying to peg money market rates between IOER and the RRP rate.
- The **US LIBOR** rate has, however, been diverging away from the Fed Funds rate since 2014 (when a dollar shortage started developing). As already mentioned, we expect another major dollar bull phase, based on money market regulatory changes.
- The US10yr/12m Libor (1.53%) spread is about to go inverse and traditionally this precedes a recession. The 10yr/1yr rate spread is still positive. **These yield curves are highly correlated with dollar liquidity.** Usually by now the Fed would either be cutting rates or adding stimulus – but now the threat is higher policy rates.
- Many believe the pressures in the Eurodollar market will dissipate post 14 October 2016 (when the new money market rules are implemented). **Forward rates are, however, not coming down - indicating that the market still expects dollar funding pressures post this date.**

GLOBAL CORPORATE CREDIT CYCLE, NON-BANK NON-US USD DEBT, USD VS GLOBAL DEFAULTS

BUT IN THE MEANTIME CORPORATE CREDIT IS EXPLODING

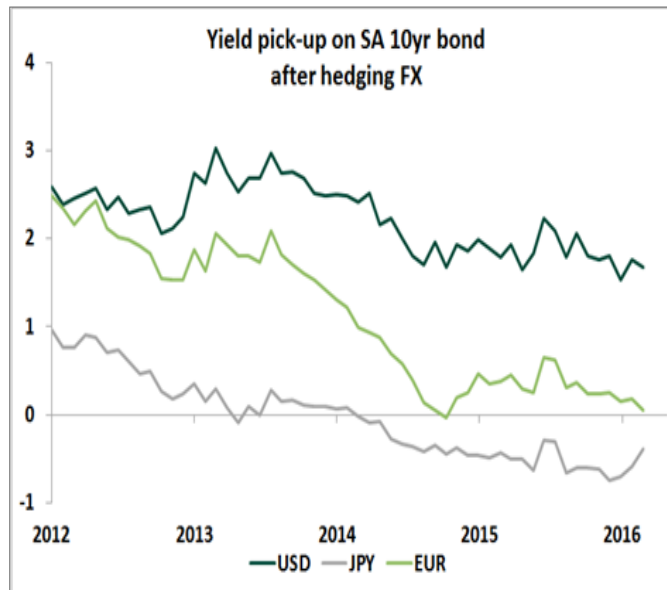
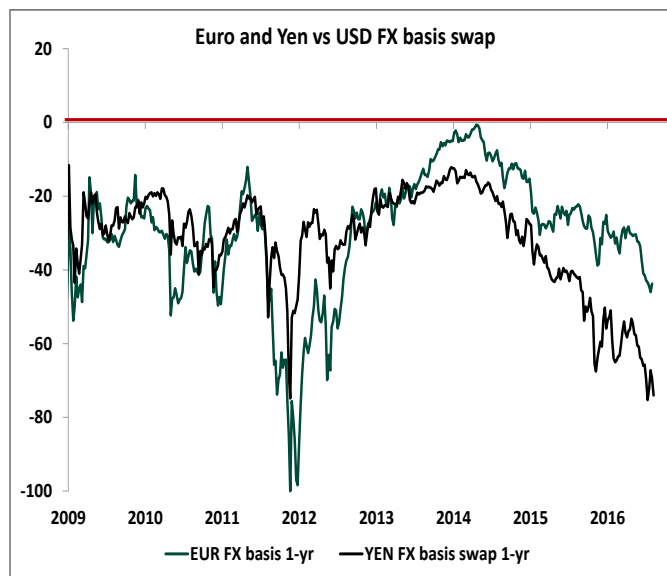


- We are well aware that the study of monetary plumbing is not exciting. The question quickly arises: so what is the importance of all of this?
- Money makes the world go around and if the world's reserve currency shrinks, it will have a myriad of consequences. **One of our bigger concerns right now is the amount of dollar debt held by non-US corporates and banks.** We calculate that the world is short in excess of \$12 trillion.
- We just cannot stress enough the consequences of a rising dollar. It is evident on the bottom chart that every time the dollar enters a bull market, corporate defaults accelerate.
- **The big difference between the post-2009 era and pre-2009 is that in the past dollar creation was a consequence of the Fed changing policy rates. Post 2009, dollar creation was driven mostly by regulatory changes.**



