

TRANSKRIP WAWANCARA

Nama	Bapak Andry Ardiansyah Hartono
Jabatan dalam	System Analysis And Development for Technical Analysist
Menjadi System analyst	Mulai tahun 1990

PEMBUKAAN

Hari Selasa tanggal 9 Februari 2021 pukul 13.00, saya ada janji dengan salah satu karyawan kunci dari PT Avedeo Mandiri Sukses untuk melaksanakan wawancara mengenai Model Analisa Teknikal Saham berbasis Teknologi Informasi bagi investor pemula dan investor lama, beliau lebih di kenal sebagai bapak Andry yang sudah lebih dari dua puluh lima tahun menjadi System Analysis And Development for Technical Analysist

HASIL WAWANCARA

1	Saya	: Terima kasih pak Andry, berkenan saya wawancara, ini terkait dengan disertasi saya mengenai Model Decision Support System Berbasis Fintech Dalam berinvestasi , di PT AMS ini bapak posisinya sebagai apa ?
	Bpk. Andry	: e hm... batuk , sebagai Technical Analyst Support
2	Saya	: Mulai Tahun berapa pak kret suara kursi ?
	Bpk. Andry	: Mulai tahun 1990
3	Saya	: Wow berarti sudah 30 tahun, lama sekali. Begini pak , selama menjadi technical analyst, pekerjaan sehari-hari bapak apa saja ya ?
	Bpk. Andry	: e ... mmm, saya dari awal perusahaan ini tugas mengembangkan aplikasi pendukung keputusan bagi investor terutama berkaitan dengan Analisa teknikal saham
4	Saya	: sepanjang bapak tahu apa maksud Analisa teknikal ya pak ?

	Bpk. Andry	: Analisis teknikal memang lebih terkenal dan relevan untuk kalangan trader saham yang lebih suka mengambil keuntungan dari pasar saham dalam jangka waktu yang lebih singkat dibandingkan investor fundamental. Ini sering membuat investor fundamental dan teknikal memiliki pendapat yang berbeda mengenai keputusan jual beli saham. Namun menurut saya kita sebagai investor harus melihat dari sudut pandang berbeda, dimana kita ingin mengeksplorasi apakah mungkin analisis fundamental dapat digabungkan dengan analisis teknikal untuk keputusan jual beli saham yang lebih baik, guna mendapatkan hasil yang lebih maksimal untuk investor.
5	Saya	: Menurut Anda Apakah Analisa Teknikal merupakan Suatu Ilmu ?
	Bpk. Andry	: Analisis teknikal adalah suatu ilmu untuk membaca momentum dan juga pergerakan harga saham. Pertanyaan selanjutnya adalah, dari mana investor dapat memulainya? Investor dapat memulai dengan mencari sumber grafik teknikal dari berbagai macam sumber, yang gratis maupun berbayar.
6	Saya	: Untuk Melakukan Analisa Saham dengan model Teknikal Biasanya Bapak Menggunakan Alat Bantu Apa ya Pak ?
	Bpk. Andry	: Biasanya Alat Bantu Yang Saya Pergunakan adalah Aplikasi Ami broker dan Bahasa Program PHP
7	Saya	: Mengapa Bapak Menggunakan Aplikasi Tersebut ?
	Bpk. Andry	: Karena Aplikasi tersebut bisa di kustomisasi dan dapat berbagi dengan para investor lain terutama dengan menggunakan Bahasa AFL
8	Saya	: Sebagai Teknikal Analyzer tentunya data histori saham memegang peranan penting dalam melakukan analisis
	Bpk. Andry	: e e ehm Benar sekali
9	Saya	: Database Saham Dari ,ama saja pak ?
	Bpk. Andry	: Saya memberikan saran untuk menggunakan database saham dari yahoo finance
10	Saya	: kenapa pak?

	Bpk. Andry	: karena sifatnya adalah freeware dan dapat terupdate secara otomatis, tanpa update secara manual, serta harga saham meliputi seluruh pasar di dunia .
11	Saya	: Saya dengan dalam Analisa teknikal tidak terlepas dari istilah candle stick, bisa bapak jelaskan kepada saya ?
	Bpk. Andry	: Secara psikologi, <i>Candle Stick Chart</i> terbentuk oleh karena adanya tekanan jual dan beli pelaku pasar, dimana perbedaan antara tekanan beli dan jual inilah menyebabkan perbedaan dari bentuk satu <i>candle stick</i> dengan <i>candle stick</i> lainnya. Besarnya dorongan beli pada suatu perdagangan dapat diukur dari pergerakan Harga Terendah dalam perdagangan (<i>Lowest Price</i>) sampai Harga Penutupan (<i>Closing Price</i>), dimana semakin besarnya demand pembeli dalam perdagangan ini, maka semakin besar pula <i>body bullish candle</i> yang terbentuk. Oleh karena itu, besarnya body pada <i>bullish candle</i> yang berwarna putih juga dapat menjadi indikator seberapa mendominasinya pembelinya dibanding penjual pada perdagangan saat itu.
12	Saya	: oh ya pak ?
	Bpk. Andry	: Di sisi lain, <i>Bearish Candle Stick</i> yang berwarna hitam, terbentuk saat lebih banyak penjual dibandingkan dengan pembelinya (<i>Supply Over Demand</i>), dimana ini akan membuat harga pasar semakin tertekan pada akhir jam perdagangan sehingga membentuk posisi Harga Penutupan (<i>Closing Price</i>) berada di bawah Harga Pembukaan (<i>Opening Price</i>). Besarnya tekanan jual pada suatu perdagangan dapat diukur dari pergerakan Harga Tertinggi dalam perdagangan (<i>Highest Price</i>) sampai Harga Penutupan (<i>Closing Price</i>). Semakin besar tekanan jual dalam perdagangan ini, maka semakin pula <i>body bearish candle</i> yang terbentuk. Oleh karena itu, besarnya body pada <i>bearish candle</i> yang berwarna hitam dapat menjadi tolak ukur seberapa besar tekanan jual yang mendominasi perdagangan tersebut jika dibandingkan dengan permintaan pembelinya.
13	Saya	: maksudnya pak
	Bpk. Andry	: Setelah dapat mengetahui cara terbentuknya <i>candle stick</i> yang menjadi bahan dasar utama dalam terbentuknya pola pada pergerakan harga saham, sekarang saatnya kita mempelajari macam-macam pola utama atau tren yang dibentuk oleh harga saham sebagai langkah awal yang penting

		untuk diketahui oleh seorang investor yang ingin menggunakan analisis teknikal sebagai salah satu instrumen untuk membuat keputusan dalam investasi.
14	Saya	: oh sangat jelas pak ?, saya juga pernah mendengar istilah support dan resistance, bisa bapak jelaskan ?
	Bpk. Andry	: Pada pola pergerakan harga uptrend seperti di atas, level <i>Support</i> dan <i>Resistance</i> dibentuk oleh titik-titik puncak dan lembah yang lebih tinggi dari waktu ke waktu, sehingga jika kita menggabungkan titik-titik tersebut akan terbentuk <i>price channel</i> , dimana garis bawah menggambarkan garis level <i>support</i> dan garis atas menggambarkan level <i>resistance</i> .
15	Saya	: apakah bapak bisa menunjukkan kepada saya design support sistem dalam Analisa teknikal saham dengan aplikasi Amibroker ?
	Bpk. Andry	: Baik silahkan ke ruangan saya sebentar karena servernya ada di situ
16	Saya	: baik pak, (Berjalan masuk ke ruangan Pak Andry)
	Bpk. Andry	: Ini design support system yang saya buat selama ini
17	Saya	: wah sangat menakjubkan pak , sangat menarik tampilannya
	Bpk. Andry	: ya ini memerlukan waktu yang lama untuk membuatnya terutama Bahasa AFL nya
18	Saya	: O begitu ya pak
	Bpk. Andry	: Iya, betul
19	Saya	: wah saya jadi ingin mendalami mengenai hal tersebut
	Bpk. Andry	: boleh saja
20	Saya	: bisa di jelaskan lebih detil pak ?
	Bpk. Andry	: maaf ini untuk memberikan penjelasan membutuhkan waktu yang sangat Panjang, apakah bisa dilakukan di waktu lain ?
21	Saya	: baik pak kapan bapak bisa untuk dilakukan interview lanjutan
	Bpk. Andry	: bagaimana kalau nanti saya info lagi
22	Saya	: baik pak
	Bpk. Andry	: iya karena dalam musim pandemic seperti ini

23	Saya	: ok pak terima kasih atas waktunya, mohon maaf mengganggu dan ini sangat bermanfaat sekali bagi saya, oh ya pak menurut bapak bagus mana Analisa teknikal saham dengan analisa fundamental
	Bpk. Andry	: sama sama, kalua menurut saya saling melengkapinya.
24	Saya	: dalam Analisa teknikal saham, tentunya terdapat beberapa jenis charting yang harus diketahui , benrakah ?
	Bpk Andry	: benar sekali
25	Saya	: menurut Bapak bagaimana kita bisa secar efesktif dan effisien dalam memahami charting dalam Analisa teknikal pak ?
	Bpk Andry	: baik sekali , mari saya tunjukkan di kompueter saya untuk menjawab pertanyaan saudara,
		Selama 15 menit saya Bersama bapak andry melihat-lihat bentuk chart dalam Analisa teknikal
26	Saya	: wah banyak sekali chartnya pak ?
	Bpk Andry	Benar ini yang mau saya jelaskan , jadi agar seorang investor dapat secara efektif dan effisien dalam melakukan anlisa teknikal maka diperluka suatu sistem artificial intelligence mengenai pola charting yang dikehandaki oleh investor, para investor tinggal melakukan screening sesuai gaya investor, nanti sistem artificial ini yang akan mencari pola charting yang di inginkan. Sehingga investor dapat secara efektif dan efisien dalam menentukan arah investasi saham, jadi istilahnya biarlah artificial intelligence bekerja secara otomatis , maka akan hemat waktu dan terarah tujuannya bagi investor
27	Saya	Wah saya bisa minta pola-pola cahrting tersebut pak
	Bpk Andry	Boleh nanti saya berikan
28	Saya	Terima kasih banyak pa katas waktunya, jika ada pertanyaan saya bisa berkunjung lagi ya pak ?
	Bpk Andry	Monggo silahkan, pak

TRANSKRIP WAWANCARA

Nama	Bapak M Iqbal Zulkarnaen
Nama Perusahaan	PT. Avedeo Mandiri Sukses
Jabatan dalam Perusahaan	System Analysis And Development for Fundamental Analysist
Bekerja Sejak	Mulai tahun 2010

PEMBUKAAN

Hari ini Rabu tanggal 17 Februari 2021 di hadapan saya hadir pak Iqbal sebagai System Analysis And Development for Fundamental Analysist dan pada hari ini saya akan melakukan wawancara dengan beliau, beliau adalah karyawan lama dan berpengalaman dalam Analisa Fundamental Saham.

HASIL WAWANCARA

1	Saya	: Baik, pak iqbal sudah lama menjadi kepala bagian Analisa Saham Fundamental di PT Avedeo Mandiri Sukses ?
	Bpk. Iqbal	: Ya mulai perusahaan berdiri saya sudah menjadi karyawan pada perusahaan ini
2	Saya	: Sebagai orang yang ahli dalam Analisa Fundamental Saham Bisa Bapak Ceritakan ?
	Bpk. Iqbal	: Analisa Fundamental merupakan Analisa saham dengan mendasarkan pada kondisi fundamental saham
3	Saya	: maksudnya pak ?
	Bpk. Iqbal	: Fundamental saham biasanya saya melakukan analisis dengan melihat rasio-rasio pada laporan keuangan
4	Saya	: apa saja pak yang biasanya dilakukan sebagai analisis fundamental ?
	Bpk. Iqbal	: melihat rasio keuangan perusahaan yang terdiri dari Profitability Ratio, Liquidity Ratio, Solvency Ratio, Efficiency Ratio, Market Prospect Ratio, Investment Leverage Ratio, Coverage Ratio,
5	Saya	: Bisa Bapak Jelaskan ?

	Bpk. Iqbal	<p>: Profitability Ratio atau rasio profitabilitas berguna untuk mengukur kemampuan sebuah perusahaan dalam menghasilkan profit dibandingkan dengan metrik lainnya. Profit sebuah perusahaan bisa dibandingkan dengan Revenue atau pun dibandingkan dengan Ekuitas atau Aset yang dimiliki perusahaan. Oleh karena itu, Profitability Ratio dibagi menjadi dua kategori: Margin Ratio dan Return Ratio.</p> <p>Margin Ratio biasa digunakan untuk mengukur profitabilitas sebuah perusahaan terhadap Revenue. Margin Ratio ini penting karena ada perusahaan yang menghasilkan Revenue atau Pendapatan dalam jumlah yang besar, namun hanya menghasilkan profit yang kecil. Tentunya revenue yang besar tidak berarti apapun selama profit yang dihasilkan kecil</p>
6	Saya	: selanjutnya pak ?
	Bpk. Iqbal	<p>: Gross Profit Margin Adalah perbandingan antara laba kotor dengan penjualan. Gross Profit Margin ini penting untuk mengukur apakah perusahaan memiliki kendala dengan bahan baku atau tidak. Tidak ada ukuran yang pasti untuk mengukur berapa Gross profit Margin yang tergolong baik. Namun, pada prakteknya di lapangan biasanya angka 30% dapat digunakan sebagai standar. Jika Gross Profit Margin perusahaan terus bergerak turun selama > 1 tahun, maka ada indikasi yang cukup serius bahwa perusahaan terkendala dengan Cost of Goods Sold (COGS) atau biaya produksi</p>
7	Saya	: oh ya pak
	Bpk. Iqbal	<p>: Net Profit Margin. Adalah perbandingan antara laba bersih dengan penjualan. Net Profit Margin ini penting untuk mengukur apakah secara keseluruhan perusahaan menghasilkan profit yang cukup baik atau tidak setelah dipotong dengan seluruh pengeluaran. Net Profit Margin yang tergolong baik adalah 10% dari penjualan. Secara umum, perusahaan yang memiliki Net Profit Margin < 10% bisa dikatakan tidak memiliki <i>competitive advantage/economic moat</i> yang cukup,</p>

8	Saya	: Saya pernah membaca kalau seorang investor melakukan analisis fundamental saham akan diketahui harga saham itu under value atau over value, bisa bapak jelaskan ?
	Bpk. Iqbal	: Biasanya ukuran yang dipakai untuk mengatakan bahwa harga saham sudah cukup murah adalah $PER < 10.0x$ dan $PBV < 2.0x$. Namun hal ini tidak terlalu baku karena setiap industri biasanya memiliki ukuran yang berbeda- beda. Dengan demikian, kita bisa melakukan dua acara untuk menilai apakah harga saham murah atau mahal;
9	Saya	: Pak, kemarin saya menemukan sebuah saham yang valuasinya sangat murah. Kalau saya hitung, saham tersebut dihargai pada $PER 3.0x$ Menurut penjelasan sebelumnya jika $PER < 10,0x$ maka dapat dikatakan murah, berarti boleh beli donk?
	Bpk. Iqbal	: Pertanyaan ini sering ditanyakan oleh teman-teman investor, jika ini juga menjadi pernyataan bagi anda, sebaiknya anda cek laporan keuangannya kembali terlebih dahulu karena terkadang saham yang memiliki valuasi terlalu murah, bisa jadi bukan karena sahamnya murah dan <i>undervalued</i> tetapi justru malah saham murahan. Jadi jika anda menemukan saham yang demikian, maka berhati-hatilah terhadap yang namanya <i>value trap</i> . <i>Value trap</i> adalah kondisi dimana sebuah saham terlihat murah karena saham tersebut diperdagangkan pada valuasi yang murah seperti <i>Price to earning ratio</i> (PER) atau <i>Price to book value</i> (PBV) yang sangat rendah. Saham seperti ini biasanya menarik investor- investor yang hanya menjadikan rasio-rasio seperti PER dan PBV sebagai acuan dalam keputusan membeli sebuah saham tanpa memperhatikan kinerja fundamentalnya secara keseluruhan. Masalahnya adalah jika investor hanya menjadikan PER dan PBV sebagai acuan dalam keputusan membeli saham, maka bisa jadi dia sedang masuk ke dalam value trap. Contohnya di akhir tahun 2018, LPCK berada pada valuasi $PER 0,5x$ dan $PBV 0,2x$ kalau kita baca penjelasan di atas, maka seharusnya LPCK ini termasuk saham murah. Namun benarkan demikian? kalau kita teliti lebih lanjut di dalam Laporan Keuangan Full Year 2018, LPCK mencatatkan kenaikan laba bersih yang signifikan dari rugi bersih Rp 821,9

