VDAX-NEW, VSTOXX and VSMI Futures

Launch Note

- EUREX is scheduled to introduce futures contracts on the VSTOXX, VDAX-New and VSMI Indices on Monday 19th September 2005.
- These futures will provide investors with an exchange traded vehicle through which they can obtain exposure to implied volatility on European equity indices.
- Volatility futures are priced similarly to forward starting variance swaps but adjusted by a convexity bias.

Equity implied volatility has for many years been viewed as a useful gauge for investor sentiment. To that end, in 1993 the CBOE launched the “old” VIX index (now VXO index) to provide a benchmark equity implied volatility index – a move followed by Deutsche Bourse with their VDAX index. While these indices were widely followed by investors, they were difficult to replicate and this inhibited the development of index based products.

The growing liquidity of the variance swap market over recent years has led, first the CBOE, and subsequently a group of European exchanges, to change the calculation of their volatility indices into one based on the calculation of the strike of a variance swap.

**Figure 1: VSTOXX is similar to 1-month implied variance**

Source: Datastream, JPMorgan

See page 6 for analyst certification and important disclosures, including investment banking relationships. JPMorgan does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.
Variance-swap based indices

Using a variance swap pricing methodology for a volatility index has several advantages. Firstly, the calculation scheme is no longer arbitrary for a particular maturity allowing for greater comparability between indices based on different underlyings. Secondly, the level of the index calculation has a real interpretation, which is that of the risk-neutral expected variance of the underlying over the term of the variance swap. Lastly, because it is based on traded instrument, the possibility of developing a market based on the index increases. The one remaining arbitrary factor is the term of the benchmark index. At present this has standardised at a 30 day expiry, but indices for longer maturities may follow at a later date. Details of the main variance based indices are available in Table 1.

Table 1: Main variance swap based volatility index details

<table>
<thead>
<tr>
<th>Underlying</th>
<th>Reuters</th>
<th>Bloomberg</th>
<th>Datastream</th>
<th>Calculation details</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIX</td>
<td>S&amp;P 500</td>
<td>.VIX</td>
<td>VIX Index</td>
<td>CBOEVIX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="http://www.cboe.com">www.cboe.com</a></td>
</tr>
<tr>
<td>VXN</td>
<td>Nasdaq 100</td>
<td>.VXN</td>
<td>VXN Index</td>
<td>CBOEVXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="http://www.cboe.com">www.cboe.com</a></td>
</tr>
<tr>
<td>VDAX-NEW</td>
<td>Dax 30</td>
<td>.V1X</td>
<td>V1X Index</td>
<td>VDAXNEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="http://www.deutsche-boerse.com">www.deutsche-boerse.com</a></td>
</tr>
<tr>
<td>VSTOXX</td>
<td>Euro STOXX 50</td>
<td>.V2TX</td>
<td>V2X Index</td>
<td>VSTOXXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="http://www.stoxx.com">www.stoxx.com</a></td>
</tr>
<tr>
<td>VSMI</td>
<td>SMI</td>
<td>.VSMI</td>
<td>V3X Index</td>
<td>VSMIIDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="http://www.swx.com">www.swx.com</a></td>
</tr>
</tbody>
</table>

Source: JPMorgan

It can be seen that the VSTOXX closely follows the levels of the 1-month implied variance (Figure 1). However, the 1-month variance swap has tended to trade slightly lower than the theoretical level calculated from a weighted portfolio of listed options. There are valid reasons for this bias. Firstly, a convex skew should lead to a discrete strike variance swap approximation (as in the VSTOXX index calculation) overestimating the level of implied variance. Secondly given the typical bid/offer on equity options, the width of the arbitrage-corridor of trading a variance swap against a portfolio of options gives rise to a fairly large margin of error between the two estimates of the strike. Hence, the increasing demand to sell index variance over the last few years, as equity volatility has fallen and through the increased selling of index correlation could have led to this cheapening of index variance to the theoretical value, but not to the extent at which an arbitrage is possible.