CARRY-TRADE: DOLLAR FUNDING BECOMING EXPENSIVE

THE COST OF CARRY HAS BEEN RISING SINCE 2014



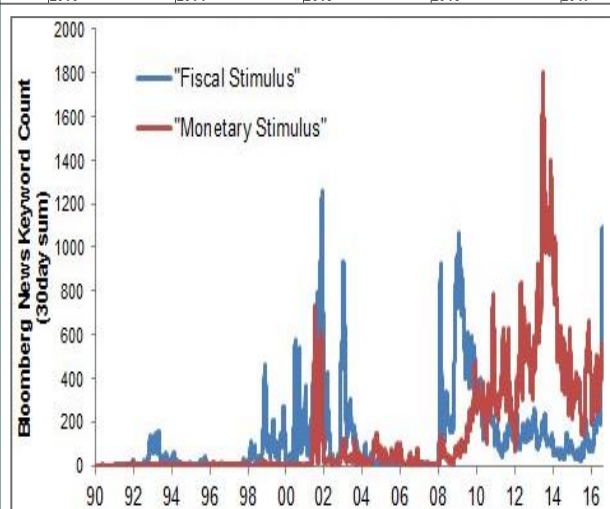
- **Dollar funding has become very expensive since the beginning of the year.** Neither a Japanese nor a European investor (for the first time since 2009) can make any money (on a hedged basis) from buying US bonds. The US bond market has lost some of its foreign buyers, but fortunately the changing banking and money market regulations will help fund the fiscal deficit.
- The best collateral in the system, sovereign bonds, is now trapped on balance sheets for regulatory purposes. **This causes the re-hypothecation process (repo volumes) to slow down, shrinking the pool of dollars.** We believe the changing regulations are major drivers of slowing down the velocity of money and collateral. We feel that this will lead to a continuing shortage of dollars in the system.
- **The implicit potential for negative spillbacks if the Fed is too hawkish is very high (given the importance of the dollar to the global financial system and especially the carry-trade).**
- On a **risk (volatility) adjusted basis** the EM carry-trade has been in a bear market since 2014. The carry-trade consolidated since the start of the year, but we believe it is over now and expect the carry performance to turn down again.

JPM GLOBAL BOND YIELD (0.98%) AND US 30-YR YIELD (2.24%)