		<p>miliar Rp 1,96 triliun sepanjang 2018. Kenaikan laba bersihnya ini membuat EPS LPCK meningkat dari –Rp 307/lembar di 2017 menjadi Rp 732/lembar di 2018 (sebelum right issue di 2019). Sekilas terlihat bahwa laba bersih LPCK meningkat sekitar 5x lipat mengindikasikan kinerja perusahaan yang sangat baik. Namun jika diteliti lebih lanjut, laba bersihnya tadi bukan datang dari kinerja operasional (penjualan properti dan lainnya), namun lebih banyak disebabkan dari keuntungan atas penjualan entitas asosiasi (PT Mahkota Sentosa Utama) sebesar Rp 2,35 triliun. Sehingga kalau pengakuan keuntungan atas penjualan entitas asosiasi PT MSU tadi diabaikan, maka secara kasat mata LPCK ini bukannya mencatatkan keuntungan Rp 1,96 triliun, namun hanya mencatatkan keuntungan Rp 1.17 triliun (Rp 1,96 triliun dikurangi Rp 976,1 miliar).</p>
10	Saya	: kenapa berpendapat seperti itu pak ?
	Bpk. Iqbal	: Ya karena saya berpengalaman beberapa kali dalam melakukan Analisa fundamental saham
11	Saya	: menurut bapak Analisa fundamental dengan Analisa teknikal lebih bagus mana ya pak ?
	Bpk. Iqbal	: menurut saya saling melengkapi
12	Saya	: bagaimana harga saham wajar ?
	Bpk. Iqbal	<p>: Banyak investor atau trader yang hanya melihat murah atau mahal nya harga sebuah saham dengan melihat harga saham (<i>market price</i>). Misalkan ada sebuah saham yang harga sahamnya turun dari Rp1000/lembar, kemudian turun menjadi Rp500/lembar (turun 50%). Pertanyaannya adalah apakah saham tersebut sudah dapat dikatakan <i>undervalue</i>? Jawabannya bisa iya dan bisa tidak.</p> <p>Kalau misalkan harga sahamnya turun ke Rp500/lembar tetapi Nilai Intrinsik juga turun ke Rp400/lembar (karena kinerja laporan keuangan juga turun), maka harga saham tadi belum dapat dikatakan <i>undervalued</i>. Namun jika harga sahamnya turun ke Rp500/lembar, namun nilai intrinsiknya tetap berada di Rp1,000/lembar (karena kinerja laporan keuangan tetap baik), maka harga sahamnya saat ini sudah dapat dikatakan <i>undervalued</i>.</p> <p>Jadi, yang perlu ditekankan di sini adalah murah atau mahal nya sebuah harga saham bukan hanya dibandingkan dengan harga saham secara <i>historical</i>, melainkan juga perlu dibandingkan terhadap nilai intrinsiknya. Jika harga saham</p>

		berada jauh di bawah Nilai Intrinsiknya, maka harga sahamnya dikatakan <i>undervalued</i> . Sebaiknya jika harga saham berada di atas Nilai Intrinsik, maka harga sahamnya dikatakan <i>overvalued</i> .
13	Saya	: Apakah yang dimaksud dengan harga intrinsic saham pak ?
	Bpk. Iqbal	<p>: Jika kita mencari definisi <i>Intrinsic Value</i> pada Wikipedia, maka penjelasannya adalah sebagai berikut: <i>“Intrinsic Value refers to the value of a company, stock, currency or product determined through fundamental analysis without references to its market value. It is also frequently called fundamental value”</i></p> <p>Singkatnya, <i>intrinsic value</i> adalah nilai wajar dari sebuah perusahaan. Dengan seorang investor membeli saham dari sebuah perusahaan, maka <i>intrinsic value</i> juga dapat diartikan sebagai harga wajar sebuah saham. Banyak investor yang hanya memperhatikan fluktuasi harga saham, namun tidak memperhatikan beberapa nilai intrinsik sahamnya. Sama seperti harga saham yang bisa bergerak naik dan turun, nilai intrinsik pun bisa bergerak naik dan turun. Jika kinerja perusahaan meningkat dibandingkan dengan periode sebelumnya, maka nilai intrinsik sebuah perusahaan juga akan turun.</p> <p>Seorang investor jangka panjang mempercayai bahwa harga saham tidak selalu merepresentasikan nilai benarnya dari sebuah perusahaan. Ada perusahaan yang kinerjanya biasa-biasa saja namun harga sahamnya melambung tinggi. Ada pula perusahaan yang kinerjanya sangat baik namun harga sahamnya terpuruk hanya karena sentimen negatif tertentu. Oleh karena itu, sebaiknya seorang investor tidak hanya memperhatikan pergerakan <i>historical</i> harga saham, melainkan juga perlu menghitung berapa nilai intrinsik sahamnya saat ini.</p>
14	Saya	: Bagaimana Menghitungnya pak ?
	Bpk. Iqbal	<p>: Sebenarnya ada cukup banyak cara untuk menghitung harga wajar sebuah saham, dan satu metode tidak dapat digeneralisir bisa berlaku untuk perhitungan lainnya. Adapun salah satu cara sederhana yang dapat Anda lakukan untuk menghitung nilai intrinsik atau harga <i>Financial Modelling</i> yang rumit dimana dapat dirumuskan ke dalam beberapa langkah berikut:</p> <ol style="list-style-type: none"> 1. Cari data <i>historical</i> laba bersih 5 tahun ke belakang dan hitung rata-rata pertumbuhan (CAGR)

		<ol style="list-style-type: none"> 2. Gunakan CAGR tersebut untuk mengestimasi EPS 5 tahun dari sekarang (<i>Future Value</i>) 3. Hitung akumulasi EPS 5 tahun 4. Hitung <i>Present Value</i> dengan memberikan tingkat diskon 5. Bandingkan dengan harga saham saat ini dan hitung <i>Margin of Safety</i>
15	Saya	: Biasanya Analisa fundamental database dari mana ya pak ?
	Bpk. Iqbal	: biasanya saya menggunakan data fundamental dari yahoo finance
16	Saya	: ooo begitu ya pak
	Bpk. Iqbal	: ya
17	Saya	: Ok pak terima kasih atas waktunya, bersedia berbagi pengalaman mengenai proses analisis fundamental saham terutama berbasis teknologi informasi
	Bpk. Iqbal	: Sama-sama
18	Saya	: Oh ya pak saya punya pertanyaan yang sama dengan Bapak andry, mengenai bagaimana cara efektif dan efisien dalam melakukan Analisa fundamental saham , mengingat Analisa fundamental tentunya tidak mudah , bagaimana menurut bapak yang sudah sangat berpengalaman dalam melakukan analisis fundamental ?
	Bpk. Iqbal	: ini memang sangat sulit , namun semuanya sangat mungkin sekarang dengan adanya artificial intelligence dalam pelaksanaan tugas-tugas manual oleh manusia, namun kalau mau lebih jelas bisa saya tunjukkan dari riset saya di komputer saya ;
	Saya	Baik pak
		Selama 30 menit melihat-lihat data dan Analisa fundamental di Komputer milik Bapak Iqbal
19	Saya	wah sangat menarik ya pak portfolio dari analisa fundamental saham, mungkin saya bisa meminta Langkah-langkah untuk pembentukan portfolio tersebut
	Bpk. Iqbal	Baik Pak , Silahkan akan saya berikan silahkan di pelajari, namun memang supaya analisis Fundamental lebih focus dan tepat Analisa fundamental sangat tepat jika diarahkan pada saham-saham yang fundamental bagus ,

		berdasarkan analisis yang dilakukan oleh Bursa Efek Indonesia (BEI), seperti IDX30, LQ 45, Kompas 100
20	Saya	Baik Terima Kasih Banyak pak, maaf jika saya kurang jelas saya dapat menghubungi bapak lagi kah ?
	Bpk. Iqbal	Silahkan pak,..... tapi saya di call dulu ya
	Saya	Baik pak

TRANSKRIP WAWANCARA

Nama Bapak Christian Bayu

Jabatan dalam Information Technology Director PT AMS

Menjadi Pemeriksa pajak Mulai tahun 1990

PEMBUKAAN

Hari ini Selasa tanggal 9 Maret tahun 2021 saya ada janji dengan bapak Bayu untuk melanjutkan wawancara

HASIL WAWANCARA

1	Saya	: Terima kasih atas waktunya, untuk berkenan untuk wawancara , bagaimana pak sehat ?
	Bpk. Bayu	: ya betul, sehat
2	Saya	: bisa kita lakukan wawancara
	Bpk. Bayu	: baik, oh ya ?
3	Saya	: sebagai seorang direktur dalam teknologi informasi apa pandangan bapak terhadap kondisi teknologi informasi saat ini terutama dalam era fintech dikaitkan dengan saham ?
	Bpk. Bayu	: oh ya, sekarang banyak sekali platform-platform yang membantu investor dalam berinvestasi saham
4	Saya	: menurut Bapak yang paling menarik dan belum ada apa ya pak ?
	Bpk. Bayu	: menurut saya sekarang yang menarik untuk dikembangkan adalah artificial intelligence atau robotic saham
5	Saya	: Maksudnya bagaimana ya pak ?
	Bpk. Bayu	: jadi sekarang yang menarik dan terbaru adalah adanya Bot Saham dengan menggunakan aplikasi telegram
6	Saya	:Bagaimana Designnya ya pak
	Bpk. Bayu	: secara hgaris besar dapat saya jelaskan di papan tulis ini , bunyi sreek, menggeser papan tulis sambil menjelaskan
7	Saya	: ya pak
	Bpk. Bayu	: seperti ini model telegram Bot yang menurut saya sangat menarik
8	Saya	: ooo sangat menarik , sambil melihat papan tulis

	Bpk. Bayu	: betul sekali
9	Saya	: baik pak, oh ya pak apakah saya bisa diberikan data mengenai Mapping Analisa fundamental dan teknikal saham yang dikomunikasikan lewat telegram BOT i
	Bpk. Bayu	: Boleh
10	Saya	: karena saya perlukan untuk kepentingan disertasi saya pak
	Bpk. Bayu	: baik, tidak masalah
11	Saya	: ok pak terima kasih atas waktunya mau berbagi pengalaman dengan saya , terutama di mas pandemic corona sekarang
12	Saya	Oh ya pak, mengenai alat telegram bot saham tentu ada perbedaan persepsi mengenai pemahaman saham terutama terkait dengan analisis saham , bagaimana bapak menyikapi kondisi ini dengan investor ?
	Bpk. Bayu	Biasanya yang dapat kita jadikan acuan apabila terdapat perbedaan Analisa saham adalah back test model platform saham kita
13	Saya	Ok pak terima kasih atas waktunya dalam wawancara kali ini
	Bpk. Bayu	Sama-sama
	Saya	: Terima kasih pak, jaga kesehatan selalu

Daftar Kode Emiten Saham Pada Yahoo Finance

No	Kode	Nama Emiten
1	AALI.JK	Astra Agro Lestari Tbk
2	ABBA.JK	Mahaka Media Tbk
3	ABDA.JK	Asuransi Bina Dana Arta Tbk
4	ABMM.JK	ABM Investama Tbk
5	ACES.JK	Ace Hardware Indonesia Tbk
6	ACST.JK	Acset Indonusa Tbk
7	ADES.JK	Ades Waters Indonesia Tbk
8	ADHI.JK	Adhi Karya (Persero) Tbk
9	ADMF.JK	Adira Dinamika Multi Finance Tbk
10	ADMG.JK	Polychem Indonesia Tbk
11	ADRO.JK	Adaro Energy Tbk
12	AGII.JK	Aneka Gas Industri Tbk
13	AGRO.JK	Bank Rakyat Indonesia Agroniaga Tbk
14	AGRS.JK	Bank Agris Tbk
15	AHAP.JK	Asuransi Harta Aman Pratama Tbk
16	AIMS.JK	Akbar Indo Makmur Stimec Tbk
17	AISA.JK	Tiga Pilar Sejahtera Food Tbk
18	AKKU.JK	Anugerah Kagum Karya Utama Tbk
19	AKPI.JK	Argha Karya Prima Industri Tbk
20	AKRA.JK	AKR Corporindo Tbk
21	AKSI.JK	Majapahit Inti Corpora Tbk
22	ALDO.JK	Alkindo Naratama Tbk

23	ALKA.JK	Alakasa Industrindo Tbk
24	ALMI.JK	Alumindo Light Metal Industri Tbk
25	ALTO.JK	Tri Banyan Tirta Tbk
26	AMAG.JK	Asuransi Multi Artha Guna Tbk
27	AMFG.JK	Asahimas Flat Glass Tbk
28	AMIN.JK	Ateliers Mecaniques D'Indonesie Tbk
29	AMRT.JK	Sumber Alfaria Trijaya Tbk
30	ANDI.JK	Andira Agro Tbk
31	ANJT.JK	Austindo Nusantara Jaya Tbk
32	ANTM.JK	Aneka Tambang Tbk
33	APEX.JK	Apexindo Pratama Duta Tbk
34	APIC.JK	Pacific Strategic Financial Tbk
35	APII.JK	Arita Prima Indonesia Tbk
36	APLI.JK	Asiaplast Industries Tbk
37	APLN.JK	Agung Podomoro Land Tbk
38	APOL.JK	Arpeni Pratama Ocean Line Tbk
39	ARGO.JK	Argo Pantes Tbk
40	ARII.JK	Atlas Resources Tbk
41	ARKA.JK	Arkha Jayanti Persada Tbk
42	ARMY.JK	Armidian Karyatama Tbk
43	ARNA.JK	Arwana Citramulia Tbk
44	ARTA.JK	Arthavest Tbk
45	ARTI.JK	Ratu Prabu Energi Tbk
46	ARTO.JK	Bank Artos Indonesia Tbk
47	ASBI.JK	Asuransi Bintang Tbk

48	ASDM.JK	Asuransi Dayin Mitra Tbk
49	ASGR.JK	Astra Graphia Tbk
50	ASIL.JK	Astra International Tbk
51	ASJT.JK	Asuransi Jasa Tania Tbk
52	ASMI.JK	Asuransi Kresna Mitra Tbk
53	ASRI.JK	Alam Sutera Realty Tbk
54	ASRM.JK	Asuransi Ramayana Tbk
55	ASSA.JK	Adi Sarana Armada Tbk
56	ATIC.JK	Anabatic Technologies Tbk
57	AUTO.JK	Astra Otoparts Tbk
58	BABP.JK	Bank MNC Internasional Tbk
59	BACA.JK	Bank Capital Indonesia Tbk
60	BAJA.JK	Saranacentral Bajatama Tbk
61	BALI.JK	Bali Towerindo Sentra Tbk
62	BAPA.JK	Bekasi Asri Pemula Tbk
63	BAPI.JK	Bhakti Agung Propertindo Tbk
64	BATA.JK	Sepatu Bata Tbk
65	BAYU.JK	Bayu Buana Tbk
66	BBCA.JK	Bank Central Asia Tbk
67	BBHI.JK	Bank Harda Internasional Tbk
68	BBKP.JK	Bank Bukopin Tbk
69	BBLD.JK	Buana Finance Tbk
70	BBMD.JK	Bank Mestika Dharma Tbk
71	BBNI.JK	Bank Negara Indonesia (Persero) Tbk
72	BBRI.JK	Bank Rakyat Indonesia (Persero) Tbk

73	BBRM.JK	Pelayaran Nasional Bina Buana Raya Tbk
74	BBTN.JK	Bank Tabungan Negara (Persero) Tbk
75	BBYB.JK	Bank Yudha Bhakti Tbk
76	BCAP.JK	MNC Kapital Indonesia Tbk
77	BCIC.JK	Bank JTrust Indonesia Tbk
78	BCIP.JK	Bumi Citra Permai Tbk
79	BDMN.JK	Bank Danamon Tbk
80	BEEF.JK	Estika Tata Tiara Tbk
81	BEKS.JK	Bank Pembangunan Daerah Banten Tbk
82	BELL.JK	Trisula Textile Industries Tbk
83	BEST.JK	Bekasi Fajar Industrial Estate Tbk
84	BFIN.JK	BFI Finance Indonesia Tbk
85	BGTG.JK	Bank Ganesha Tbk
86	BHIT.JK	MNC Investama Tbk
87	BIKA.JK	Binakarya Jaya Abadi Tbk
88	BIMA.JK	Primarindo Asia Infrastructure Tbk
89	BINA.JK	Bank Ina Perdana Tbk
90	BIPI.JK	Benakat Integra Tbk
91	BIPP.JK	Bhuwanatala Indah Permai Tbk
92	BIRD.JK	Blue Bird Tbk
93	BISI.JK	BISI International Tbk
94	BJBR.JK	BPD Jawa Barat dan Banten Tbk
95	BJTM.JK	BPD Jawa Timur Tbk
96	BKDP.JK	Bukit Darmo Property Tbk
97	BKSL.JK	Sentul City Tbk