Introducing volatility futures

With the calculation of the VIX changed to one based on a variance swap calculation, the CBOE launched futures contracts based upon the VIX index level in March 2004. Since their inception, the success of these futures has been mixed. In terms of the growth of volume and open interest they look moderately successful, with open interest increasing by about 100% over the last year. However, the futures total exposure to implied volatility is dwarfed by the overall size of both the listed and OTC options market. For example, the current open interest of 9.3k contracts represents about $9.3mm of vega exposure outstanding, equivalent to about 19.5k 1-year ATM S&P call options. In comparison there are 18.5k contracts alone on the 1225 Dec06 call and 5.9mm S&P listed options in total.

Following the moderate success of the VIX futures, Eurex will launch futures based upon the level of their three variance based indices: the VSTOXX, VDAX-New and VSMI. These will be listed from Monday 19th September 2005 and will initial include contracts on the nearest three calendar months and the next quarterly month of the February, May, August and November cycle.

The last trading day (LTD) will be 30 days prior to the corresponding index options expiry date. If the futures maturity date determined in this way is not an exchange trading day, the exchange trading day immediately preceding this day is used. The reason for this LTD (and hence the Feb. expiry cycle), is that the underlying index calculation is most accurate when there are traded options with exactly 30 days remaining to maturity, since no interpolation between expiries is necessary. The exact details of the settlement procedure can be found in Table 2 or on Eurex’s website (www.eurexchange.com).
Table 2: VDAX-NEW, VSTOXX and VSMI Futures contract details

<table>
<thead>
<tr>
<th>Contract Size</th>
<th>EUR 1,000 per index point (CHF 1,000 for the VSMI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Month</td>
<td>Three near-term calendar month contracts, plus one quarterly contract on the February, May, August, November cycle</td>
</tr>
<tr>
<td>Tick Size</td>
<td>0.05 of an index point or EUR 50 (CHF 50 for VSMI)</td>
</tr>
<tr>
<td>Settlement</td>
<td>Delivery by cash settlement based on the Final Settlement Price and due on the first exchange trading day after the Last Trading Day</td>
</tr>
<tr>
<td>Last Trading Day</td>
<td>Based on the index option expiry date one month after the futures expire, the futures maturity date is calculated by going back 30 days from the index options expiry date. Trading ceases at the expiration time of the corresponding index options.</td>
</tr>
</tbody>
</table>
| Final Settlement Price | Average of the respective volatility index values calculated between:
12:30 and 13:00 CET for the VDAX-NEW
11:30 and 12:00 CET for the VSTOXX
9:00 and 10:00 CET for the VSMI |
| Reuters | FVDX(VDAX-NEW), FVSX(VSTOXX), FVSM(VSMI) |
| Bloomberg | A2(VDAX-NEW), A3(VSTOXX), A4(VSMI) |

Source: Eurex

Pricing a volatility future

The usual principle of pricing a future based upon a particular underlying, is to first consider holding a forward starting version of the underlying, where the forward date is the last trading date of the future. Then on last trading day, the spot and forward instruments are the same and so they should converge to the same level. This would naturally lead us to consider pricing EUREX volatility futures using the level attained from the forward starting levels of variance swaps. Since variance is additive, pricing a forward starting variance swap is relatively easy by using the spot variance swap strike to the forward start date and the spot variance swap strike to the maturity of the forward swap.

Since the pricing of the futures will be based on the level of forward starting volatility, they will have no direct exposure to the realised volatility on the index (apart from the correlation between realised and implied volatility) and hence will be mainly exposed to changes in the level of implied volatility only. In contrast a spot variance swap has exposure to both realised and implied levels once transacted.

As an example we can look at the pricing of November VIX futures, as of close 14th September:

| Nov-05 | 13.2% |
| Dec-05 | 14.2% |

1 month volatility forward in Nov-05

Fwd vol² x fwd time = (long vol)² x long time - (short vol)² x short time

In this case we have 62 days to the valuation date of the November future and hence 92 days to the expiry of the December SPX options. Using the formula above we calculate forward volatility at 16.2% for the 30 day variance swap forward starting on November 16. In comparison the November VIX futures closed at 14.8%, well below this calculated level. The discrepancy arises, not from market segmentation, but from a fundamental difference between forward variance swaps and the volatility futures. This difference should mean that futures trade below the level of the equivalent forward starting variance swap, and this bias is sometimes referred to as the convexity bias.
The convexity bias.