THE ELLIOTT-WAVE STRUCTURE OF THE LONG-TERM BOND BULL IS NOW COMPLETE

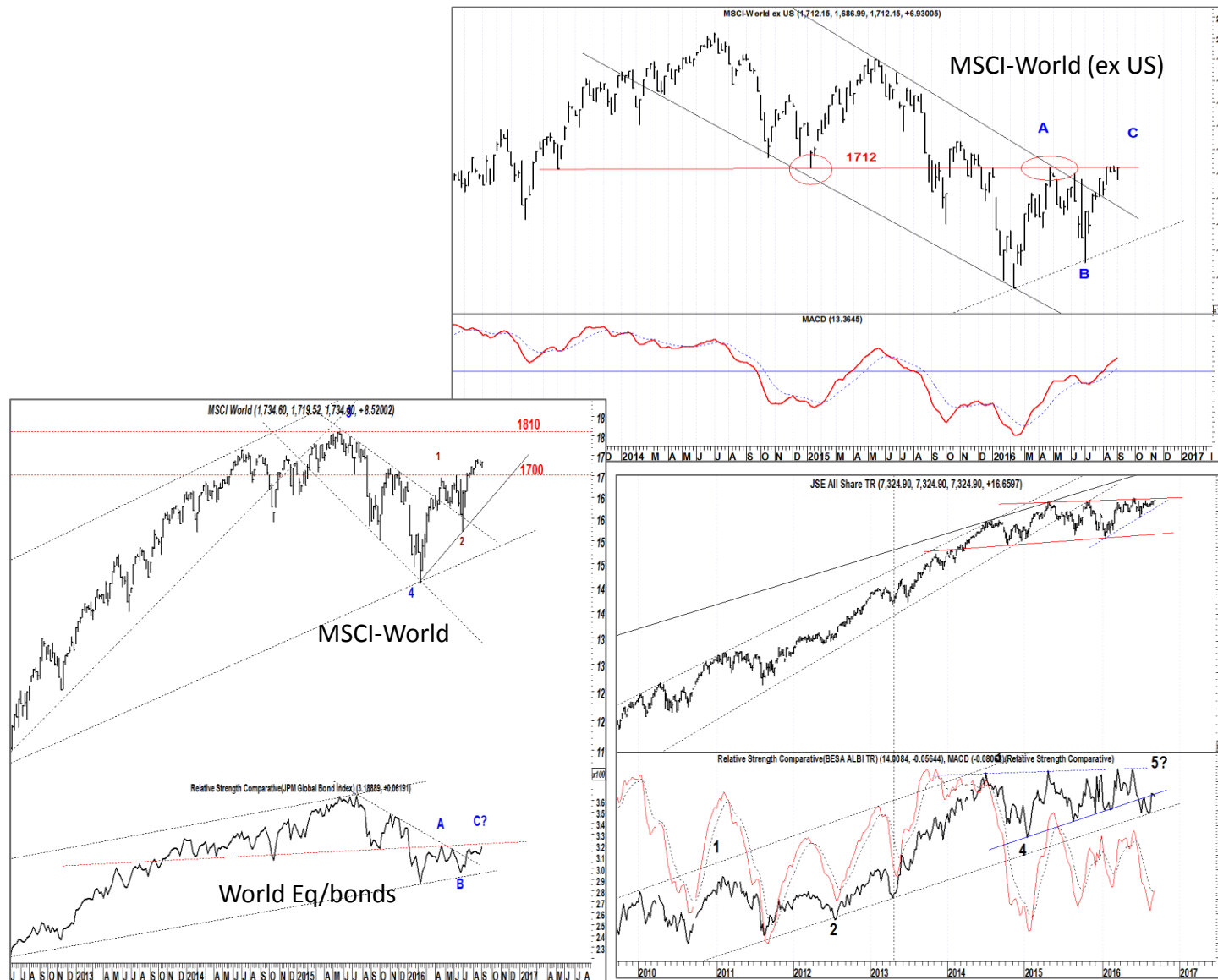


- Since February 2016 a consensus view developed that central banks would be very accommodative – this triggered a major bond bull rally. This rally completed the Elliott-wave pattern of the bond bull market that started in the 1980s. Any further weakness in US bonds from current levels would confirm a bottom formation. **We expect the 10yr yield to find its first major support just above 2.00%.**
- It is hard to grasp higher bond yields in an environment of low growth and in a disinflationary to deflationary world. **Bond yields will go up for the same reason - there is pressure on the USD LIBOR rate and the dollar swap markets, the pool of money is shrinking and money will become expensive.**
- Since 1987, whenever the US bond bull market corrected within the bull trend, it triggered the next crisis. **We have a strong view that the weakest link in the chain right now is corporate credit, especially the dollar debt issued by non-US non-financial corporates.**
- It is becoming more evident that monetary policy is not working and interest in fiscal policy is spiking. The term ‘fiscal stimulus’ is now mentioned frequently in news articles.



ADVANCED MARKETS: EQUITIES AND BONDS

THE RISK-ON PHASE IS AGAINST RESISTANCE

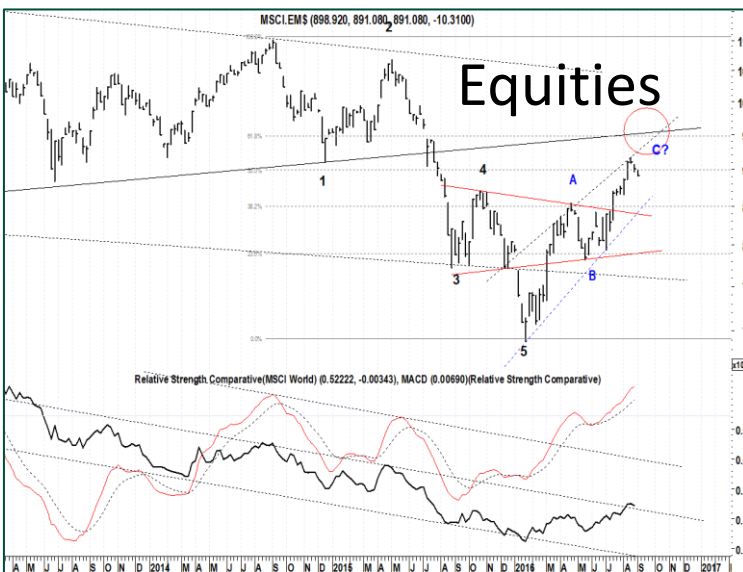
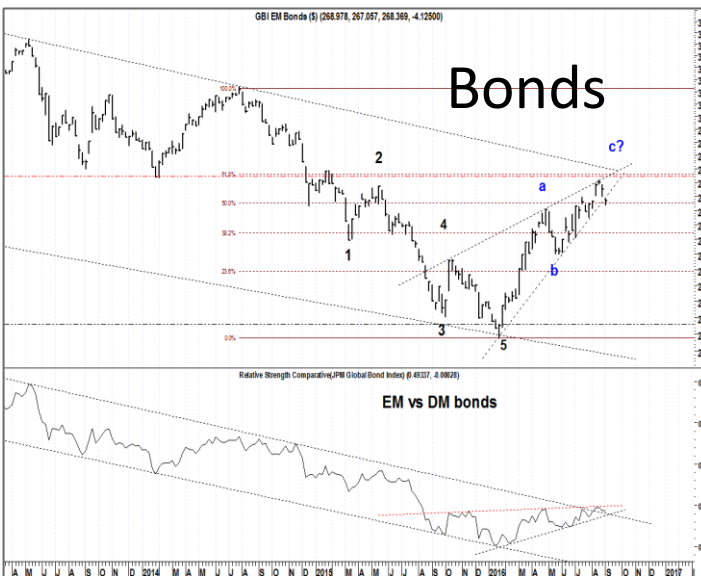
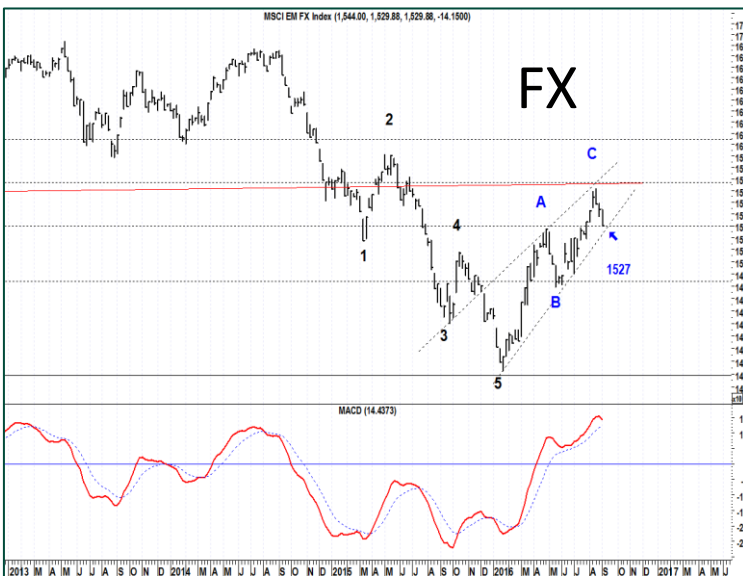