98	BKSW.JK	Bank QNB Indonesia Tbk
99	BLTA.JK	Berlian Laju Tanker Tbk
100	BLTZ.JK	Graha Layar Prima Tbk
101	BLUE.JK	Berkah Prima Perkasa Tbk
102	BMAS.JK	Bank Maspion Indonesia Tbk
103	BMRI.JK	Bank Mandiri (Persero) Tbk
104	BMSR.JK	Bintang Mitra Semestaraya Tbk
105	BMTR.JK	Global Mediacom Tbk
106	BNBA.JK	Bank Bumi Arta Tbk
107	BNBR.JK	Bakrie & Brothers Tbk
108	BNGA.JK	Bank CIMB Niaga Tbk
109	BNII.JK	Bank Maybank Indonesia Tbk
110	BNLI.JK	Bank Permata Tbk
111	BOGA.JK	Bintang Oto Global Tbk
112	BOLA.JK	Bali Bintang Sejahtera Tbk
113	BOLT.JK	Garuda Metalindo Tbk
114	BORN.JK	Borneo Lumbang Energi & Metal Tbk
115	BOSS.JK	Borneo Olah Sarana Sukses Tbk
116	BPFI.JK	Batavia Prosperindo Finance Tbk
117	BPII.JK	Batavia Prosperindo International Tbk
118	BPTR.JK	Batavia Prosperindo Trans Tbk
119	BRAM.JK	Indo Kordsa Tbk
120	BRIS.JK	Bank BRIsyariah Tbk
121	BRMS.JK	Bumi Resources Minerals Tbk
122	BRNA.JK	Berlina Tbk

123	BRPT.JK	Barito Pacific Tbk
124	BSDE.JK	Bumi Serpong Damai Tbk
125	BSIM.JK	Bank Sinarmas Tbk
126	BSSR.JK	Baramulti Suksessarana Tbk
127	BSWD.JK	Bank Of India Indonesia Tbk
128	BTEK.JK	Bumi Teknokultura Unggul Tbk
129	BTEL.JK	Bakrie Telecom Tbk
130	BTON.JK	Betonjaya Manunggal Tbk
131	BTPN.JK	Bank Tabungan Pensiunan Negara Tbk
132	BTPS.JK	Bank Tabungan Pensiunan Nasional Syariah Tbk
133	BUDI.JK	Budi Starch & Sweetener Tbk
134	BUKK.JK	Bukaka Teknik Utama Tbk
135	BULL.JK	Buana Listya Tama Tbk
136	BUMI.JK	Bumi Resources Tbk
137	BUVA.JK	Bukit Uluwatu Villa Tbk
138	BVIC.JK	Bank Victoria International Tbk
139	BWPT.JK	Eagle High Plantations Tbk
140	BYAN.JK	Bayan Resources Tbk
141	CAKK.JK	Cahayaputra Asa Keramik Tbk
142	CAMP.JK	Campina Ice Cream Industry Tbk
143	CANI.JK	Capitol Nusantara Indonesia Tbk
144	CARS.JK	Bintraco Dharma Tbk
145	CASA.JK	Capital Finance Indonesia Tbk
146	CASS.JK	Cardig Aero Services Tbk
147	CCSI.JK	Communication Cable Systems Indonesia Tbk

148	CEKA.JK	Wilmar Cahaya Indonesia Tbk
149	CENT.JK	Centratama Telekomunikasi Indonesia Tbk
150	CFIN.JK	Clipan Finance Indonesia Tbk
151	CINT.JK	Chitose Internasional Tbk
152	CITA.JK	Cita Mineral Investindo Tbk
153	CITY.JK	Natura City Developments Tbk
154	CKRA.JK	Cakra Mineral Tbk
155	CLAY.JK	Citra Putra Realty Tbk
156	CLEO.JK	Sariguna Primatirta Tbk
157	CLPI.JK	Colorpak Indonesia Tbk
158	CMNP.JK	Citra Marga Nushapala Persada Tbk
159	CMPP.JK	AirAsia Indonesia Tbk
160	CNKO.JK	Exploitasi Energi Indonesia Tbk
161	CNTB.JK	Saham Seri B (Centex Tbk)
162	CNTX.JK	Centex (Saham Preferen) Tbk
163	COCO.JK	Wahana Interfood Nusantara Tbk
164	COWL.JK	Cowell Development Tbk
165	CPIN.JK	Charoen Pokphand Indonesia Tbk
166	CPRI.JK	Capri Nusa Satu Properti Tbk
167	CPRO.JK	Central Proteina Prima Tbk
168	CSAP.JK	Catur Sentosa Adiprana Tbk
169	CSIS.JK	Cahayasakti Investindo Sukses Tbk
170	CTBN.JK	Citra Tubindo Tbk
171	CTRA.JK	Ciputra Development Tbk
172	CTTH.JK	Citatah Tbk

173	DART.JK	Duta Anggada Realty Tbk
174	DAYA.JK	Duta Intidaya Tbk
175	DEAL.JK	Dewata Freightinternational Tbk
176	DEFL.JK	Danasupra Erapacific Tbk
177	DEWA.JK	Darma Henwa Tbk
178	DFAM.JK	Dafam Property Indonesia Tbk
179	DGIK.JK	Nusa Konstruksi Enjiniring Tbk
180	DIGI.JK	Arkadia Digital Media Tbk
181	DILD.JK	Intiland Development Tbk
182	DIVA.JK	Distribusi Voucher Nusantara Tbk
183	DKFT.JK	Duta Kirana Finance Tbk
184	DLTA.JK	Delta Djakarta Tbk
185	DMAS.JK	Puradelta Lestari Tbk
186	DMMX.JK	Digital Mediatama Maxima Tbk
187	DNAR.JK	Bank Oke Indonesia Tbk
188	DNET.JK	Indoritel Makmur Internasional Tbk
189	DOID.JK	Delta Dunia Makmur Tbk
190	DPNS.JK	Duta Pertiwi Nusantara Tbk
191	DPUM.JK	Dua Putra Utama Makmur Tbk
192	DSFL.JK	Dharma Samudera Fishing Industries Tbk
193	DSNG.JK	Dharma Satya Nusantara Tbk
194	DSSA.JK	Dian Swastatika Sentosa Tbk
195	DUCK.JK	Jaya Bersama Indo Tbk
196	DUTI.JK	Duta Pertiwi Tbk
197	DVLA.JK	Darya-Varia Laboratoria Tbk

198	DWGL.JK	Dwi Guna Laksana Tbk
199	DYAN.JK	Dyandra Media International Tbk
200	EAST.JK	Eastparc Hotel Tbk
201	ECIL.JK	Electronic City Indonesia Tbk
202	EKAD.JK	Ekadharma International Tbk
203	ELSA.JK	Elnusa Tbk
204	ELTY.JK	Bakrieland Development Tbk
205	EMDE.JK	Megapolitan Developments Tbk
206	EMTK.JK	Elang Mahkota Teknologi Tbk
207	ENRG.JK	Energi Mega Persada Tbk
208	ENVY.JK	Envy Technologies Indonesia Tbk
209	EPMT.JK	Enseval Putra Megatrading Tbk
210	ERAA.JK	Erajaya Swasembada Tbk
211	ERTX.JK	Eratex Djaja Tbk
212	ESIP.JK	Sinergi Inti Plastindo Tbk
213	ESSA.JK	Surya Esa Perkasa Tbk
214	ESTI.JK	Ever Shine Textile Inds. Tbk
215	ETWA.JK	Eterindo Wahanatama Tbk
216	EXCL.JK	XL Axiata Tbk
217	FAST.JK	Fast Food Indonesia Tbk
218	FASW.JK	Fajar Surya Wisesa Tbk
219	FILM.JK	MD Pictures Tbk
220	FINN.JK	First Indo American Leasing Tbk
221	FIRE.JK	Alfa Energi Investama Tbk
222	FISH.JK	FKS Multi Agro Tbk

223	FITT.JK	Hotel Fitra International Tbk
224	FMII.JK	Fortune Mate Indonesia Tbk
225	FOOD.JK	Sentra Food Indonesia Tbk
226	FORU.JK	Fortune Indonesia Tbk
227	FORZ.JK	Forza Land Indonesia Tbk
228	FPNI.JK	Titan Kimia Nusantara Tbk
229	FREN.JK	Smartfren Telecom Tbk
230	FUJI.JK	Fuji Finance Indonesia Tbk
231	GAMA.JK	Gading Development Tbk
232	GDST.JK	Gunawan Dianjaya Steel Tbk
233	GDYR.JK	Goodyear Indonesia Tbk
234	GEMA.JK	Gema Grahasarana Tbk
235	GEMS.JK	Golden Energy Mines Tbk
236	GGRM.JK	Gudang Garam Tbk
237	GGRP.JK	Gunung Raja Paksi Tbk
238	GHON.JK	Gihon Telekomunikasi Indonesia Tbk
239	GIAA.JK	Garuda Indonesia (Persero) Tbk
240	GJTL.JK	Gajah Tunggal Tbk
241	GLOB.JK	Global Teleshop Tbk
242	GMFI.JK	Garuda Maintenance Facility Aero Asia Tbk
243	GMTD.JK	Gowa Makassar Tourism Development Tbk
244	GOLD.JK	Visi Telekomunikasi Infrastruktur Tbk
245	GOLL.JK	Golden Plantation Tbk
246	GOOD.JK	Garudafood Putra Putri Jaya Tbk
247	GPRA.JK	Perdana Gapuraprima Tbk

248	GREN.JK	Evergreen Invesco Tbk
249	GSMF.JK	Equity Development Investment Tbk
250	GTBO.JK	Garda Tujuh Buana Tbk
251	GWSA.JK	Greenwood Sejahtera Tbk
252	GZCO.JK	Gozco Plantations Tbk
253	HADE.JK	Himalaya Energi Perkasa Tbk
254	H DFA.JK	Radana Bhaskara Finance Tbk
255	HDIT.JK	Hensel Davest Indonesia Tbk
256	HDTX.JK	Panasia Indo Resources Tbk
257	HEAL.JK	Medikaloka Hermina Tbk
258	HELI.JK	Jaya Trishindo Tbk
259	HERO.JK	Hero Supermarket Tbk
260	HEXA.JK	Hexindo Adiperkasa Tbk
261	HITS.JK	Humpuss Intermoda Transportasi Tbk
262	HKMU.JK	HK Metals Utama Tbk
263	HMSP.JK	Hanjaya Mandala Sampoerna Tbk
264	HOKI.JK	Buyung Poetra Sembada Tbk
265	HOME.JK	Hotel Mandarine Regency Tbk
266	HOTL.JK	Saraswati Griya Lestari Tbk
267	HRME.JK	Menteng Heritage Realty Tbk
268	HRTA.JK	Hartadinata Abadi Tbk
269	HRUM.JK	Harum Energy Tbk
270	IATA.JK	Indonesia Transport & Infrastructure Tbk
271	IBFN.JK	Intan Baruprana Finance Tbk
272	IBST.JK	Inti Bangun Sejahtera Tbk

273	ICBP.JK	Indofood CBP Sukses Makmur Tbk
274	ICON.JK	Island Concepts Indonesia Tbk
275	IDPR.JK	Indonesia Pondasi Raya Tbk
276	IGAR.JK	Champion Pacific Indonesia Tbk
277	IIKP.JK	Inti Agri Resources Tbk
278	IKAI.JK	Intikeramik Alamasri Industri Tbk
279	IKBI.JK	Sumi Indo Kabel Tbk
280	IMAS.JK	Indomobil Sukses Internasional Tbk
281	IMJS.JK	Indomobil Multi Jasa Tbk
282	IMPC.JK	Impack Pratama Industri Tbk
283	INAF.JK	Indofarma (Persero) Tbk
284	INAL.JK	Indal Aluminium Industry Tbk
285	INCF.JK	Indo Komoditi Korpora Tbk
286	INCI.JK	Intanwijaya Internasional Tbk
287	INCO.JK	Vale Indonesia Tbk
288	INDF.JK	Indofood Sukses Makmur Tbk
289	INDR.JK	Indorama Syntetics Tbk
290	INDS.JK	Indospring Tbk
291	INDX.JK	Tanah Laut Tbk
292	INDY.JK	Indika Energy Tbk
293	INKP.JK	Indah Kiat Pulp & Paper Tbk
294	INOV.JK	Inocycle Technology Group Tbk
295	INPC.JK	Bank Artha Graha Internasional Tbk
296	INPP.JK	Indonesian Paradise Property Tbk
297	INPS.JK	Indah Prakasa Sentosa Tbk

298	INRU.JK	Toba Pulp Lestari Tbk
299	INTA.JK	Intraco Penta Tbk
300	INTD.JK	Inter Delta Tbk
301	INTP.JK	Indocement Tunggal Prakasa Tbk
302	IPCC.JK	Indonesia Kendaraan Terminal Tbk
303	IPCM.JK	Jasa Armada Indonesia Tbk
304	IPOL.JK	Indopoly Swakarsa Industry Tbk
305	IPTV.JK	MNC Vision Networks Tbk
306	IRRA.JK	Itama Ranoraya Tbk
307	ISAT.JK	Indosat Tbk
308	ISSP.JK	Steel Pipe Industry of Indonesia Tbk
309	ITIC.JK	Indonesian Tobacco Tbk
310	ITMA.JK	Sumber Energi Andalan Tbk
311	ITMG.JK	Indo Tambangraya Megah Tbk
312	ITTG.JK	Leo Investments Tbk
313	JAST.JK	Jasnita Telekomindo Tbk
314	JAWA.JK	Jaya Agra Wattie Tbk
315	JAYA.JK	Armada Berjaya Trans Tbk
316	JECC.JK	Jembo Cable Company Tbk
317	JGLE.JK	Graha Andrasenta Propertindo Tbk
318	JIHD.JK	Jakarta International Hotels & Development Tbk
319	JKON.JK	Jaya Konstruksi Manggala Pratama Tbk
320	JKSW.JK	Jakarta Kyoei Steel Works Tbk
321	JMAS.JK	Asuransi Jiwa Syariah Jasa Mitra Abadi Tbk
322	JPFA.JK	Japfa Comfeed Indonesia Tbk

323	JRPT.JK	Jaya Real Property Tbk
324	JSKY.JK	Sky Energy Indonesia Tbk
325	JSMR.JK	Jasa Marga (Persero) Tbk
326	JSPT.JK	Jakarta Setiabudi Internasional Tbk
327	JTPE.JK	Jasuindo Tiga Perkasa Tbk
328	KAEF.JK	Kimia Farma (Persero) Tbk
329	KARW.JK	Ictsi Jasa Prima Tbk
330	KAYU.JK	Darmi Bersaudara Tbk
331	KBLI.JK	KMI Wire and Cable Tbk
332	KBLM.JK	Kabelindo Murni Tbk
333	KBLV.JK	First Media Tbk
334	KBRI.JK	Kertas Basuki Rachmat Indonesia Tbk
335	KDSI.JK	Kedawung Setia Industrial Tbk
336	KEEN.JK	Kencana Energi Lestari Tbk
337	KEJU.JK	Mulia Boga Raya Tbk
338	KIAS.JK	Keramika Indonesia Assosiasi Tbk
339	KICI.JK	Kedaung Indah Can Tbk
340	KIJA.JK	Kawasan Industri Jababeka Tbk
341	KINO.JK	Kino Indonesia Tbk
342	KIOS.JK	Kioson Komersial Indonesia Tbk
343	KJEN.JK	Krida Jaringan Nusantara Tbk
344	KKGI.JK	Resource Alam Indonesia Tbk
345	KLBF.JK	Kalbe Farma Tbk
346	KMTR.JK	Kirana Megatara Tbk
347	KOBX.JK	Kobexindo Tractors Tbk