There is one key difference between the futures and forward starting variance swaps. The mark-to-market of a forward starting variance swap is QUADRATIC in the level of the forward starting volatility, whereas as the futures are margined LINEARLY in the level of the forward starting volatility (Figure 2). In principle, this makes the futures difficult to price as unlike forward starting variance, the payout cannot be hedged using a static portfolio of options.

![Figure 2: Variance swap volatility exposure is convex, futures exposure is linear ...](Image)

![Figure 3: ... hence, a long variance swap, short futures position has similar characteristics to a long straddle on volatility.](Image)

In practice, market-makers will probably use stochastic volatility to price the futures. However, a more intuitive approach can yield some useful insights. For example, suppose we have a position constructed with a short futures position and a long position of the equivalent forward starting variance swap. The variance swap will out-perform if the level rises or falls. Hence, the strike of the future should always trade at a lower level than the level of the equivalent forward starting variance swap and the difference between the two is referred to as the convexity bias, since it arises as a result of the convexity of the variance swap.

The exact estimation of convexity bias is largely dependent on the model used to price volatility derivatives, but it can be seen from looking at the net position of the long variance swap-short futures (Figure 3), that if the futures had the same strike as the variance swap, the P&L in this figure would always be positive – leading to a risk free arbitrage. It can also be seen that the long-short combination must share similar characteristics to the premium of a straddle on the level of volatility. This means that the bias should increase with time to maturity, and as the implied volatility and volatility-of-volatility increase. Moreover, trading the spread between the two products in principle gives access to a volatility-of-volatility exposure. Given typical vol-of-vol levels of about 100% and the current level of implied volatility, we estimate this convexity bias at around 1.3% for a two month maturity future. Note, this is similar to the difference between the current level of the Nov VIX future and the equivalent two month forward starting variance swap.
Applications

Obviously the main use of volatility futures will be to gain direct exposure to equity implied volatility. This will be particularly useful for investors who can trade futures but not OTC variance swaps. Typically they may be attractive for credit funds, looking for a more generic equity volatility exposure as a proxy hedge or active equity funds looking at using implied volatility for portfolio diversification. Apart from these most obvious uses, there are several other potential uses of the volatility futures.

Futures could be used to replicate the returns on the index – which in turn could lead to development of a market in product based on the spot volatility index. We have compared two methods of replicating the spot VIX index. These are holding either spot 1-month variance swaps for one day and then rolling each day, or holding 1-month, 1-month forward starting variance swaps to expiry and then rolling. We use forward starting variance swaps as a proxy for futures in the absence of a long history of futures data. Holding the spot instrument does a fairly poor job of replication (Figure 4), since this method is exposed to realised volatility, whilst the VIX reflects only implied. However, using futures (or forward staring variance swaps) replicates the spot index fairly well (Figure 5). This reflects that fact that different points on the short-dated volatility term structure tend to move together.

Figure 4: Holding a 1-month variance swap for one day and then re-striking does a poor job of replication ...

\[ y = 1.5726x - 0.025 \]
\[ R^2 = 0.1201 \]

Figure 5: ... but holding a 1-month,1-month forward starting variance swap does a fairly good job

\[ y = 0.9655x - 0.0103 \]
\[ R^2 = 0.7143 \]

It should be noted that both replication methods underperform (shown by the negative constant in the regression). The first is due to implied volatility on average trading at a premium to realised volatility. The second is that over recent times, the term structure has been biased to be upward sloping, thus incurring a slide penalty as a forward variance swap ages.

Another use is in trading the spreads between the implied volatility on different indices. The alignment of maturities and calculation methodology as well as the linear margining, makes volatility futures an attractive alternative to variance swaps. The main limiting factor is that the implied volatility spread is limited to short dated maturity options.