- World stock markets peaked (along with many other asset classes) in 2H14 when the Fed's balance sheet stopped growing. The MSCI World (ex-US) is currently struggling to break above an important neckline. If we are right that the US dollar is about to start the next phase of its bull trend, **then this resistance neckline will remain intact.**
- Global equities underperformed bonds from early 2015 until the start of 2016. During 2016's risk-on phase, the equities over bonds relative has been range bound. We also expect the (red) neckline on the relative to remain intact. The SP500 (not shown here) is likely to rally further in our opinion, but we think it is in the latter stages of a bull trend that started in 2009.
- **Central banks are trying to suppress volatility, but unfortunately all asset classes are now highly correlated and this concentration risk can lead to exactly the opposite result the central bankers had in mind.**
- The SA equities over bonds relative has broken out of the wedge that has been forming since early 2015 but has not broken out of the bull trend that has been in place since 2009. it is just a matter of time before this relative breaks down.

EM MARKETS: FX, BONDS, EQUITIES AND CARRY

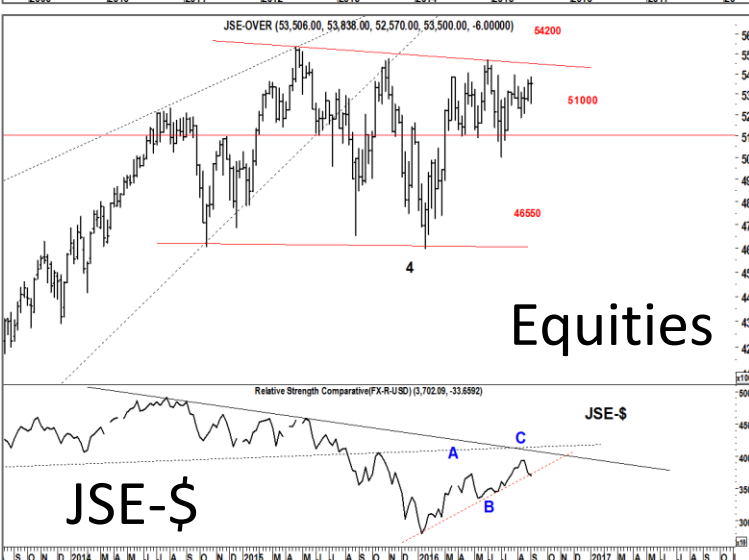
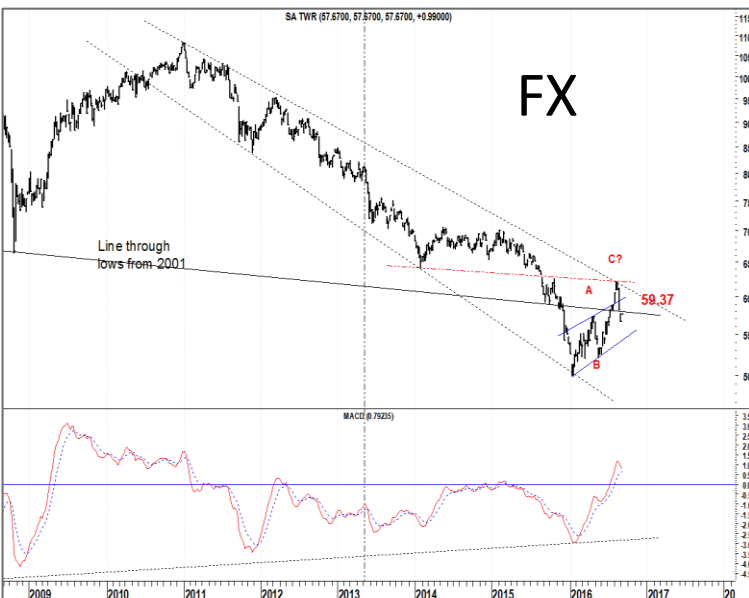
THE ABC CORRECTIVE PATTERN IS OVER