348	Kode Saham.JK	Nama Emiten
349	KOIN.JK	Kokoh Inti Arebama Tbk
350	KONI.JK	Perdana Bangun Pusaka Tbk
351	KOPI.JK	Mitra Energi Persada Tbk
352	KOTA.JK	DMS Propertindo Tbk
353	KPAL.JK	Steadfast Marine Tbk
354	KPAS.JK	Cottonindo Ariesta Tbk
355	KPIG.JK	MNC Land Tbk
356	KRAH.JK	Grand Kartech Tbk
357	KRAS.JK	Krakatau Steel (Persero) Tbk
358	KREN.JK	Kresna Graha Investama Tbk
359	LAND.JK	Trimitra Propertindo Tbk
360	LAPD.JK	Leyand International Tbk
361	LCGP.JK	Eureka Prima Jakarta Tbk
362	LCKM.JK	LCK Global Kedaton Tbk
363	LEAD.JK	Logindo Samudramakmur Tbk
364	LIFE.JK	Asuransi Jiwa Sinarmas MSIG Tbk
365	LINK.JK	Link Net Tbk
366	LION.JK	Lion Metal Works Tbk
367	LMAS.JK	Limas Indonesia Makmur Tbk
368	LMPI.JK	Langgeng Makmur Industri Tbk
369	LMSH.JK	Lionmesh Prima Tbk
370	LPCK.JK	Lippo Cikarang Tbk
371	LPGI.JK	Lippo General Insurance Tbk
372	LPIN.JK	Multi Prima Sejahtera Tbk

373	LPKR.JK	Lippo Karawaci Tbk
374	LPLI.JK	Star PacificTbk
375	LPPF.JK	Matahari Department Store Tbk
376	LPPS.JK	Lippo Securities Tbk
377	LRNA.JK	Eka Sari Lorena Transport Tbk
378	LSIP.JK	PP London Sumatera Indonesia Tbk
379	LTLS.JK	Lautan Luas Tbk
380	LUCK.JK	Sentral Mitra Informatika Tbk
381	MABA.JK	Marga Abhinaya Abadi Tbk
382	MAGP.JK	Multi Agro Gemilang Plantation Tbk
383	MAIN.JK	Malindo Feedmill Tbk
384	MAMI.JK	Mas Murni Indonesia Tbk
385	MAMIP.JK	Mas Murni Tbk (Saham Preferen)
386	MAPA.JK	Map Aktif Adiperkasa Tbk
387	MAPB.JK	MAP Boga Adiperkasa Tbk
388	MAPI.JK	Mitra Adiperkasa Tbk
389	MARI.JK	Mahaka Radio Integra Tbk
390	MARK.JK	Mark Dynamics Indonesia Tbk
391	MASA.JK	Multistrada Arah Sarana Tbk
392	MAYA.JK	Bank Mayapada Internasional Tbk
393	MBAP.JK	Mitrabara Adiperdana Tbk
394	MBSS.JK	Mitribahtera Segara Sejati Tbk
395	MBTO.JK	Martina Berto Tbk
396	MCAS.JK	M Cash Integrasi Tbk
397	MCOR.JK	Bank China Construction Bank Indonesia Tbk

398	MDIA.JK	Intermedia Capital Tbk
399	MDKA.JK	Merdeka Copper Gold Tbk
400	MDKI.JK	Emdeki Utama Tbk
401	MDLN.JK	Modernland Realty Tbk
402	MDRN.JK	Modern Internasional Tbk
403	MEDC.JK	Medco Energi International Tbk
404	MEGA.JK	Bank Mega Tbk
405	MERK.JK	Merck Tbk
406	META.JK	Nusantara Infrastructure Tbk
407	MFIN.JK	Mandala Multifinance Tbk
408	MFMI.JK	Multifiling Mitra Indonesia Tbk
409	MGNA.JK	Magna Finance Tbk
410	MGRO.JK	Mahkota Group Tbk
411	MICE.JK	Multi Indocitra Tbk
412	MIDI.JK	Midi Utama Indonesia Tbk
413	MIKA.JK	Mitra Keluarga Karyasehat Tbk
414	MINA.JK	Sanurhasta Mitra Tbk
415	MIRA.JK	Mitra Rajasa Tbk
416	MITI.JK	Mitra Investindo Tbk
417	MKNT.JK	Mitra Komunikasi Nusantara Tbk
418	MKPI.JK	Metropolitan Kentjana Tbk
419	MLBI.JK	Multi Bintang Indonesia Tbk
420	MLIA.JK	Mulia Industrindo Tbk
421	MLPL.JK	Multipolar Tbk
422	MLPT.JK	Multipolar Technology Tbk

423	MMLP.JK	Mega Manunggal Property Tbk
424	MNCN.JK	Media Nusantara Citra Tbk
425	MOLI.JK	Madusari Murni Indah Tbk
426	MPMX.JK	Mitra Pinasthika Mustika Tbk
427	MPOW.JK	Megapower Makmur Tbk
428	MPPA.JK	Matahari Putra Prima Tbk
429	MPRO.JK	Propertindo Mulia Investama Tbk
430	MRAT.JK	Mustika Ratu Tbk
431	MREI.JK	Maskapai Reasuransi Indonesia Tbk
432	MSIN.JK	MNC Studios International Tbk
433	MSKY.JK	MNC Sky Vision Tbk
434	MTDL.JK	Metrodata Electronics Tbk
435	MTFN.JK	Capitalinc Investment Tbk
436	MTLA.JK	Metropolitan Land Tbk
437	MTPS.JK	Meta Epsi Tbk
438	MTRA.JK	Mitra Pemuda Tbk
439	MTSM.JK	Metro Supermarket Realty Tbk
440	MTWI.JK	Malacca Trust Wuwungan Insurance Tbk
441	MYOH.JK	Samindo Resources Tbk
442	MYOR.JK	Mayora Indah Tbk
443	MYRX.JK	Hanson International Tbk
444	MYRXP.JK	Saham Seri B Hanson International Tbk
445	MYTX.JK	Asia Pacific Investama Tbk
446	NASA.JK	Ayana Land International Tbk
447	NATO.JK	Nusantara Properti Internasional Tbk

448	NELY.JK	Pelayaran Nelly Dwi Putri Tbk
449	NFCX.JK	NFC Indonesia Tbk
450	NICK.JK	Charnic Capital Tbk
451	NIKL.JK	Pelat Timah Nusataran Tbk
452	NIPS.JK	Nipress Tbk
453	NIRO.JK	Nirvana Development Tbk
454	NISP.JK	Bank OCBC NISP Tbk
455	NOBU.JK	Bank Nationalnobu Tbk
456	NRCA.JK	Nusa Raya Cipta Tbk
457	NUSA.JK	Sinergi Megah Internusa Tbk
458	NZIA.JK	Nusantara Almazia Tbk
459	OASA.JK	Protech Mitra Perkasa Tbk
460	OCAP.JK	Onix Capital Tbk
461	OKAS.JK	Ancora Indonesia Resources Tbk
462	OMRE.JK	Indonesia Prima Property Tbk
463	OPMS.JK	Optima Prima Metal Sinergi Tbk
464	PADI.JK	Minna Padi Investama Sekuritas Tbk
465	PALM.JK	Provident Agro Tbk
466	PAMG.JK	Bima Sakti Pertiwi Tbk
467	PANI.JK	Pratama Abadi Nusa Industri Tbk
468	PANR.JK	Panorama Sentrawisata Tbk
469	PANS.JK	Panin Sekuritas Tbk
470	PBID.JK	Panca Budi Idaman Tbk
471	PBRX.JK	Pan Brothers Tbk
472	PBSA.JK	Paramita Bangun Sarana Tbk

473	PCAR.JK	Prima Cakrawala Abadi Tbk
474	PDES.JK	Destinasi Tirta Nusantara Tbk
475	PEGE.JK	Panca Global Securities Tbk
476	PEHA.JK	Phapros Tbk
477	PGAS.JK	Perusahaan Gas Negara Tbk
478	PGLI.JK	Pembangunan Graha Lestari Indah Tbk
479	PICO.JK	Pelangi Indah Canindo Tbk
480	PJAA.JK	Pembangunan Jaya Ancol Tbk
481	PKPK.JK	Perdana Karya Perkasa Tbk
482	PLAS.JK	Polaris Investama Tbk
483	PLIN.JK	Plaza Indonesia Realty Tbk
484	PNBN.JK	Bank Pan Indonesia Tbk
485	PNBS.JK	Bank Panin Dubai Syariah Tbk
486	PNIN.JK	Paninvest Tbk
487	PNLF.JK	Panin Financial Tbk
488	PNSE.JK	Pudjiadi & Sons Tbk
489	POLA.JK	Pool Advista Finance Tbk
490	POLI.JK	Pollux Investasi Internasional Tbk
491	POLL.JK	Pollux Properti Indonesia Tbk
492	POLU.JK	Golden Flower Tbk
493	POLY.JK	Asia Pacific Fibers Tbk
494	POOL.JK	Pool Advista Indonesia Tbk
495	PORT.JK	Nusantara Pelabuhan Handal Tbk
496	POSA.JK	Bliss Properti Indonesia Tbk
497	POWR.JK	Cikarang Listrindo Tbk

498	PPRE.JK	PP Presisi Tbk
499	PPRO.JK	PP Properti Tbk
500	PRAS.JK	Prima Alloy Steel Tbk
501	PRDA.JK	Prodia Widyahusada Tbk
502	PRIM.JK	Royal Prima Tbk
503	PSAB.JK	J Resources Asia Pasifik Tbk
504	PSDN.JK	Prasidha Aneka Niaga Tbk
505	PSGO.JK	Palma Serasih Tbk
506	PSKT.JK	Red Planet Indonesia Tbk
507	PSSI.JK	Pelita Samudera Shipping Tbk
508	PTBA.JK	Bukit Asam Tbk
509	PTIS.JK	Indo Straits Tbk
510	PTPP.JK	Pembangunan Perumahan (Persero) Tbk
511	PTRO.JK	Petrosea Tbk
512	PTSN.JK	Sat Nusapersada Tbk
513	PTSP.JK	Pioneerindo Gourmet International Tbk
514	PUDP.JK	Pudjadi Prestige Limited Tbk
515	PURE.JK	Trinitan Metals and Minerals Tbk
516	PWON.JK	Pakuwon Jati Tbk
517	PYFA.JK	Pyridam Farma Tbk
518	PZZA.JK	Sarimelati Kencana Tbk
519	RAJA.JK	Rukun Raharja Tbk
520	RALS.JK	Ramayana Lestari Sentosa Tbk
521	RANC.JK	Supra Boga Lestari Tbk
522	RBMS.JK	Ristia Bintang Mahkota Sejati Tbk

523	RDTX.JK	Roda Vivatex Tbk
524	RELI.JK	Reliance Securities Tbk
525	RICY.JK	Ricky Putra Globalindo Tbk
526	RIGS.JK	Rig Tenders Tbk
527	RIMO.JK	Rimo International Lestari Tbk
528	RISE.JK	Jaya Sukses Makmur Sentosa Tbk
529	RMBA.JK	Bentoel International Investama Tbk
530	RODA.JK	Pikko Land Development Tbk
531	ROTL.JK	Nippon Indosari Corpindo Tbk
532	RUIS.JK	Radiant Utama Interinsco Tbk
533	SAFE.JK	Steady Safe Tbk
534	SAME.JK	Sarana Meditama Metropolitan Tbk
535	SAPX.JK	Satria Antaran Prima Tbk
536	SATU.JK	Kota Satu Properti Tbk
537	SCBD.JK	Danayasa Arthatama Tbk.
538	SCCO.JK	Supreme Cable Manufacturing & Com. Tbk
539	SCMA.JK	Surya Citra Media Tbk
540	SCPL.JK	Schering Plough Indonesia Tbk
541	SDMU.JK	Sidomulyo Selaras Tbk
542	SDPC.JK	Millennium Pharmacon International Tbk
543	SDRA.JK	Bank Woori Saudara Indonesia 1906 Tbk
544	SFAN.JK	Surya Fajar Capital Tbk
545	SGRO.JK	Sampoerna Agro Tbk
546	SHID.JK	Hotel Sahid Jaya Tbk
547	SHIP.JK	Sillo Maritime Perdana Tbk

548	SIDO.JK	Industri Jamu dan Farmasi Sido Muncul Tbk
549	SILO.JK	Siloam International Hospitals Tbk
550	SIMA.JK	Siwani Makmur Tbk
551	SIMP.JK	Salim Ivomas Pratama Tbk
552	SINI.JK	Singaraja Putra Tbk
553	SIPD.JK	Sierad Produce Tbk
554	SKBM.JK	Sekar Bumi Tbk
555	SKLT.JK	Sekar Laut Tbk
556	SKRN.JK	Superkrane Mitra Utama Tbk
557	SKYB.JK	Northcliff Citranusa Indonesia Tbk
558	SLIS.JK	Gaya Abadi Sempurna Tbk
559	SMAR.JK	SMART Tbk
560	SMBR.JK	Semen Baturaja (Persero) Tbk
561	SMCB.JK	Solusi Bangun Indonesia Tbk
562	SMDM.JK	Suryamas Dutamakmur Tbk
563	SMDR.JK	Samudera Indonesia Tbk
564	SMGR.JK	Semen Indonesia (Persero) Tbk
565	SMKL.JK	Satyamitra Kemas Lestari Tbk
566	SMMA.JK	Sinar Mas Multiartha Tbk
567	SMMT.JK	Golden Eagle Energy Tbk
568	SMRA.JK	Summarecon Agung Tbk
569	SMRU.JK	SMR Utama Tbk
570	SMSM.JK	Selamat Sempurna Tbk
571	SOCI.JK	Soechi Lines Tbk
572	SONA.JK	Sona Topas Tourism Industry Tbk

573	SOSS.JK	Shield On Service Tbk
574	SOTS.JK	Satria Mega Kencana Tbk
575	SPMA.JK	Suparma Tbk
576	SPTO.JK	Surya Pertiwi Tbk
577	SQMI.JK	Wilton Makmur Indonesia Tbk
578	SRAJ.JK	Sejahteraraya Anugrahjaya Tbk
579	SRIL.JK	Sri Rejeki Isman Tbk
580	SRSN.JK	Indo Acidatama Tbk
581	SRTG.JK	Saratoga Investama Sedaya Tbk
582	SSIA.JK	Surya Semesta Internusa Tbk
583	SSMS.JK	Sawit Sumbermas Sarana Tbk
584	SSTM.JK	Sunson Textile Manufacture Tbk
585	STAR.JK	Star Petrochem Tbk
586	STTP.JK	Siantar TOP Tbk
587	SUGL.JK	Sugih Energy Tbk
588	SULI.JK	SLJ Global Tbk
589	SUPR.JK	Solusi Tunas Pratama Tbk
590	SURE.JK	Super Energy Tbk
591	SWAT.JK	Sriwahana Adityakarta Tbk
592	TALF.JK	Tunas Alfin Tbk
593	TAMU.JK	Pelayaran Tamarin Samudra Tbk
594	TARA.JK	Sitara Propertindo Tbk
595	TAXI.JK	Express Transindo Utama Tbk
596	TBIG.JK	Tower Bersama Infrastructure Tbk
597	TBLA.JK	Tunas Baru Lampung Tbk

598	TBMS.JK	Tembaga Mulia Semanan Tbk
599	TCID.JK	Mandom Indonesia Tbk
600	TCPI.JK	Transcoal Pacific Tbk
601	TDPM.JK	Tridomain Performance Materials Tbk
602	TEBE.JK	Dana Brata Luhur Tbk
603	TELE.JK	Tiphone Mobile Indonesia Tbk
604	TFAS.JK	Telefast Indonesia Tbk
605	TFCO.JK	Tifico Fiber Indonesia Tbk
606	TGKA.JK	Tigaraksa Satria Tbk
607	TGRA.JK	Terregra Asia Energy Tbk
608	TIFA.JK	Tifa Finance Tbk
609	TINS.JK	Timah Tbk
610	TIRA.JK	Tira Austenite Tbk
611	TIRT.JK	Tirta Mahakam Resources Tbk
612	TKIM.JK	Pabrik Kertas Tjiwi Kimia Tbk
613	TLKM.JK	Telekomunikasi Indonesia (Persero) Tbk
614	TMAS.JK	Temas Tbk
615	TMPO.JK	Tempo Inti Media Tbk
616	TNCA.JK	Trimuda Nuansa Citra Tbk
617	TOBA.JK	Toba Bara Sejahtera Tbk
618	TOPS.JK	Totalindo Eka Persada Tbk
619	TOTL.JK	Total Bangun Persada Tbk
620	TOTO.JK	Surya Toto Indonesia Tbk
621	TOWR.JK	Sarana Menara Nusantara Tbk
622	TPIA.JK	Tri Polyta Indonesia Tbk