Finally, trading futures against their equivalent variance swap, gives investors exposure to volatility-of-volatility. This could actually aid the development of the market by attracting arbitragers, who will act to balance the flow from more passive investors.
Risks of common option strategies

Please also refer to option risk disclosure documents

**Put Sale.** Investors who sell put options will own the underlying stock if the stock price falls below the strike price of the put option. Investors, therefore, will be exposed to any decline in the stock price below the strike potentially to zero, and they will not participate in any stock appreciation if the option expires unexercised.

**Call Overwrite or Buywrite.** Investors who sell call options against a long position in the underlying stock give up any appreciation in the stock price above the strike price of the call option, and they remain exposed to the downside of the underlying stock in the return for the receipt of the option premium.

**Booster.** In a sell-off, the maximum realised downside potential of a double-up booster is the net premium paid. In a rally, option losses are potentially unlimited as the investor is net short a call. When overlayed onto a long stock position, upside losses are capped (as for a covered call), but downside losses are not.

**Collar.** Locks in the amount that can be realized at maturity to a range defined by the put and call strike. If the collar is not costless, investors risk losing 100% of the premium paid. Since investors are selling a call option, they give up any stock appreciation above the strike price of the call option.

**Call Purchase.** Options are a decaying asset, and investors risk losing 100% of the premium paid if the stock is below the strike price of the call option.

**Put Purchase.** Options are a decaying asset, and investors risk losing 100% of the premium paid if the stock is above the strike price of the put option.

**Straddle or Strangle.** The seller of a straddle or strangle is exposed to stock increases above the call strike and stock price declines below the put strike. Since exposure on the upside is theoretically unlimited, investors who also own the stock would have limited losses should the stock rally. Covered writers are exposed to declines in the long stock position as well as any additional shares put to them should the stock decline below the strike price of the put option. Having sold a covered call option, the investor gives up all appreciation in the stock above the strike price of the call option.

**Put Spread.** The buyer of a put spread risks losing 100% of the premium paid. The buyer of higher ratio put spread has unlimited downside below the lower strike (down to zero), dependent on the number of lower struck puts sold. The maximum gain is limited to the spread between the two put strikes, when the underlying is at the lower strike. Investors who own the underlying stock will have downside protection between the higher strike put and the lower strike put. However, should the stock price fall below the strike price of the lower strike put, investors regain exposure to the underlying stock, and this exposure is multiplied by the number of puts sold.

**Pricing Is Illustrative Only**

Prices quoted in the above trade ideas are our estimate of current market levels, and are not indicative trading levels.

**Risks to Strategies**

Not all option strategies are suitable for investors; certain strategies may expose investors to significant potential losses. We have summarized the risks of selected derivative strategies. For additional risk information, please call your sales representative for a copy of "Characteristics and Risks of Standardized Options". We advise investors to consult their tax advisors and legal counsel about the tax implications of these strategies.
Analyst Certification
The research analyst who is primarily responsible for this research and whose name is listed first on the front cover certifies (or in a case where multiple analysts are primarily responsible for this research, the analyst named first in each group on the front cover or named within the document individually certifies, with respect to each security or issuer that the analyst covered in this research) that: (1) all of the views expressed in this research accurately reflect his or her personal views about any and all of the subject securities or issuers; and (2) no part of any of the research analyst's compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the research analyst in this research.

Important disclosures, including price charts for all companies under coverage for at least one year, are available through the search function on JP Morgan's website https://mm.jpmorgan.com/disclosures/company or by calling this U.S. toll-free number (1-800-477-0406).

Please see the relevant research report and important disclosures for any security recommended herein before forming any investment opinion whatsoever. JPMorgan research is available at https://mmlogin.jpmorgan.com

Price Charts for Compendium Reports: Price charts are available for all companies under coverage for at least one year through the search function on JPMorgan's website https://mm.jpmorgan.com/disclosures/company or by calling this toll free number (1-800-477-0406).