- As mentioned on the previous page, markets are highly correlated - especially to the changes in the Fed's balance sheet. All the EM asset classes peaked in late 2014 and then fell in a 5-wave structure, indicating a bear trend.
- In December 2015 we warned not to extrapolate this trend into 2016 as the wave count was complete.
- **We now believe the ABC corrective phase is near completion. The EM bonds has actually already broken the bull support line.**
- We believe that, as the dollar index starts to rally, the next phase of the bear trend in the EMs will set in.



SA R186 BOND, TRADE WEIGHTED RAND, JSE AND CARRY PERFORMANCE

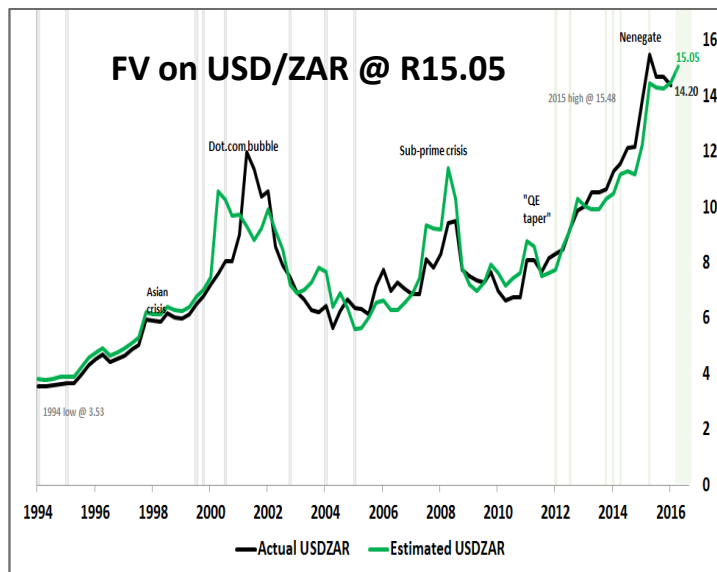
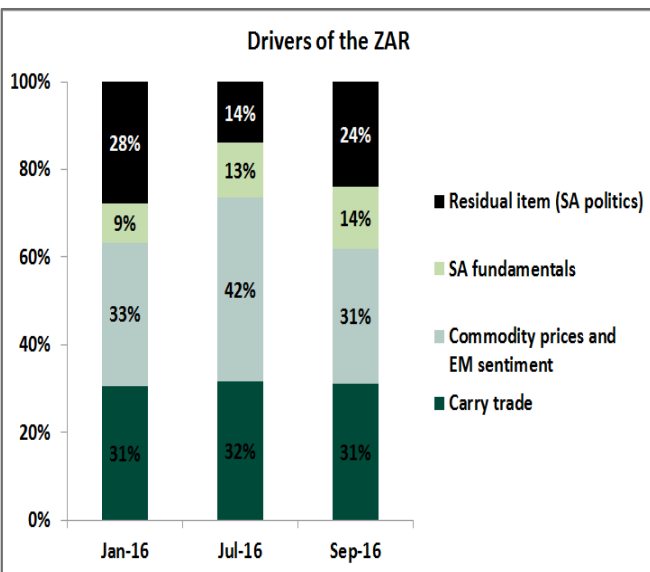
THE LONG-TERM SA BOND BULL IS OVER