623	TPMA.JK	Trans Power Marine Tbk
624	TRAM.JK	Trada Alam Minera Tbk
625	TRIL.JK	Triwira Insanlestari Tbk
626	TRIM.JK	Trimegah Sekuritas Indonesia Tbk
627	TRIO.JK	Trikonsel Oke Tbk
628	TRIS.JK	Trisula International Tbk
629	TRST.JK	Trias Sentosa Tbk
630	TRUK.JK	Guna Timur Raya Tbk
631	TRUS.JK	Trust Finance Indonesia Tbk
632	TSPC.JK	Tempo Scan Pacific Tbk
633	TUGU.JK	Asuransi Tugu Pratama Indonesia Tbk
634	TURI.JK	Tunas Ridean Tbk
635	ULTJ.JK	Ultra Jaya Milk Industry & Trading Company Tbk
636	UNIC.JK	Unggul Indah Cahaya Tbk
637	UNIT.JK	Nusantara Inti Corpora Tbk
638	UNSP.JK	Bakrie Sumatra Plantations Tbk
639	UNTR.JK	United Tractors Tbk
640	UNVR.JK	Unilever Indonesia Tbk
641	URBN.JK	Urban Jakarta Propertindo Tbk
642	VICO.JK	Victoria Investama Tbk
643	VINS.JK	Victoria Insurance Tbk
644	VIVA.JK	Visi Media Asia Tbk
645	VOKS.JK	Voksel Electric Tbk
646	VRNA.JK	Verena Multi Finance Tbk
647	WAPO.JK	Wahana Pronatural Tbk

648	WEGE.JK	Wijaya Karya Bangunan Gedung Tbk
649	WEHA.JK	Weha Transportasi Indonesia Tbk
650	WICO.JK	Wicaksana Overseas International Tbk
651	WIIM.JK	Wismilak Inti Makmur Tbk
652	WIKA.JK	Wijaya Karya (Persero) Tbk
653	WINS.JK	Wintermar Offshore Marine Tbk
654	WOMF.JK	Wahana Ottomitra Multiartha Tbk
655	WOOD.JK	Integra Indocabinet Tbk
656	WOWS.JK	Ginting Jaya Energi Tbk
657	WSBP.JK	Waskita Beton Precast Tbk
658	WSKT.JK	Waskita Karya (Persero) Tbk
659	WTON.JK	Wijaya Karya Beton Tbk
660	YELO.JK	Yelooo Integra Datanet Tbk
661	YPAS.JK	Yanaprima Hastapersada Tbk
662	YULE.JK	Yulie Sekuritas Indonesia Tbk
663	ZBRA.JK	Zebra Nusantara Tbk
664	ZINC.JK	Kapuas Prima Coal Tbk
665	ZONE.JK	Mega Perintis Tbk

Sumber : Yahoo finance, diolah

Koding dan Hasil Dari Operasional atau eksekusi dari koding yang telah di buat dalam penelitian ini

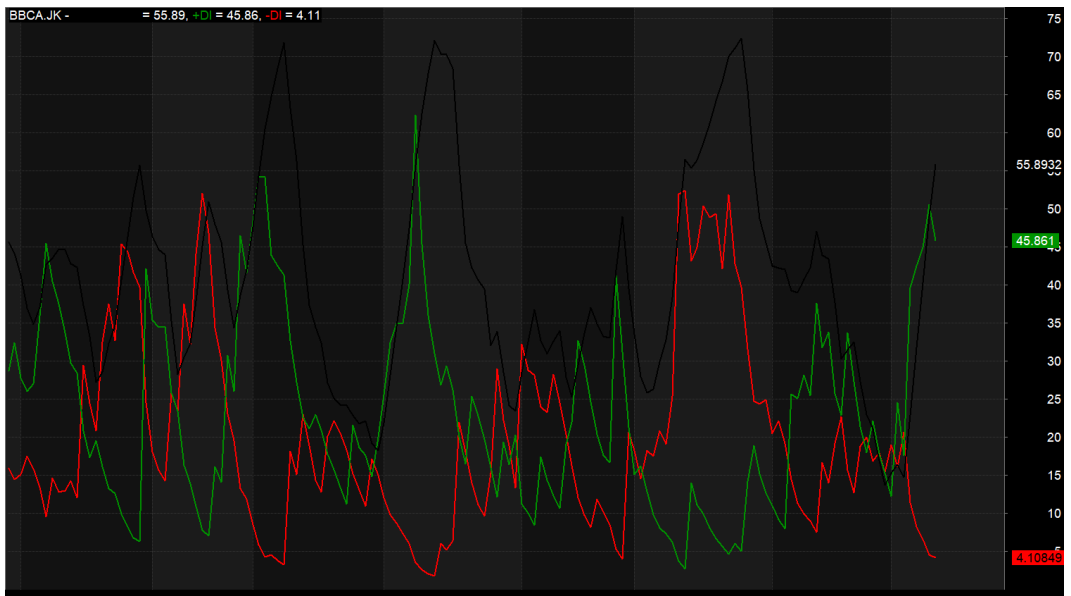
1. Grafik ADX DMI

Koding AFL pada amibroker yang dibuat untuk grafik ini adalah sebagai berikut :

```

_SECTION_BEGIN("ADX/DMI");
range = Param("Periods", 5, 2, 200, 1 );
Plot( ADX(range), _DEFAULT_NAME(), ParamColor( "ADX color",
colorBlack ), ParamStyle("ADX style" , styleThick) );
Plot( PDI(range), "+DI", ParamColor( "+DI color", colorGreen ),
ParamStyle("+DI style" , styleThick) );
Plot( MDI(range), "-DI", ParamColor( "-DI color", colorRed ), ParamStyle("-
DI style" , styleThick) );

```



2. Afl Pattern Recognize

Koding AFL pada amibroker yang dibuat untuk grafik ini adalah sebagai

berikut :

```
// Downloaded From www.WiseStockTrader.com
_SECTION_BEGIN("Pattern_Recognition_with_Shading");
//Pattern Recognition graph with shading
/*TRENDLINES BREAKOUT*/
x = Cum(1);
per = Param("Percent",3,1,5,1);
s1=L;
s11=H;
pS = TroughBars( s1, per, 1 ) == 0;
endt= LastValue(ValueWhen( pS, x, 1 ));
startt=LastValue(ValueWhen( pS, x, 2 ));
endS = LastValue(ValueWhen( pS, s1, 1 ));
startS = LastValue( ValueWhen( pS, s1, 2 ));
dtS =endt-startt;
aS = (endS-startS)/dtS;
bS = endS;
trendlineS = aS * ( x -endt ) + bS;
pR = PeakBars( s11, per, 1 ) == 0;
endt1= LastValue(ValueWhen( pR, x, 1 ));
startt1=LastValue(ValueWhen( pR, x, 2 ));
endR = LastValue(ValueWhen( pR, s11, 1 ));
startR = LastValue( ValueWhen( pR, s11, 2 ));
DTR=ENDT1-STARTT1;
aR = (endR-startR)/dtR;
bR = endR;
trendlineR = aR * ( x -endt1 ) + bR;
BEGIN=Min(STARTT,STARTT1);
TRS = Iif(x>BEGIN-10,trendlineS,-1e10);

TRR = Iif(x>BEGIN-10,trendlineR,-1e10);
Condcolor=(Cross(C,trendlineR) AND X>ENDT1) OR (Cross(trendlineS,C)
AND
X>ENDT);
BarColor=Iif(Condcolor,7,1);
Plot(C, "Close",BarColor,styleCandle);
Plot(TRS, "Support",colorBlue,styleLine);
Plot(TRR, "Resist",colorBlack,styleLine);
////////////////////////////////////
// Shading //
////////////////////////////////////
```

```

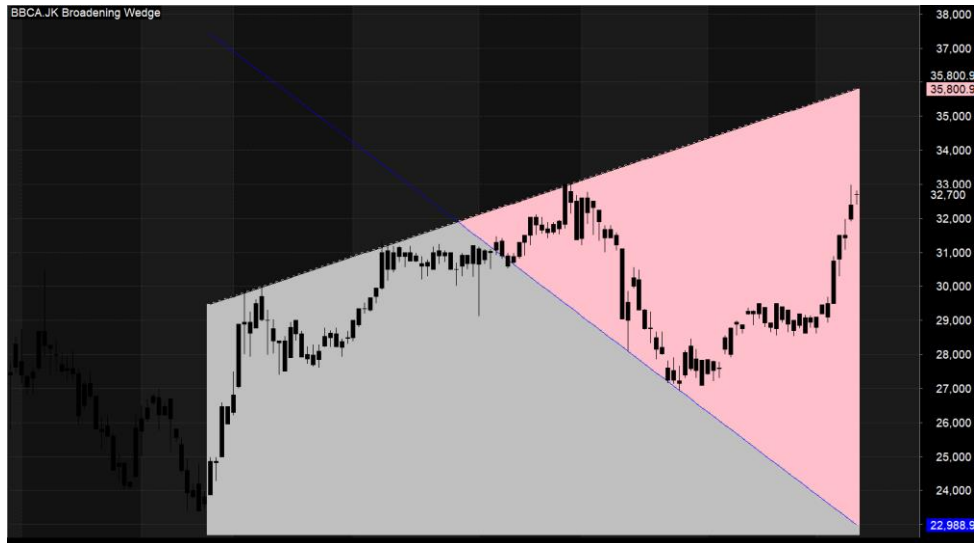
fill=Param("style",2,1,2,1);
style=IIf(fill==1,styleHistogram,IIf(fill==2,styleArea,Null));
x=IIf(trs > trr,trr,trs);
Plot(x,"",colorLightGrey,style);
Plot(trr,"",colorPink,style);
////////////////////////////////////
// Pattern Recognition in title bar //
////////////////////////////////////
Lowline=Ends-starts;
Highline=endr-start;
Wedge=IIf(Highline < 0 AND Lowline > 0,1,0);
DecendingTriangle=IIf(Highline < 0 AND Lowline==0,1,0);
AscendingTriangle=IIf(Highline==0 AND Lowline > 0,1,0);
DownChannel=IIf(Highline<0 AND Lowline<0,1,0);
UpChannel=IIf(Highline>0 AND Lowline>0,1,0);
BroadeningWedge=IIf(Highline > 0 AND Lowline < 0,1,0);
////////////////////////////////////
// Bullish or Bearish breakout //
////////////////////////////////////
BullishBreakout=Cross(C,trendlineR);
BearishBreakout=Cross(trendlineS,C);
Title=Name()+
WriteIf(wedge==1,"
Wedge",")+WriteIf(DecendingTriangle==1,"
Decending
Triangle",")+WriteIf(AscendingTriangle==1,"Ascending
Triangle",")+WriteVal(Lowline)*+WriteIf(DownChannel==1,"
Downward Sloping Channel",")+WriteIf(UpChannel==1," Upward Sloping
Channel",")+WriteIf(broadeningWedge==1,"
Broadening
Wedge",")+"\n"+EncodeColor(colorGreen)+WriteIf(bullishbreakout,"Bulli
sh Breakout",EncodeColor(colorRed)+WriteIf(bearishbreakout,"Bearish
Breakout","))/*+WriteVal(highline)*;/
////////////////////////////////////
// Automatic Analysis //
////////////////////////////////////
Filter=AscendingTriangle OR DecendingTriangle OR Wedge OR
DownChannel OR UpChannel OR BroadeningWedge OR Bullishbreakout
OR bearishbreakout;
AddTextColumn(WriteIf(bullishbreakout,"bullish
Breakout",),"", "BullBreak");
AddTextColumn(WriteIf(bearishBreakout,"Bearish
Breakout",),"", "BearBreak");
AddTextColumn(WriteIf(ascendingtriangle,"Ascending
Triangle",WriteIf(decendingtriangle,"Decending
Triangle",WriteIf(Wedge,"Wedge",WriteIf(DownChannel,"Down
Channel",WriteIf(UpChannel,"Up

```

```

Channel",WriteIf(BroadeningWedge,"Broadening
Wedge","")))))),"Pattern");
AddColumn(C,"Close");
_SECTION_END();

```



3. Bandar Accum Slow.afl

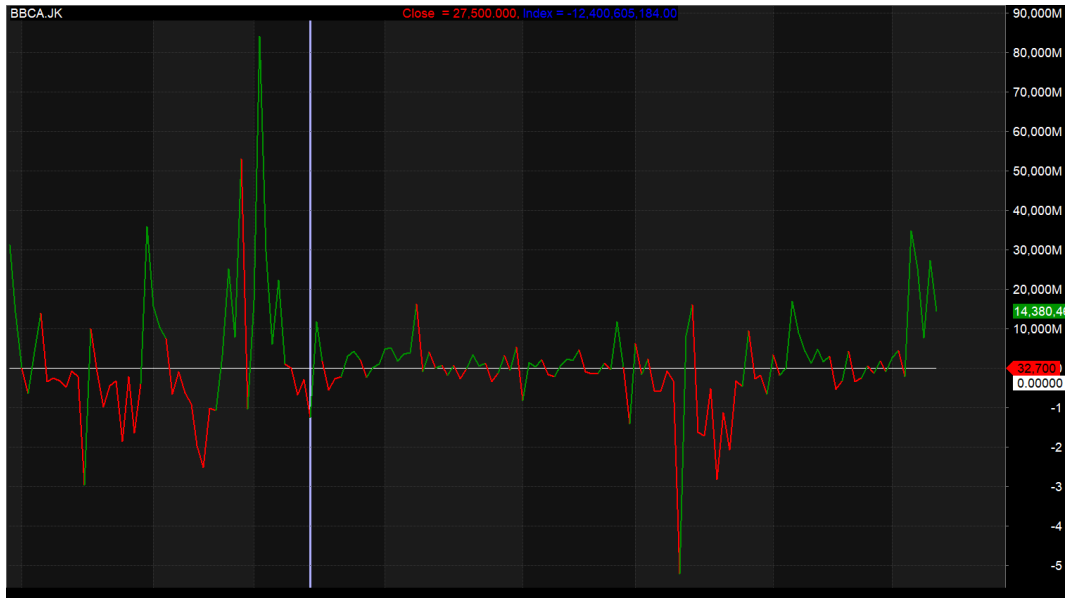
Koding AFL pada amibroker yang dibuat untuk grafik ini adalah sebagai berikut :

```

_SECTION_BEGIN("Fast Accum Up BUY Down SELL");
periods = Param("Periods", 2, 1, 100, 1);
FI = EMA((((Close - Ref(Close, -1)) * V), periods);
FI_kol = IIf(fi < 0, colorRed, colorGreen);
Plot(Close, "Close", colorRed, 2);
Plot(FI, "Force Index", FI_kol, styleLine|styleThick);
Plot(0,"", colorWhite, styleLine);
Title = Name() +
EncodeColor(colorBlack) + " - Fast Accum UP Buy DOWN Sell - " +
WriteVal(periods, 1) + " Hijau BUY Red SELL," +
EncodeColor(colorRed) + " Close " +
EncodeColor(colorRed) + " = " + WriteVal(Close) + ", " +
EncodeColor(colorBlue) + "Index = " +
EncodeColor(colorBlue) + WriteVal(FI, 1.2);

```

_SECTION_END();

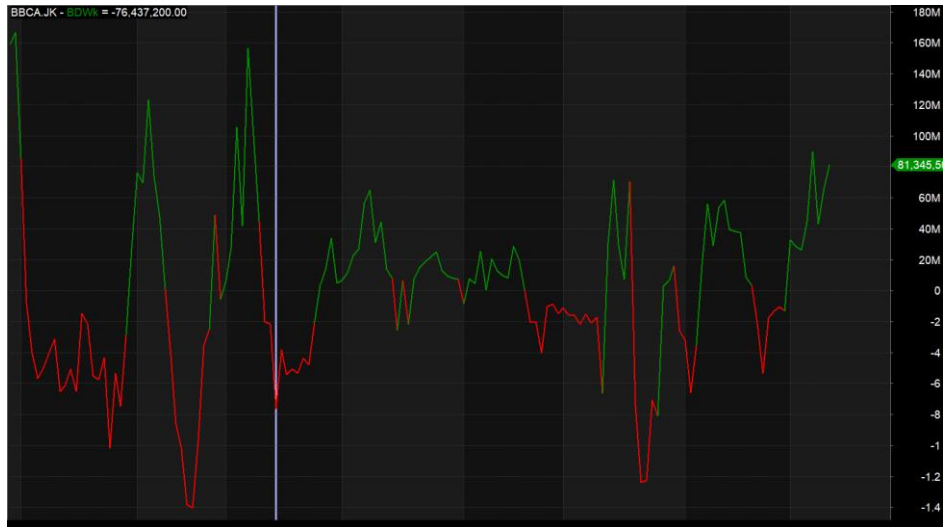


4. Bandar Accum Trading

Koding AFL pada amibroker yang dibuat untuk grafik ini adalah sebagai

berikut :

```
// Downloaded From www.WiseStockTrader.com
BDIn=IIf(C>O, V,0); BDOut=IIf(C< O,V,0);
BDAccW=Sum(BDIn, 5); BDAccM=Sum(BDIn, 21);
BDDistW=Sum( BDOut,5); BDDistM=Sum( BDOut,21) ;
BDWeek=(BDAccW- BDDistW);
ColorBW=IIf( BDWeek>0, colorGreen ,colorRed) ;
Plot(BDWeek, "BDWk",colorBW, styleLine|styleThick) ;
```