Explanation of Ratings and Analyst(s) Coverage Universe: JPMorgan uses the following rating system: Overweight [Over the next six to twelve months, we expect this stock will outperform the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] Neutral [Over the next six to twelve months, we expect this stock will perform in line with the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] Underweight [Over the next six to twelve months, we expect this stock will underperform the average total return of the stocks in the analyst’s (or the analyst’s team’s) coverage universe.] The analyst or analyst’s team’s coverage universe is the sector and/or country shown on the cover of each publication. See below for the specific stocks in the certifying analyst(s) coverage universe.

Prior to September 25, 2002, our rating system was: Buy — we expect the stock to outperform the market by a minimum of 5% within an investment horizon of one year; Long-Term Buy — we believe the stock will outperform the market over the long run, but we lack the visibility of a catalyst for outperformance within a one-year investment horizon; Market Performer — the stock is expected to perform in line with the market; Market Underperformer — we expect the stock to underperform the market by a minimum of 5% within an investment horizon of one year.

JPMorgan Equity Research Ratings Distribution, as of June 30, 2005

<table>
<thead>
<tr>
<th>JPM Global Equity Research Coverage</th>
<th>Overweight (buy)</th>
<th>Neutral (hold)</th>
<th>Underweight (sell)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IB clients*</td>
<td>40%</td>
<td>42%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>47%</td>
<td>46%</td>
<td>39%</td>
</tr>
</tbody>
</table>

| JPMSI Equity Research Coverage    | 34%             | 49%            | 17%              |
| IB clients*                       | 66%             | 57%            | 47%              |

*Percentage of investment banking clients in each rating category.
For purposes only of NASD/NYSE ratings distribution rules, our Overweight rating falls into a buy rating category, our Neutral rating falls into a hold rating category, and our Underweight rating falls into a sell rating category.

Valuation and Risks: Company notes and reports include a discussion of valuation methods used, including methods used to determine a price target (if any), and a discussion of risks to the price target.

Analysts’ Compensation: The equity research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues, which include revenues from, among other business units, Institutional Equities and Investment Banking.
Other Disclosures:

Legal Entities: Equity Research is a product of J.P. Morgan Securities Inc. (JPMSI) and/or its affiliates worldwide. JPMSI is a member of NYSE, NASD and SIPC. The analysts who write global equity research are employees of JPMSI or its affiliated companies worldwide, including the following companies. J.P. Morgan Securities Ltd. (JPMSSL) is a member of the London Stock Exchange and is authorised and regulated by the Financial Services Authority. J.P. Morgan Equities Limited is a member of the Johannesburg Securities Exchange and is regulated by the FSB. J.P. Morgan Securities Asia Private Limited (Co. Reg. No.: 197300590K) is regulated by the Monetary Authority of Singapore (MAS) and the Japan Financial Services Agency (FSA). J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) and J.P. Morgan Securities (Far East) Limited (CE number AAB026) are regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong respectively. J.P. Morgan Securities Singapore Private Limited (Co. Reg. No.: 199405335R) is a member of Singapore Exchange Securities Trading Limited and is regulated by the MAS. J.P. Morgan Malaysia Sdn. Bhd. (18146-X) is licensed as an investment advisor by the Securities Commission in Malaysia. J.P. Morgan Australia Limited (ABN 52 002 888 011/AFS Licence No: 238188) and J.P. Morgan Securities Australia Limited (ABN 61 003 245 234/AFS Licence No: 238066, a Market Participant with the ASX) (JPMASL) are licensed securities dealers. J.P. Morgan Securities New Zealand Limited is a New Zealand Exchange Limited Market Participant. J.P.Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Commission. J.P. Morgan India Private Limited is a member of the National Stock Exchange of India Limited and The Stock Exchange, Mumbai and is regulated by the Securities and Exchange Board of India. J.P. Morgan Securities (Thailand) Limited is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission PT. J.P. Morgan Securities Indonesia is a member of the Jakarta Stock Exchange and Surabaya Stock Exchange and is regulated by the BAPEPAM. This report is distributed in the Philippines by J.P. Morgan Securities Philippines, Inc. Banco J.P. Morgan S.A. is regulated by the Comissao de Valores Mobiliarios (CVM) and by the Central Bank of Brazil.