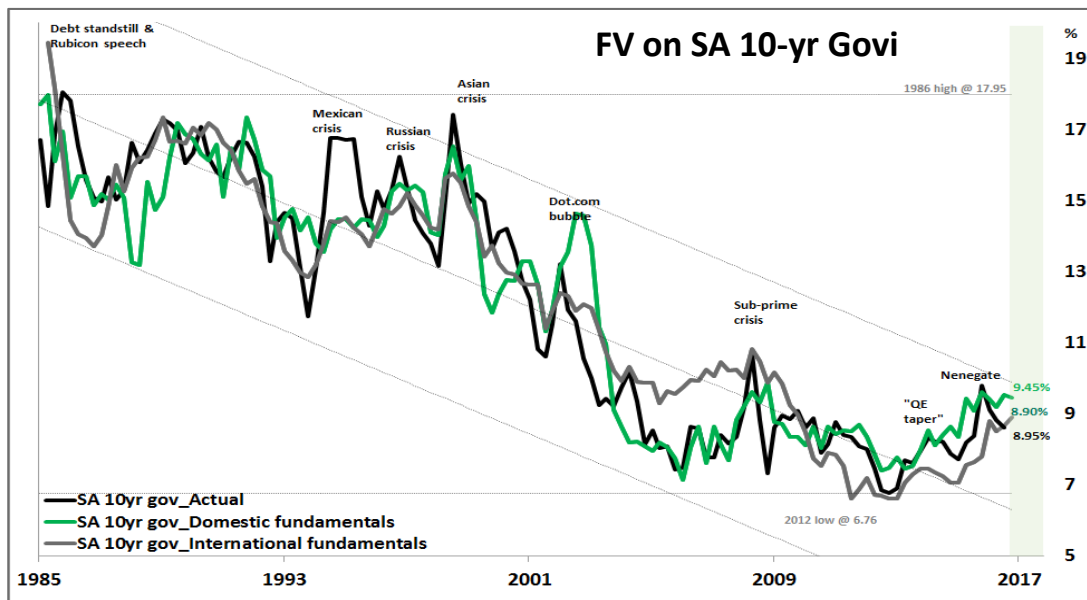
- The ABC corrective rally since the start of the year is also visible in SA bonds, the rand and the carry-trade. The JSE (in dollar terms) has a similar pattern to other EMs.
- The technical picture of the JSE in ZAR terms is one of the more (if not most) complex patterns we have encountered in nearly 30-years of staring at charts. This pattern is too big to be a top formation. **We do expect a new high out of this pattern, but we expect this to come from rand weakness. We are still holding out for 37,000 on the Resources index.**
- The bonds sold off within the ABC channel. **But we reiterate what we have been saying the whole year, the move from 10% to 8.40% was a correction phase and bond yields will eventually go higher.** No, it is not just political uncertainty and inflationary pressure (not that we expect good news on that front), the global pool of money is shrinking – thereby shrinking the carry-trade with it.

SA FAIR VALUE MODELS: USD/ZAR AND SA 10-YR GOVI

RESIDUAL ITEM MAKING MODELS VERY UNSTABLE



- Our fair values on our currency and bond models were breached in the past month, at R13.80 and 8.50% respectively. However, this did not last long amid the **volatile residual item** and the risk-on environment losing momentum.
- The evolution of the **residual item**, which we assume to be politics and other variables not captured by our model, has been **volatile**. In January 2016 the residual was at 28%, it halved in July 2016, and is currently back at 24%.
- Based on our view (where we expect the risk-on phase to reverse its trend), our new fair value for the local currency vs the USD is **15.05** (next three months). Both our local and international fair value models indicate **higher yields for SA bonds**.
- We believe that the driver of our higher fair value is more than likely going to be international factors i.e. dollar-liquidity. The local unstable 'political premium' is most likely already in the price in our view.



MACRO INVESTMENT THEMES & ASSET ALLOCATION

Tactical Trades: This summarizes our short-term recommendations which can diverge from our long-term recommendations. Next 3 months.

1. **Equities, global and locally have further upside.** We still favour US equities over the rest. SA equities in rand terms has further upside but we expect a major top sometime late this year. We favour resources over industrials over financials on a short and long-term basis..
2. **The bull run in the rand and SA bonds is over.** A correction phase is playing out after the new political developments but the trend is higher for the next 6-months.
3. **MSCI World/Global bonds** should out-perform during this final phase of the equity bull, but the equity out-performance since 2009 is at the most a few months from being complete.
4. We are very big dollar bulls.

Strategic Trades: This summarizes our long-term strategic recommendations. These views are based on our combination of global macro-economic views.

1. **Overweight USD** on back of global deflationary environment and shrinking global \$-liquidity.
2. **Underweight global corporate credit.** In particular HY and USD denominated debt.
3. **Underweight EM currencies and bonds** as returns in global carry-trade deteriorate.
4. **Overweight Gold.** As central banks try to avoid deflation, gold should act as the alternative currency.
5. **Local equities:** Resources over financials over industrials. Life offices over banks within the financials. Property has limited upside and we are negative over the long-term

	Recommended weight (%)		
	Sep 2016	Aug 2016	Benchmark
South Africa	72	72	73
Cash	18	13	14
Bonds	10	15	13
Listed property	4	4	5
Equities	40	40	41
Total offshore	24	24	23
Offshore equities	8	10	
Offshore bonds	8	10	
Offshore cash	8	4	
Commodities	4	4	4

	Top40 (J400) recommended weight(%)		
	Sep 2016	Aug 2016	Benchmark
Resources	20	20	13
Financials	19	23	22
Industrials	57	53	62
Property	4	4	3

THANK YOU



Analyst Certification

Each research analyst principally responsible for the preparation and content of all or any identified portion of this research report ('Report') hereby certifies that, with respect to each company or security or any identified portion of the Report with respect to a company or security that is discussed by the research analyst in this Report, all of the views expressed in this Report accurately reflect his/her personal views about that company or securities as at the date of this Report.