5. Big Move Catcher

Koding AFL pada amibroker yang dibuat untuk grafik ini adalah sebagai berikut :

```

_SECTION_BEGIN("Big Move Catcher");
SetChartOptions(0,chartShowArrows|chartShowDates);
Plot( C, "Close", ParamColor("Color", colorBlack ), styleNoTitle |
ParamStyle("Style") | GetPriceStyle() );
_SECTION_END();
_SECTION_BEGIN("Title");
if( Status("action") == actionIndicator )
(
Title = EncodeColor(colorBlue)+ "" + EncodeColor(colorRed)+" (" +
Name() + ")" + EncodeColor(colorBlack)+ Interval(2) +
" " + Date() + " " + " • Open "+WriteVal(O,1.2)+" • "+"Hi
"+WriteVal(H,1.2)+" • "+"Lo "+WriteVal(L,1.2)+" • "+"
"Close "+WriteVal(C,1.2)+" (" +WriteVal(C-Ref(C,-1),1,0)+
"+WriteVal((C-Ref(C,-1))*100/Ref(C,-1),1.1)+ "%) • Vol= "+
WriteVal(V,1.0)
);
MAPeriod = Param("MA Period", 4, 1, 100);
MAOpen = EMA(Open, MAPeriod);
MAHigh = EMA(High, MAPeriod);
MALow = EMA(Low, MAPeriod);
MAClose = EMA(Close, MAPeriod);
HaClose = (MAOpen + MAHigh + MALow + MAClose) / 4;
HaOpen = AMA(Ref(HaClose, -1), 0.5);

```

```

// for graph collapse
//for(i = 0; i <= MAPeriod; i++) HaClose[i] = Null;
/*
// same
// HaOpen = (Ref(HaOpen, -1) + Ref(HaClose, -1)) / 2;
HaOpen[ 0 ] = HaClose[ 0 ];
for(i = 1; i < BarCount; i++) {
    HaOpen[i] = (HaOpen[i - 1] + HaClose[i - 1]) / 2;
}
*/
HaHigh = Max(MAHigh, Max(HaClose, HaOpen));
HaLow = Min(MALow, Min(HaClose, HaOpen));
////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
_SECTION_BEGIN("Peak");

PK = HaHigh > Ref(HaHigh,-1) AND Ref(HaHigh,1) < HaHigh;//Peak
PKV0 = ValueWhen(PK,HaHigh,0);//PeakValue0
PKV1 = ValueWhen(PK,HaHigh,1);//PeakValue1
PKV2 = ValueWhen(PK,HaHigh,2);//PeakValue2
MPK = PKV2 < PKV1 AND PKV1 > PKV0 ;//MajorPeak
MPKV = ValueWhen(Ref(MPK,-1) == 0 AND MPK == 1, PKV1,1);
//MajorPeakValue
MPKD = ValueWhen(Ref(MPK,-1) == 0 AND MPK == 1, DateNum(),1);
//MajorPeakDate
SD = Iif(DateNum() < LastValue(MPKD,lastmode = True ), Null,
LastValue(MPKV,Lastmode = True));//SelectedDate
Plot(SD, "LastMinorResistance",colorBlue,styleLine,styleThick);

//PLOT THE SECOND LAST MAJOR PEAK RESISTANCE LINE
MPKV2 = ValueWhen(Ref(MPK,-1) == 0 AND MPK == 1, PKV1,2);
//MajorPeakValue
MPKD2 = ValueWhen(Ref(MPK,-1) == 0 AND MPK == 1, DateNum(),2);
//MajorPeakDate
SD2 = Iif(DateNum() < LastValue(MPKD2,lastmode = True ), Null,
LastValue(MPKV2,Lastmode = True));//SelectedDate
Plot(SD2, "LastMajorResistance",colorBlue,styleLine);
_SECTION_END();
_SECTION_BEGIN("Support");
SP = Ref(HaLow,1) > HaLow AND HaLow < Ref(HaLow,-1);//Peak
SPV0 = ValueWhen(SP,HaLow,0);//PeakValue0
SPV1 = ValueWhen(SP,HaLow,1);//PeakValue1
SPV2 = ValueWhen(SP,HaLow,2);//PeakValue2
MSP = SPV2 > SPV1 AND SPV1 < SPV0 ;//MajorPeak
MSPV = ValueWhen(Ref(MSP,-1) == 0 AND MSP == 1, SPV1,1);

```



```

MSPD = ValueWhen(Ref(MSP,-1) == 0 AND MSP == 1, DateNum(),1);
SD = Iif(DateNum() < LastValue(MSPD,lastmode = True ), Null,
LastValue(MSPV,Lastmode = True));
Plot(SD,"LastMinorSupport",colorBlack,styleLine,styleThick);
MSPV2 = ValueWhen(Ref(MSP,-1) == 0 AND MSP == 1, SPV1,2);
MSPD2 = ValueWhen(Ref(MSP,-1) == 0 AND MSP == 1, DateNum(),2);
SD2 = Iif(DateNum() < LastValue(MSPD2,lastmode = True ), Null,
LastValue(MSPV2,Lastmode = True));
Plot(SD2,"LastMajorSupport",colorBlack,styleLine);

```

```

_SECTION_END();
_SECTION_BEGIN("Krishna System");
R = RSI(3);
SK = StochK(8, 3);
SD = StochD(8, 3, 3);
MH = MACD(8, 16) - Signal(8, 16, 5);
e = EMA(C,62);
//Conditions for Buying
Cond1 = ValueWhen(C,O<C);
Cond2 = R > 20;
Cond3 = SD > 20 ;
Cond4 = MH > 0 ;
Cond5 = e > Ref(e,-1);
//Conditions for Selling
Cond6 = ValueWhen(C,O>C);
Cond7 = R < 80;
Cond8 = SD < 80;
Cond9 = MH < 0 ;
Cond10 = e < Ref(e,-1);
Buy = Cond1 AND Cond2 AND Cond3 AND Cond4 AND Cond5;
Sell = Cond6 AND Cond7 AND Cond8 AND Cond9 AND Cond10;
Buy=ExRem(Buy,Sell);
Sell=ExRem(Sell,Buy);
SetPositionSize(300,spsShares);
ApplyStop(0,1,10,1);
//-----end-----
Long=Flip(Buy,Sell);
Shrt=Flip(Sell,Buy);
BuyPrice=ValueWhen(Buy,C);
SellPrice=ValueWhen(Sell,C);
Edc=(
WriteIf (Buy AND Ref(shrt,-1), " BUY@ "+C+" ", "")+
WriteIf (Sell AND Ref(Long,-1), " SELL@ "+C+" ", "")+
WriteIf(Sell , "Last Trade Profit Rs."+(C-BuyPrice)+"", "")+

```

```

WriteIf(Buy , "Last trade Profit Rs."+(SellPrice-C)+"", "")+
WriteIf(Long AND NOT Buy, "Trade: Long Profit: "+WriteVal((C-
BuyPrice))+"" , "")+
WriteIf(shrt AND NOT Sell, "Trade: Short Profit: "+WriteVal((SellPrice-
C))+"" , "");

```

```

_SECTION_END();
_SECTION_BEGIN("Background text");
C11=ParamColor("up panel",colorWhite );
C12=ParamColor("dn panel",colorWhite );
C13=Param("fonts",20,10,30,1 );
C14=Param("left-right",2.1,1.0,5.0,0.1 );
C15=Param("up-down",12,1,20,1 );
Miny = Status("axisminy");
Maxy = Status("axismaxy");
lvb = Status("lastvisiblebar");
fvb = Status("firstvisiblebar");
pxwidth = Status("pxwidth");
pxheight = Status("pxheight");
GfxSetBkMode( 0 );
GfxSetOverlayMode(1);
GfxGradientRect(0,0,pxwidth, pxheight, C11, C12 );
GfxSelectFont("Tahoma", Status("pxheight")/C13 );
GfxSetTextAlign( 6 );
GfxTextOut( "LTP "+WriteVal(C,1.2), Status("pxwidth")/C14,
Status("pxheight")/C15);
GfxSelectFont("Tahoma", Status("pxheight")/C13*0.5 );
GfxTextOut( " ", Status("pxwidth")/C14, Status("pxheight")/C15*4 );
GfxSelectFont("MS Sans Serif", 10, 500, False, False, 0);
GfxSetTextColor(colorBlack);
GfxTextOut(""+edc+", Status("pxwidth")/1.15, Status("pxheight")/C15*0.3
);

```

```

/*          HARMONIC PATTERN DETECTION
Automatic Detection of Harmonic Patterns - Gartley, Bat, Butterfly and Crab.
Zig Zag is not used in this AFL. It is based on fractals
Contact - joy.edakad@gmail.com
*/

```

```

_SECTION_BEGIN("Gartley");
GBmin = Param("Swing B Min.",0.55,0.3,1,0.01);
GBmax = Param("Swing B Max.",0.72,0.4,1,0.01);
GCmin = Param("Swing C Min.",0.38,0.3,1.27,0.01);
GCmax = Param("Swing C Max.",1.0,0.4,1.27,0.01);
GDmin = Param("Swing D Min.(XA)",0.55,0.3,1,0.01);

```

```

GDmax = Param("Swing D Max.(XA)",1.0,0.4,1.0,0.01);
_SECTION_END();
_SECTION_BEGIN("Bat");
BatBmin = Param("Swing B Min.",0.38,0.3,1,0.01);
BatBmax = Param("Swing B Max.",0.55,0.4,1,0.01);
BatCmin = Param("Swing C Min.",0.38,0.3,1.62,0.01);
BatCmax = Param("Swing C Max.",1.27,0.4,1.62,0.01);
BatDmin = Param("Swing D Min.(XA)",0.5,0.3,1,0.01);
BatDmax = Param("Swing D Max.(XA)",1.0,0.4,1.0,0.01);
_SECTION_END();
_SECTION_BEGIN("Butterfly");
BtBmin = Param("Swing B Min.",0.55,0.3,1,0.01);
BtBmax = Param("Swing B Max.",0.9,0.4,1,0.01);
BtCmin = Param("Swing C Min.",0.38,0.3,1.62,0.01);
BtCmax = Param("Swing C Max.",1.27,0.4,1.62,0.01);
BtDmin = Param("Swing D Min.(XA)",1,1,1.8,0.01);
BtDmax = Param("Swing D Max.(XA)",1.8,1,1.8,0.01); // Max XA of
Butterfly = (1.0 - 1.618)
_SECTION_END();
_SECTION_BEGIN("Crab");
CBmin = Param("Swing B Min.",0.38,0.3,1,0.01);
CBmax = Param("Swing B Max.",0.65,0.4,1,0.01);
CCmin = Param("Swing C Min.",0.38,0.3,1.62,0.01);
CCmax = Param("Swing C Max.",1.270,0.4,1.62,0.01);
CDmin = Param("Swing D Min.(XA)",1.25,1,1.8,0.01);
CDmax = Param("Swing D Max.(XA)",1.8,1,2,0.01);
_SECTION_END();
_SECTION_BEGIN("AB=CD");
abcd_Cmin = Param("Swing C Min.",0.3, 0.3 , 1, 0.01);
abcd_Cmax = Param("Swing C Max.",0.8, 0.8 , 1, 0.01);
abcd_Dmin = Param("Swing D Min.",1.2, 1, 2.7,0.01);
abcd_Dmax = Param("Swing D Max.",3.7, 1, 4, 0.01);
_SECTION_END();
_SECTION_BEGIN("Patterns");
//strength = Param("Strength",5,2,15,1); // Best use: 3, 4, 5
strength = Param("BARS of each LINE",5,2,15,1); // So luong bar cho
moi duong XA, AB, BC,
bu = ParamToggle("Bullish Pattern","Off|On",1); // So bar/lines se quiet
dinh. mo^ hinh` duoc ve the' nao`
be = ParamToggle("Bearish Pattern","Off|On",1);

bi = Cum(1)-1;
function GetTop(bars) // Lay' gia' tri cao nhât = di?nh
{

```

```

Top = H == HHV(H,2*bars) AND Ref(HHV(H,bars),bars) < H;
Top = Top AND LastValue(bi)-ValueWhen(Top,bi) > bars;
return Top;
}
function GetValley(bars)      // La'y gia tri thap' nhat' = day'
{
Valley = L == LLV(L,2*bars) AND Ref(LLV(L,bars),bars) > L;
Valley = Valley AND LastValue(bi)-ValueWhen(Valley,bi) > bars;
return Valley;
}
// Build fractals array
P1 = GetTop(strength);      // so' bar cho 1 duong` XA, AB, BC, CD
V1 = GetValley(Strength);
P1      =      Iif(P1,Iif(ValueWhen(P1,bi,2)      <
ValueWhen(V1,bi),P1,Iif(ValueWhen(P1,H,2) > H,False,P1)),P1);
P1 = Iif(P1 AND ValueWhen(P1,bi,0) > bi,Iif(ValueWhen(P1,bi,0) <
ValueWhen(V1,bi,0),Iif(ValueWhen(P1,H,0) >= H,False,P1),P1),P1);
V1      =      Iif(V1,Iif(ValueWhen(V1,bi,2)      <
ValueWhen(P1,bi),V1,Iif(ValueWhen(V1,L,2)<L,False,V1)),V1);
V1 = Iif(V1 AND ValueWhen(V1,bi,0) > bi ,Iif(ValueWhen(V1,bi,0) <
ValueWhen(P1,bi,0),Iif(ValueWhen(V1,L,0) <= L, False,V1),V1),V1);
P1H1 = ValueWhen(P1,H);
P1Bar1 = ValueWhen(P1,bi);
P1H2 = ValueWhen(P1,H,2);
P1Bar2 = ValueWhen(P1,bi,2);
V1L1 = ValueWhen(V1,L);
V1Bar1 = ValueWhen(V1,bi);
V1L2 = ValueWhen(V1,L,2);
V1Bar2 = ValueWhen(V1,bi,2);
//=====
//  BULLISH PATTERNS
//=====
/*
Mo hinh Bullish:
A = P1H2
B = V1L1
C = P1H1
X = V1L2
*/
PTvalid = (P1Bar1 > V1Bar1 AND V1Bar1 > P1Bar2 AND P1bar2 >
V1Bar2) AND P1; // Peaks and troughs are in order
myAX = P1H2-V1L2;
myAB = P1H2-V1L1;
myBC = P1H1-V1L1;

```

```

myAB_AX = myAB/ myAX;
myBC_AB = myBC/ myAB;

BullGartley4 = PTvalid AND ( myAB_AX > GBmin ) AND ( myAB_AX
< GBmax )
    AND ( myBC_AB > GCMin ) AND ( myBC_AB < GCMax );

BullBat4 = PTvalid AND ( myAB_AX > BatBmin ) AND ( myAB_AX
< BatBmax )
    AND ( myBC_AB > BatCMin ) AND ( myBC_AB < BatCMax );

BullButterfly4 = PTvalid AND ( myAB_AX > BtBmin ) AND (
myAB_AX < BtBMax )
    AND ( myBC_AB > BtCmin ) AND ( myBC_AB < BtCmin );

BullCrab4 = PTvalid AND ( myAB_AX > CBmin ) AND ( myAB_AX
< CBmax )
    AND ( myBC_AB > CCmin ) AND ( myBC_AB < CCmax );

BullABCD4 = PTvalid AND ( myBC_AB > abcd_Cmin ) AND (
myBC_AB < abcd_Cmax );

strPattern = "";

//=====
// BULLISH ABCD
// Bullish pattern found. D retracement level is not evaluated
//=====
dHigh = HighestSince(BullABCD4,H); // Tinh' gia' tri min, max của duong
Ad. Duong Ad là duong con của AD
dLow = LowestSince(BullABCD4,L);

myC = ValueWhen(BullABCD4,P1H1);
myB = ValueWhen(BullABCD4,V1L1);
myA = ValueWhen(BullABCD4,P1H2);
myX = ValueWhen(BullABCD4,V1L2);
myCB = myC - myB;

my_d_min = myCB * abcd_DMin ; // Tinh' gia' tri của duong Ad con. Khi
gia' giam? tu` tre^`n xuống' thì` max -> min
my_d_max = myCB * abcd_DMax ;
my_Cd_min = myC - my_d_min; // Khoảng dịch chuyển của duong Ad
con.
my_Cd_max = myC - my_d_max;