Options related research: If the information contained herein regards options related research, such information is available only to persons who have received the proper option risk disclosure documents. For a copy of the Option Clearing Corporation’s Characteristics and Risks of Standardized Options, please contact your JPMorgan Representative or visit the OCC’s website at http://www.optionsclearing.com/publications/risks/riskstoc.pdf.

General: Information has been obtained from sources believed to be reliable but JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively JPMorgan) do not warrant its completeness or accuracy except with respect to any disclosures relative to JPMSI and/or its affiliates and the analyst’s involvement with the issuer. Opinions and estimates constitute our judgement as of the date of this material and are subject to change without notice. Past performance is not indicative of future results. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. Securities, financial instruments or strategies mentioned herein may not be suitable for all investors. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. The recipient of this report must make its own independent decisions regarding any securities or financial instruments mentioned herein. JPMSI distributes in the U.S. research published by non-U.S. affiliates and accepts responsibility for its contents. Clients should contact analysts and execute transactions through a JPMorgan subsidiary or affiliate in their home jurisdiction unless governing law permits otherwise.

Planned Frequency of Updates: JPMorgan provides periodic updates on companies/industries based on company-specific developments or announcements, market conditions or any other publicly available information.

U.K. and European Economic Area (EEA): Issued and approved for distribution in the U.K. and the EEA by JPMSSL. Investment research issued by JPMSL has been prepared in accordance with JPMSL’s Policies for Managing Conflicts of Interest in Connection with Investment Research which can be found at http://www.jpmorgan.com/pdfdoc/research/ConflictManagementPolicy.pdf. All research issued to private clients in the U.K. is subject to the following: the investments and strategies discussed here may not be suitable for all investors; if you have any doubts you should consult your investment advisor. The investments discussed may fluctuate in price or value. Investors may get back less than they invested. Changes in rates of exchange may have an adverse effect on the value of investments.

Germany: This material is distributed in Germany by J.P. Morgan Securities Ltd. Frankfurt Branch and JPMorgan Chase Bank, N.A., Frankfurt Branch. Australia: This material is issued and distributed by JPMASL in Australia to “wholesale clients” only. JPMASL does not issue or distribute this material to “retail clients.” The recipient of this material must not distribute it to any third party or outside Australia without the prior written consent of JPMASL. For the purposes of this paragraph the terms “wholesale client” and “retail client” have the meanings given to them in section 761G of the Corporations Act 2001. Hong Kong: The 1% ownership disclosure as of the previous month end satisfies the requirements under Paragraph 16.5(a) of the Hong Kong Code of Conduct for persons licensed by or registered with the Securities and Futures Commission. (For research published within the first ten days of the month, the disclosure may be based on the month end data from two months’ prior.) J.P. Morgan Broking (Hong Kong) Limited is the liquidity provider for derivative warrants issued by J.P. Morgan International Derivatives Ltd and listed on The Stock Exchange of Hong Kong Limited. An updated list can be found on HKEx website: http://www.hkex.com.hk/prod/dw/Lp.htm. Korea: This report may have been edited or contributed to from time to time by affiliates of J.P. Morgan Securities (Far East) Ltd, Seoul branch. Singapore: JPMSI and/or its affiliates may have a holding in any of the securities discussed in this report; for securities where the holding is 1% or greater, the specific holding is disclosed in the Legal Disclosures section above. India: FOR PRIVATE CIRCULATION ONLY NOT FOR SALE.

THIS MATERIAL IS DISTRIBUTED IN JAPAN BY J.P. MORGAN SECURITIES ASIA PTE LIMITED.
THIS MATERIAL IS ISSUED AND DISTRIBUTED IN SINGAPORE BY J.P. MORGAN SECURITIES SINGAPORE PRIVATE LIMITED [MICA (P) 205/04/2005].
THIS MATERIAL IS ISSUED AND DISTRIBUTED IN MALAYSIA BY J.P. MORGAN MALAYSIA SDN. BHD. (18146-X).

Copyright 2005 JPMorgan Chase & Co. All rights reserved. Additional information available upon request.