Views expressed in respect of a particular company or security in this Report may be different from, or inconsistent with, the observations and views of other research analysts due to the differences in evaluation criteria.

Further, each research analyst certifies that no part of his/her compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by him/her in this Report.

Potential Conflicts of Interest

Research analysts employed by Nedbank Limited (acting through its Nedbank Capital division) ('Nedbank') or its ultimate holding companies or any direct or indirect subsidiary undertakings of such holding companies affiliates ('Affiliates')(collectively, the 'Group') are compensated from revenues generated by various members of the Group. Research analysts do not receive compensation based upon revenues from specific transactions. In respect of the securities of a company that such research analyst covers, the Group generally requires that research analyst and any member of his/her household to disclose any trades and holdings in such securities. In addition, Group policy requires that research analysts make written disclosure to their employer if they serve as an officer, director or advisory board member of a company that he/she covers.

The Group comprises a full service investment bank and a commercial bank engaged in providing investment banking, asset management, financing, financial advisory services and other commercial and investment banking products and services to a wide range of corporations and individuals. In the ordinary course of the Group's trading, brokerage, asset management and financing activities, any member of the Group may, at any time, hold ownership positions of [up to] 1% of any of the companies mentioned in this Report, may deal as principal or agent for more than one party in, or hold short positions, long positions of less than 1%, and may trade or otherwise effect transactions, for its own account or the accounts of customers, in debt or equity securities or loans of third parties or any other person that may be involved in a transaction/project in connection with a company or securities referenced in this Report. The Group recognises its responsibility for compliance with relevant securities laws in relation to such activities and has implemented the required information barriers and control systems in respect thereof.

In addition, the Group may have and may in the future have investment and commercial banking, trust and other relationships with parties other than the companies mentioned in this Report, which parties may have interests with respect to the companies and the securities referred to herein. Members of the Group, in the course of such other relationships, may acquire information about the companies and/or securities mentioned herein or such other parties. Be advised that no member of the Group shall have an obligation to disclose any such information, or the fact that any member of the Group is in possession of such information, to the recipients of this Report. Furthermore, members of the Group may have fiduciary or other relationships whereby such member may exercise voting power over securities of certain companies, which securities may from time to time include securities of the companies referred to herein.

Recipients of this Report are advised that any or all of the foregoing arrangements, as well as more specific disclosures set forth below, may at times give rise to potential conflicts of interest.

Disclaimer and Copyright

This Report is not directed to, or intended for use by or distribution to, directly or indirectly, in whole or in part, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject any member of the Group to any registration or licensing requirement within such jurisdiction.

This Report has been issued or approved for issue by a representative of Nedbank and has been forwarded to you solely for information purposes and for your consideration. The information contained in this Report is confidential and is not intended to be, nor should it be construed as, 'advice' as contemplated in the Financial Advisory and Intermediary Services Act, 2002 or otherwise, or a direct or indirect invitation or inducement to any person to engage in investment activity relating to any securities or any derivative instrument or any other rights pertaining thereto of any company mentioned herein ('financial instruments').

Information and opinions presented in this Report were obtained or derived from public sources that Nedbank believes are reliable but makes no representations as to their accuracy or completeness. Any opinions, forecasts or estimates herein constitute a judgement as at the date of this Report and should not be relied upon.

There can be no assurance that future results or events will be consistent with any such opinions, forecasts or estimates. Past performance should not be taken as an indication or guarantee of future performance and no representation or warranty, express or implied is made regarding future performance. The price, value of and income from any of the financial instruments mentioned in this Report can fall as well as rise. Certain transactions including those involving futures, options and other derivative instruments can give rise to substantial risk of loss and are not suitable for all investors. Before entering into any transaction, you should independently take advice on and evaluate the risks and potential benefits of the transaction. Opinions, forecasts and estimates expressed in this Report are subject to change without notice and may differ or be contrary to opinions, forecasts and estimates expressed by other business areas in the Group as a result of using different assumptions and criteria. Furthermore, the Group (including each member's directors, employees, representatives and agents) accepts no responsibility or liability (whether in delict, contract or otherwise) for any loss arising from the use of or reliance placed upon the material presented in this Report, except that this exclusion of liability does not apply to the extent that liability arises under specific statutes or regulations applicable to any member of the Group.

In addition, members of the Group may have issued, and may in the future issue, other reports that are inconsistent with, and reach different conclusions from, the information presented in this Report. Those reports reflect the different assumptions, views and analytical methods of the research analysts who prepared them and Nedbank is under no obligation to ensure that such other reports are brought to the attention of any recipient of this Report. Members of the Group may be involved in many businesses that relate to companies and financial instruments mentioned in this Report. Any prices or levels contained herein are preliminary and indicative only and do not represent bids or offers. These indications are provided solely for your information and consideration. The information contained in this Report may include results of analyses from a quantitative model which represent potential future events that may or may not be realized, and is not a complete analysis of every material fact representing any product, company or financial instrument. Any estimates included herein constitute the judgment of the research analyst as of the date hereof and are subject to change without any notice.