```

```

BullABCD = IIf( ( dLow < my_Cd_min ) AND ( dLow > my_Cd_max )
    AND ( dHigh <= myC ) AND ( dLow == L),
    True, False
);

```

```

BullABCD = BullABCD AND (dLow < myB);

```

```

//=====

```

```

// BULLISH GARTLEY

```

```

//=====

```

```

dHigh = HighestSince(BullGartley4,H); // Tinh' gia' tri min, max cua
duong Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BullGartley4,L);

```

```

myC = ValueWhen(BullGartley4,P1H1);
myB = ValueWhen(BullGartley4,V1L1);
myA = ValueWhen(BullGartley4,P1H2);
myX = ValueWhen(BullGartley4,V1L2);
myAX = myA - myX;

```

```

my_d_min = myAX * GDmin; // Tinh' gia' tri cua duong Ad con. Khi
gia' giam? tu` tre^n xuong' thi` max -> min
my_d_max = myAX * GDMax;
my_Ad_min = myA - my_d_min; // Khoang dich chuyen cua duong Ad
con.
my_Ad_max = myA - my_d_max;

```

```

BullGartley = IIf( ( dLow < my_Ad_min ) AND ( dLow > my_Ad_max )
    AND ( dHigh <= myC ) AND ( dLow == L),
    True, False
);

```

```

BullGartley = BullGartley AND (dLow < myB); // diem D thap' hon B
strPattern = WriteIf(BullGartley,"BULLISH GARTLEY",strPattern);

```

```

//=====

```

```

// BULLISH BAT

```

```

//=====

```

```

dHigh = HighestSince(BullBat4,H); // Tinh' gia' tri min, max cua duong
Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BullBat4,L);
myC = ValueWhen(BullBat4,P1H1);
myB = ValueWhen(BullBat4,V1L1);
myA = ValueWhen(BullBat4,P1H2);
myX = ValueWhen(BullBat4,V1L2);
myAX = myA - myX;

```

```

my_d_min = myAX * BatDmin; // Tinh' gia' tri cua duong Ad con. Khi
gia' giam? tu` tre^`n xuong' thi` max -> min
my_d_max = myAX * BatDmax ;
my_Ad_min = myA - my_d_min; // Khoang dich chuyen cua duong Ad
con.
my_Ad_max = myA - my_d_max;
BullBat = Iif( ( dLow < my_Ad_min ) AND ( dLow > my_Ad_max )
AND ( dHigh <= myC ) AND ( dLow == L),
True, False
);
BullBat = BullBat AND (dLow < myB); // diem d thap hon diem B
strPattern = WriteIf(BullBat,"BULLISH BAT",strPattern);
//=====
// BULLISH CRAB - CUA
//=====
dHigh = HighestSince(BullCrab4,H); // Tinh' gia' tri min, max cua duong
Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BullCrab4,L);
myC = ValueWhen(BullCrab4,P1H1);
myB = ValueWhen(BullCrab4,V1L1);
myA = ValueWhen(BullCrab4,P1H2);
myX = ValueWhen(BullCrab4,V1L2);
myAX = myA - myX;
my_d_min = myAX * CDmin ; // Tinh' gia' tri cua duong Ad con. Khi gia'
giam? tu` tre^`n xuong' thi` max -> min
my_d_max = myAX * CDmax ;
my_Ad_min = myA - my_d_min; // Khoang dich chuyen cua duong Ad
con.
my_Ad_max = myA - my_d_max;

BullCrab = Iif( ( dLow < my_Ad_min ) AND ( dLow > my_Ad_max )
AND ( dHigh <= myC ) AND ( dLow == L),
True, False
);
BullCrab = BullCrab AND (dLow < myX); // diem D thap' hon X
strPattern = WriteIf(BullCrab ,"BULLISH CRAB",strPattern);

//=====
// BULLISH BUTTTERFLY
//=====
dHigh = HighestSince(BullButterfly4,H); // Tinh' gia' tri min, max cua
duong Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BullButterfly4,L);

```

```

myC = ValueWhen(BullButterfly4,P1H1);
myB = ValueWhen(BullButterfly4,V1L1);
myA = ValueWhen(BullButterfly4,P1H2);
myX = ValueWhen(BullButterfly4,V1L2);
myAX = myA - myX;
my_d_min = myAX * BtDmin ; // Tinh' gia' tri cua duong Ad con. Khi
gia' giam? tu` tre^`n xuong' thi` max -> min
my_d_max = myAX * BtDmax ;
my_Ad_min = myA - my_d_min; // Khoang dich chuyen cua duong
Ad con.
my_Ad_max = myA - my_d_max;
BullButterfly = Iif( ( dLow < my_Ad_min ) AND ( dLow > my_Ad_max
)
AND ( dHigh <= myC ) AND ( dLow == L),
True, False
);
BullButterfly = BullButterfly AND (dLow < myX); // diem D thap' hon
X
strPattern = WriteIf(BullButterfly ,"BULLISH BUTTERFLY",strPattern);
//=====
=====
// VE DUONG CHO MO HINH BULLISH ABCB
//=====
=====
BullHar4 = BullABCD4;
BullHar = BullABCD;

Point4 = Iif(BullHar,ValueWhen(BullHar4,bi),Null);
BullHar = Iif(BullHar, Iif(Point4 == ValueWhen(BullHar,point4,0) AND
ValueWhen(BullHar,bi,0) > bi ,False,BullHar),BullHar);

A = ValueWhen(BullHar4,P1H2);
Abar = ValueWhen(BullHar4,P1bar2);
B = ValueWhen(BullHar4,V1L1);
Bbar = ValueWhen(BullHar4,V1bar1);
C1 = ValueWhen(BullHar4,P1H1);
C1bar = ValueWhen(BullHar4,P1bar1);
D = ValueWhen(BullHar,L);
Dbar = ValueWhen(BullHar,bi);

BCdAB = (C1-B)/(A-B);
BCdCD = (C1-D)/(C1-B);

PlotPattern = Dbar > C1bar;

```



```

if(LastValue(PlotPattern) AND bu)
{
    ColorX = colorGreen;
    // Ve cac duong AB, BC, CD

    Plot(LineArray(LastValue(Abar),LastValue(A),LastValue(Bbar),LastValue(
B)), "", ColorX ,styleThick);
    Plot(LineArray(LastValue(Bbar),LastValue(B),LastValue(C1bar),LastValue(
C1)), "", ColorX ,styleThick);
    Plot(LineArray(LastValue(C1bar),LastValue(C1),LastValue(Dbar),LastVal
ue(D)), "", ColorX ,styleThick);
    Plot(LineArray(LastValue(Abar),LastValue(A),LastValue(C1bar),LastValu
e(C1)), "", ColorX ,styleDashed);
    Plot(LineArray(LastValue(Bbar),LastValue(B),LastValue(Dbar),LastValue(
D)), "", ColorX ,styleDashed);
    // Ve cac gia tri Fibu
    PlotText(NumToStr(LastValue(BCdAB),1.2),(LastValue(C1bar)+LastValue
(Abar))/2,(LastValue(C1)+LastValue(A))/2,ColorX );
    PlotText(NumToStr(LastValue(BCdCD),1.2),(LastValue(Bbar)+LastValue(
Dbar))/2,(LastValue(B)+LastValue(D))/2,ColorX );

    //----- Viet cac diem X, A, B, C, D: by binhnd-----
    xlech = 0;
    ylech = 2;
    PlotText("A",LastValue(Abar) + xlech, LastValue(A) + ylech, ColorX );
    PlotText("B",LastValue(Bbar) + xlech, LastValue(B) - ylech, ColorX );
    PlotText("C",LastValue(C1bar) + xlech, LastValue(C1) + ylech, ColorX );
    PlotText("D",LastValue(Dbar) + xlech, LastValue(D) - ylech, ColorX );

    //----- Viet thuyet minh mo hinh: by binhnd-----
    if (strPattern!="")
    {
        myStr = "Pattern: BULLISH AB=CD";
        toadoX = LastValue(Abar);
        toadoY = LastValue(D);

        PlotText(myStr,toadoX,toadoY,ColorX );
    }
} // end of Ve duong` bullish abcd
//=====
=====
// VE DUONG CHO MO HINH BULLISH BAT, GARTLEY,
BUTTERFLY, CRAB

```

```

//=====
=====
BullHar4 = BullGartley4 OR BullButterfly4 OR BullBat4 OR BullCrab4 ;
BullHar = BullGartley OR BullButterfly OR BullBat OR BullCrab;

Point4 = Iif(BullHar,ValueWhen(BullHar4,bi),Null);
BullHar = Iif(BullHar, Iif(Point4 == ValueWhen(BullHar,point4,0) AND
ValueWhen(BullHar,bi,0) > bi ,False,BullHar),BullHar);

X = ValueWhen(BullHar4,V1L2);
Xbar = ValueWhen(BullHar4,V1Bar2);
A = ValueWhen(BullHar4,P1H2);
Abar = ValueWhen(BullHar4,P1bar2);
B = ValueWhen(BullHar4,V1L1);
Bbar = ValueWhen(BullHar4,V1bar1);
C1 = ValueWhen(BullHar4,P1H1);
C1bar = ValueWhen(BullHar4,P1bar1);
D = ValueWhen(BullHar,L);
Dbar = ValueWhen(BullHar,bi);

ABdXA = (A-B)/(A-X);
BCdAB = (C1-B)/(A-B);
ADdXA = (A-D)/(A-X);
BCdCD = (C1-D)/(C1-B);
PlotPattern = Dbar > C1bar;
if>LastValue(PlotPattern) AND bu
{
    ColorX = colorBlue;
    // Ve cac duong XA, AB, BC, CD
    Plot(
LineArray>LastValue(Xbar),LastValue(X),LastValue(Abar),LastValue(A)),
"",ColorX,styleThick);
Plot(LineArray>LastValue(Abar),LastValue(A),LastValue(Bbar),LastValue(
B)), "",ColorX,styleThick);
Plot(LineArray>LastValue(Bbar),LastValue(B),LastValue(C1bar),LastValue
(C1)), "",ColorX,styleThick);
Plot(LineArray>LastValue(C1bar),LastValue(C1),LastValue(Dbar),LastValu
e(D)), "",ColorX,styleThick);
Plot(LineArray>LastValue(Xbar),LastValue(X),LastValue(Bbar),LastValue(
B)), "",ColorX,styleDashed);

Plot(LineArray>LastValue(Xbar),LastValue(X),LastValue(Abar),LastValue(
A)), "",ColorX,styleThick);
Plot(LineArray>LastValue(Abar),LastValue(A),LastValue(C1bar),LastValu

```

```

e(C1)), "", ColorX, styleDashed);
Plot(LineArray>LastValue(Bbar),LastValue(B),LastValue(Dbar),LastValue(
D)), "", ColorX, styleDashed);
Plot(LineArray>LastValue(Xbar),LastValue(X),LastValue(Dbar),LastValue(
D)), "", ColorX, styleDashed);
// Ve cac gia tri Fibo

PlotText(NumToStr>LastValue(ABdXA),1.2),(LastValue(Bbar)+LastValue(
Xbar))/2,(LastValue(B)+LastValue(X))/2,ColorX);
PlotText(NumToStr>LastValue(BCdAB),1.2),(LastValue(C1bar)+LastValue
(Abar))/2,(LastValue(C1)+LastValue(A))/2,ColorX);
PlotText(NumToStr>LastValue(ADdXA),1.2
,(LastValue(Dbar)+LastValue(Xbar))/2,(LastValue(D)+LastValue(X))/2,Co
lorX);
PlotText(NumToStr>LastValue(BCdCD),1.2),(LastValue(Bbar)+LastValue(
Dbar))/2,(LastValue(B)+LastValue(D))/2,ColorX);
//----- Viet cac diem X, A, B, C, D: by binhnd-----
xlech = 0;
ylech = 2;
PlotText("X",LastValue(Xbar) + xlech, LastValue(X) - ylech, ColorX);
PlotText("A",LastValue(Abar) + xlech, LastValue(A) + ylech, ColorX);
PlotText("B",LastValue(Bbar) + xlech, LastValue(B) - ylech, ColorX);
PlotText("C",LastValue(C1bar) + xlech, LastValue(C1) + ylech, ColorX);
PlotText("D",LastValue(Dbar) + xlech, LastValue(D) - ylech, ColorX);
//----- Viet thuyet minh mo hinh: by binhnd-----
if (strPattern!="")
{
strPattern = "Pattern: " + strPattern;
toadoX = (LastValue(Dbar)+LastValue(Xbar))/2;
toadoY = (LastValue(D)+LastValue(X))/2;

PlotText(strPattern,toadoX,toadoY-2,ColorX);
}
} // end of Ve duong cho cac mo hinh Crab, Butterfly, Bat
//=====
=====
// BEARISH PATTERNS
//=====
=====
PTvalid = (V1Bar1 > P1Bar1 AND P1Bar1 > V1Bar2 AND V1Bar2 >
P1Bar2) AND V1;
/*=====
X = P1H2 Trong mo hinh` bear: Die^m X cao hon diem A. MyAX = X-
> A

```

```

A = V1L2
B = P1H1
C = V1L1
=====*/
myAX = P1H2-V1L2;
myAB = P1H1-V1L2;
myBC = P1H1-V1L1;
myAB_AX = myAB/ myAX;
myBC_AB = myBC/ myAB;
BearGartley4 = PTvalid AND ( myAB_AX > GBmin ) AND ( myAB_AX
< GBmax )
    AND ( myBC_AB > GCMin ) AND ( myBC_AB < GCMax );
BearBat4 = PTvalid AND ( myAB_AX > BatBmin ) AND ( myAB_AX
< BatBmax )
    AND ( myBC_AB > BatCMin ) AND ( myBC_AB < BatCMax );
BearButterfly4 = PTvalid AND ( myAB_AX > BtBmin ) AND (
myAB_AX < BtBMax )
    AND ( myBC_AB > BtCmin ) AND ( myBC_AB < BtCmin );
BearCrab4 = PTvalid AND ( myAB_AX > CBmin ) AND ( myAB_AX
< CBmax )
    AND ( myBC_AB > CCmin ) AND ( myBC_AB < CCmax );
BearABCD4 = PTvalid AND ( myBC_AB > abcd_Cmin ) AND (
myBC_AB < abcd_Cmax );
strPattern = "";
//=====
=====
// BEARISH ABCD
// Bearish pattern found. D retracement level is not evaluated
//=====
=====
dHigh = HighestSince(BearABCD4,H); // Tinh' gia' tri min, max cua
duong Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BearABCD4,L);
myA = ValueWhen(BearABCD4,V1L2);
myB = ValueWhen(BearABCD4,P1H1);
myC = ValueWhen(BearABCD4,V1L1);
myCB = myB - myC;
my_d_min = myCB * abcd_DMin ; // Tinh' gia' tri cua duong Ad con. Khi
gia' giam? tu` tre^ n xuong' thi` max -> min
my_d_max = myCB * abcd_DMax ;
my_Cd_min = myC + my_d_min; // Khoang dich chuyen cua duong Ad
con.
my_Cd_max = myC + my_d_max;

```

```

BearABCD = IIf( ( dHigh > my_Cd_min ) AND ( dHigh < my_Cd_max
)
    AND ( dLow >= myC ) AND ( dHigh == H),
    True, False
);
BearABCD = BearABCD AND (dHigh > myB);
//=====
=====
// BEARISH GARTLEY
//=====
=====
dHigh = HighestSince(BearGartley4,H); // Tinh' gia' tri min, max cua duong
Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BearGartley4,L);
myX = ValueWhen(BearGartley4,P1H2);
myA = ValueWhen(BearGartley4,V1L2);
myAX = myX - myA;

myB = ValueWhen(BearGartley4,P1H1);
myC = ValueWhen(BearGartley4,V1L1);
my_d_min = myAX * GDmin; // Tinh' gia' tri cua duong Ad con. Khi gia'
giam? tu` tre^ n xuong' thi` max -> min
my_d_max = myAX * GDMax;
my_Ad_min = myA + my_d_min; // Khoang dich chuyen cua duong Ad
con.
my_Ad_max = myA + my_d_max;
BearGartley = IIf( ( dHigh > my_Ad_min ) AND ( dHigh < my_Ad_max
)
    AND ( dLow >= myC ) AND ( dHigh == H),
    True, False
);
BearGartley = BearGartley AND (dHigh > myB); // diem D cao hon B
strPattern = WriteIf(BearGartley ,"BEARISH GARTLEY",strPattern);

//=====
=====
// BEARISH BAT
//=====
=====
dHigh = HighestSince(BearBat4,H); // Tinh' gia' tri min, max cua duong
Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BearBat4,L);
myX = ValueWhen(BearBat4,P1H2);
myA = ValueWhen(BearBat4,V1L2);