Disclaimer and Copyright Continued

This Report may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Report refers to website material of Nedbank, Nedbank has not reviewed the linked site and takes no responsibility for the content contained therein. Such address or hyperlink (including addresses or hyperlinks to Nedbank's own website material) is provided solely for your convenience and information and the content of the linked site does not in any way form part of this Report. Accessing such website or following such link through this Report or Nedbank's website is entirely at your own risk.

Directors, officers and/or employees of any member of the Group may at any time, to the extent permitted by law, own or have a position in the financial instruments of any company or related company referred to herein, and may add to or dispose of any such position or act as a principal in any transaction in such financial instruments. Nedbank and/or its Affiliates may make a market in these instruments for its customers and for its own account. Accordingly, Nedbank and/or its Affiliates may have a position in any such instrument at any time. Directors, officers and/or employees of Nedbank and/or its Affiliates may also be directors of companies mentioned in this Report. Nedbank and/or its Affiliates may from time to time provide or solicit investment banking, underwriting or other financial services to, for or from any company referred to herein. The financial instruments referred to may not be suitable for the specific investment objectives, financial situation or individual needs of recipients and should not be relied upon in substitution for the exercise of independent judgement. It is recommended that you obtain independent advice if you are in doubt about such investments or investment services. This Report is intended for use by professional and sophisticated business investors only.

Structured financial instruments are complex instruments, typically involve a high degree of risk and are intended for sale only to sophisticated investors who are capable of understanding and assuming the risks involved. The market value of any structured financial instrument may be affected by changes in economic, financial and political factors (including, but not limited to, spot and forward interest and exchange rates), time to maturity, market conditions and volatility, and the credit quality of a company or reference company. Any investor interested in purchasing a structured financial instrument/ product should conduct their own investigation and analysis of the product and consult with their own professional advisers as to the risks involved in making such a purchase. Some investments discussed in this Report may have a high level of volatility. High volatility investments may experience sudden and large falls in their value causing losses when that investment is realised. Those losses may equal your original investment. Indeed, in the case of some investments the potential losses may exceed the amount of initial investment and, in such circumstances, you may be required to pay more money to support those losses. Income yields from investments may fluctuate and, in consequence, initial capital paid to make the investment may be used as part of that income yield. Some investments may not be readily realisable and it may be difficult to sell or realise those investments, similarly it may prove difficult for you to obtain reliable information about the value, or risks, to which such an investment is exposed.]

To our readers in the United Kingdom, this report has been issued by Nedbank Limited, a firm authorised by the Prudential Regulation Authority and regulated in the United Kingdom by the Financial Conduct Authority and the Prudential Regulation Authority. Nedbank Limited is a member of the Johannesburg Stock Exchange Limited (the 'JSE'), which is authorised and regulated by the JSE Limited. This Report is not for distribution to private customers.

This Report has been issued in the United Kingdom only to persons of a kind described in Article 19 (5), 38, 47 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (all such persons being referred to as 'relevant persons'). Any investment or investment activity to which this Report relates is only available to relevant persons and will be engaged in only with relevant persons. In other EEA countries, this Report has been issued to persons regarded as professional investors (or equivalent) in their home jurisdiction.

This Report is not intended for use by, or distribution to, persons in the United States that do not meet the definition of a major US institutional investor under Rule 15a-6 under the US Securities Exchange Act of 1934 ('Rule 15a-6'). The financial instruments described herein may not have been registered under the US Securities Act of 1933 (the 'Securities Act') and may not be offered or sold in the United States unless they have been registered under the Securities Act, or pursuant to an exemption from, or in transactions not subject to, the registration requirements of the Securities Act, and in compliance with any applicable securities laws of any state or other jurisdiction of the United States. Any US persons or recipients of this Report located in the United States that are interested in trading financial instruments referred to in this Report should only effect such transactions through a US-registered broker-dealer.

The distribution of this Report in certain jurisdictions may be prohibited or restricted by rules, regulations and/or laws of such jurisdictions and persons into whose possessions this presentation comes should inform themselves about and observe any such restrictions. Any failure to comply with such prohibitions or restrictions may constitute a violation of the laws of such other jurisdictions.

All material presented in this Report, unless specifically indicated otherwise, is under copyright to Nedbank. None of the material, nor its content, nor any copy of it, may be altered in any way, transmitted to, copied or distributed to any other party, without the prior written permission of Nedbank. All trademarks, service marks and logos used in this Report are trademarks or service marks or registered trademarks or service marks of Nedbank or its Affiliates.