```

```

myAX = myX - myA;
myB = ValueWhen(BearBat4,P1H1);
myC = ValueWhen(BearBat4,V1L1);
my_d_min = myAX * BatDmin ; // Tinh' gia' tri cua duong Ad con. Khi
gia' giam? tu` tre^`n xuong' thi` max -> min
my_d_max = myAX * BatDMax ;
my_Ad_min = myA + my_d_min; // Khoang dich chuyen cua duong Ad
con.
my_Ad_max = myA + my_d_max;
BearBat = Iif( ( dHigh > my_Ad_min ) AND ( dHigh < my_Ad_max )
AND ( dLow >= myC ) AND ( dHigh == H),
True, False
);
BearBat = BearBat AND (dHigh > myB); // diem D cao hon B
strPattern = WriteIf(BearBat , "BEARISH BAT",strPattern);
//=====
=====
// BEARISH BUTTERFLY
//=====
=====
dHigh = HighestSince(BearButterfly4,H); // Tinh' gia' tri min, max cua
duong Ad. Duong Ad la duong con cua AD
dLow = LowestSince(BearButterfly4,L);
myX = ValueWhen(BearButterfly4,P1H2);
myA = ValueWhen(BearButterfly4,V1L2);
myAX = myX - myA;

myB = ValueWhen(BearButterfly4,P1H1);
myC = ValueWhen(BearButterfly4,V1L1);
my_d_min = myAX * BtDmin ; // Tinh' gia' tri cua duong Ad con. Khi
gia' giam? tu` tre^`n xuong' thi` max -> min
my_d_max = myAX * BtDmax ;
my_Ad_min = myA + my_d_min; // Khoang dich chuyen cua duong Ad
con.
my_Ad_max = myA + my_d_max;
BearButterfly = Iif( ( dHigh > my_Ad_min ) AND ( dHigh < my_Ad_max
)
AND ( dLow >= myC ) AND ( dHigh == H),
True, False
);
BearButterfly = BearButterfly AND (dHigh > myX); // diem D cao hon
X
strPattern = WriteIf(BearButterfly , "BEARISH BUTTERFLY",strPattern);

```

```

//=====
=====
// BEARISH CRAB
//=====
=====
dHigh = HighestSince(BearCrab4,H); // Tinh' gia' tri min, max của duong
Ad. Duong Ad là duong con của AD
dLow = LowestSince(BearCrab4,L);
myX = ValueWhen(BearCrab4,P1H2);
myA = ValueWhen(BearCrab4,V1L2);
myAX = myX - myA;
myB = ValueWhen(BearCrab4,P1H1);
myC = ValueWhen(BearCrab4,V1L1);
my_d_min = myAX * CDmin ; // Tinh' gia' tri của duong Ad con. Khi
gia' giam? tu` tre^`n xuong' thi` max -> min
my_d_max = myAX * CDmax ;
my_Ad_min = myA + my_d_min; // Khoang dich chuyen của duong Ad
con.
my_Ad_max = myA + my_d_max;
BearCrab = Iif( ( dHigh > my_Ad_min ) AND ( dHigh < my_Ad_max )
AND ( dLow >= myC ) AND ( dHigh == H),
True, False
);
BearCrab = BearCrab AND (dHigh > myX); // diem D cao hon X
strPattern = WriteIf(BearCrab ,"BEARISH CRAB",strPattern);
//=====
=====
// VE DUONG CHO MO HINH BEARISH ABCD
//=====
=====
BearHar4 = BearABCD4;
BearHar = BearABCD;
Point4 = Iif(BearHar,ValueWhen(BearHar4,bi),Null);
BearHar = Iif(BearHar, Iif(Point4 == ValueWhen(BearHar,point4,0) AND
ValueWhen(BearHar,bi,0) > bi ,False,BearHar),BearHar);
A = ValueWhen(BearHar4,V1L2);
Abar = ValueWhen( BearHar4,V1bar2);
B = ValueWhen(BearHar4,P1H1);
Bbar = ValueWhen(BearHar4,P1bar1);
C1 = ValueWhen(BearHar4,V1L1);
C1bar = ValueWhen(BearHar4,V1bar1);
D = ValueWhen(BearHar,H);
Dbar = ValueWhen(BearHar,bi);
BCdAB = (B-C1)/(B-A);

```

```

BCdCD = (D-C1)/(B-C1);
PlotPattern = Dbar > C1bar;
//----- Ve duong -----
if(LastValue(Plotpattern) AND be)
{
    ColorX = colorBlack;
    // Ve duong AB, BC
    Plot(LineArray(LastValue(Abar),LastValue(A),LastValue(Bbar),LastValue(
B)), "",ColorX ,styleThick);
    Plot(LineArray(LastValue(Bbar),LastValue(B),LastValue(C1bar),LastValue
(C1)), "",ColorX ,styleThick);
    Plot(LineArray(LastValue(C1bar),LastValue(C1),LastValue(Dbar),LastVal
ue(D)), "",ColorX ,styleThick);
    Plot(LineArray(LastValue(Abar),LastValue(A),LastValue(C1bar),LastValu
e(C1)), "",ColorX ,styleDashed);
    Plot(LineArray(LastValue(Bbar),LastValue(B),LastValue(Dbar),LastValue(
D)), "",ColorX ,styleDashed);
    // Viet cac gia tri Fibon tren duong AB, BC
    PlotText(NumToStr(LastValue(BCdAB),1.2),(LastValue(C1bar)+LastValue
(Abar))/2,(LastValue(C1)+LastValue(A))/2,ColorX );
    PlotText(NumToStr(LastValue(BCdCD),1.2)
,(LastValue(Dbar)+LastValue(Bbar))/2,(LastValue(D)+LastValue(B))/2,Col
orX );
    //----- Viet cac diem A, B, C, D: by binhnd-----
    xlech = -1;
    ylech = 1;
    PlotText("A",LastValue(Abar) + xlech, LastValue(A) - ylech, ColorX );
    PlotText("B",LastValue(Bbar) + xlech, LastValue(B) + ylech, ColorX );
    PlotText("C",LastValue(C1bar) + xlech, LastValue(C1) - ylech, ColorX );
    PlotText("D",LastValue(Dbar) + xlech, LastValue(D) + ylech, ColorX );

    //----- Viet thuyet minh mo hinh: by binhnd-----
    if (strPattern!="")
    {
        myStr = "Pattern: BEARISH AB=CD";
        toadoaX = LastValue(Abar);
        toadoY = LastValue(D);
        PlotText(myStr,toadoaX,toadoY+1,ColorX );
    }
} // end of VE DUONG CHO MO HINH BEARISH ABCD
//=====
=====
// VE DUONG CHO MO HINH BEARISH BAT, GARTLEY,
BUTTERFLY, CRAB

```



```

//=====
=====
BearHar4 = BearGartley4 OR BearButterfly4 OR BearBat4 OR BearCrab4 ;
BearHar = BearGartley OR BearButterfly OR BearBat OR BearCrab ;

Point4 = IIf(BearHar,ValueWhen(BearHar4,bi),Null);
BearHar = IIf(BearHar, IIf(Point4 == ValueWhen(BearHar,point4,0) AND
ValueWhen(BearHar,bi,0) > bi ,False,BearHar),BearHar);

X = ValueWhen(BearHar4,P1H2);
Xbar = ValueWhen(BearHar4,P1Bar2);
A = ValueWhen(BearHar4,V1L2);
Abar = ValueWhen( BearHar4,V1bar2);
B = ValueWhen(BearHar4,P1H1);
Bbar = ValueWhen(BearHar4,P1bar1);
C1 = ValueWhen(BearHar4,V1L1);
C1bar = ValueWhen(BearHar4,V1bar1);
D = ValueWhen(BearHar,H);
Dbar = ValueWhen(BearHar,bi);

ABdXA = (B-A)/(X-A);
BCdAB = (B-C1)/(B-A);
ADdXA = (D-A)/(X-A);
BCdCD = (D-C1)/(B-C1);
PlotPattern = Dbar > C1bar;
//----- Ve duong -----
if>LastValue(Plotpattern) AND be)
{
    ColorX = colorRed;
    // Ve duong XA, AB, BC
    Plot(
LineArray>LastValue(Xbar),LastValue(X),LastValue(Abar),LastValue(A)),
"",ColorX ,styleThick);

Plot(LineArray>LastValue(Abar),LastValue(A),LastValue(Bbar),LastValue(
B)), "",ColorX ,styleThick);

Plot(LineArray>LastValue(Bbar),LastValue(B),LastValue(C1bar),LastValue
(C1)), "",ColorX ,styleThick);
Plot(LineArray>LastValue(C1bar),LastValue(C1),LastValue(Dbar),LastVal
ue(D)), "",ColorX ,styleThick);
Plot(LineArray>LastValue(Xbar),LastValue(X),LastValue(Bbar),LastValue(
B)), "",ColorX ,styleDashed);

```

```

Plot(LineArray>LastValue(Xbar),LastValue(X),LastValue(Abar),LastValue(A)), "",ColorX ,styleThick);
Plot(LineArray>LastValue(Abar),LastValue(A),LastValue(C1bar),LastValue(C1)), "",ColorX ,styleDashed);
Plot(LineArray>LastValue(Bbar),LastValue(B),LastValue(Dbar),LastValue(D)), "",ColorX ,styleDashed);
Plot(LineArray>LastValue(Xbar),LastValue(X),LastValue(Dbar),LastValue(D)), "",ColorX ,styleDashed);
// Viet cac gia tri Fibonacchi tren duong XA, AB, BC

```

```

PlotText(NumToStr>LastValue(ABdXA),1.2),(LastValue(Bbar)+LastValue(Xbar))/2,(LastValue(B)+LastValue(X))/2,ColorX );

```

```

PlotText(NumToStr>LastValue(BCdAB),1.2),(LastValue(C1bar)+LastValue(Abar))/2,(LastValue(C1)+LastValue(A))/2,ColorX );
PlotText(NumToStr>LastValue(BCdCD),1.2),(LastValue(Dbar)+LastValue(Bbar))/2,(LastValue(D)+LastValue(B))/2,ColorX );
PlotText(NumToStr>LastValue(ADdXA),1.2),(LastValue(Dbar)+LastValue(Xbar))/2,(LastValue(D)+LastValue(X))/2,ColorX );

```

```

//----- Viet cac diem X, A, B, C, D: by binhnd-----
xlech = -1;
ylech = 1;
PlotText("X",LastValue(Xbar) + xlech, LastValue(X) + ylech, ColorX );
PlotText("A",LastValue(Abar) + xlech, LastValue(A) - ylech, ColorX );
PlotText("B",LastValue(Bbar) + xlech, LastValue(B) + ylech, ColorX );
PlotText("C",LastValue(C1bar) + xlech, LastValue(C1) - ylech, ColorX );
PlotText("D",LastValue(Dbar) + xlech, LastValue(D) + ylech, ColorX );

```

```

//----- Viet thuyet minh mo hinh: by binhnd-----
if (strPattern!="")
{
strPattern = "Pattern: " + strPattern;
toadoaX = (LastValue(Dbar)+LastValue(Xbar))/2;
toadoY = (LastValue(D)+LastValue(X))/2;

PlotText(strPattern,toadoaX,toadoY+1,ColorX );
}
} // end of VE DUONG CHO MO HINH BEARISH BAT, GARTLEY, BUTTERFLY, CRAB

```

```

//=====

```

```

// Show diem ho^~ tro. va` khang' cu. ko?
//=====
plotFractals = ParamToggle("Plot Fractals","Off|On",1);
if(PlotFractals)
{
    PlotShapes(shapeSmallCircle*P1,colorRed,0,H,10);
    PlotShapes(shapeSmallCircle*V1,colorBlue,0,L,-10);
}
//=====
// DAT DIEU KIEN cho TIM KIEM BULL
//=====
dkBull = False;
ListBull = ParamList("Type of Bullish",
"None|AB=CD|Gartley|Butterfly|Bat|Crab|All Patterns", 6);
if ( ListBull == "None" ) dkBull = True;
if ( ListBull == "AB=CD" ) dkBull = BullABCD ;
if ( ListBull == "Gartley" ) dkBull = BullGartley ;
if ( ListBull == "Butterfly" ) dkBull = BullButterfly ;
if ( ListBull == "Bat" ) dkBull = BullBat ;
if ( ListBull == "Crab" ) dkBull = BullCrab ;
if ( ListBull == "All Patterns" ) dkBull = (BullABCD) OR (BullGartley) OR
(BullButterfly ) OR (BullBat ) OR (BullCrab);

//=====
// DAT DIEU KIEN cho TIM KIEM BEAR
//=====
dkBear = False;
ListBear = ParamList("Type of Bearish",
"None|AB=CD|Gartley|Butterfly|Bat|Crab|All Patterns", 0);
if ( ListBear == "None" ) dkBear = True;
if ( ListBear == "AB=CD" ) dkBear = BearABCD ;
if ( ListBear == "Gartley" ) dkBear = BearGartley ;
if ( ListBear == "Butterfly" ) dkBear = BearButterfly ;
if ( ListBear == "Bat" ) dkBear = BearBat ;
if ( ListBear == "Crab" ) dkBear = BearCrab ;
if ( ListBear == "All Patterns" ) dkBear = (BearABCD ) OR (BearGartley )
OR (BearButterfly ) OR (BearBat ) OR (BearCrab ) ;
//=====
AddColumn(V,"Volume",1.0);
Filter = (dkBull) AND (dkBear);

_SECTION_BEGIN("Pixel");
Condition = Close > MA( Close, 5); // data to plot the ribbon
Plot( 2, /* defines the height of the ribbon in percent of pane width */

```

```

"Pixel",
IIf( Condition , colorGreen, colorRed ), /* choose color */
styleOwnScale|styleArea|styleNoLabel, -0.5, 100 );
_SECTION_END();

```



6. Bollinger Band

Koding AFL pada amibroker yang dibuat untuk grafik ini adalah sebagai berikut :

```

_SECTION_BEGIN("Price");
SetChartOptions(0,chartShowArrows|chartShowDates);
_N(Title = StrFormat("{{NAME}} - {{INTERVAL}} {{DATE}} Open %g,
Hi %g, Lo %g, Close %g (%.1f%%) {{VALUES}}", O, H, L, C,
SelectedValue( ROC( C, 1 ) ) ));
Plot( C, "Close", ParamColor("Color", colorDefault ), styleNoTitle |
ParamStyle("Style") | GetPriceStyle() );
_SECTION_END();
_SECTION_BEGIN("MA");
P = ParamField("Price field",-1);
Periods = Param("Periods", 20, 2, 300, 1, 10 );
Plot( MA( P, Periods ), _DEFAULT_NAME(), ParamColor( "Color",
colorBlack ), ParamStyle("Style") );

```

```

_SECTION_END();
_SECTION_BEGIN("Bollinger Bands");
P = ParamField("Price field",-1);
Periods = Param("Periods", 20, 2, 100, 1 );
Width = Param("Width", 2, 0, 10, 0.05 );
Color = ParamColor("Color", colorLightGrey );
Style = ParamStyle("Style", styleLine | styleNoLabel ) | styleNoLabel;
Plot( bbt = BBandTop( P, Periods, Width ), "BBTop" +
_PARAM_VALUES(), Color, Style );
Plot( bbb = BBandBot( P, Periods, Width ), "BBBot" +
_PARAM_VALUES(), Color, Style );
PlotOHLC( bbt, bbt, bbb, bbb, "", ColorBlend( Color, GetChartBkColor(),
0.8 ), styleNoLabel | styleCloud | styleNoRescale, Null, Null, Null, -1 );
_SECTION_END();
_SECTION_BEGIN("Pixel");
Condition = Close > MA( Close, 5); // data to plot the ribbon
Plot( 2, /* defines the height of the ribbon in percent of pane width */
"Pixel",
IIf( Condition , colorGreen, colorRed ), /* choose color */
styleOwnScale|styleArea|styleNoLabel, -0.5, 100 );
_SECTION_END();

```



7. BUY and SELL Band

Koding AFL pada amibroker yang dibuat untuk grafik ini adalah sebagai berikut :

```
_SECTION_BEGIN("BUY SELL BAND");
//SetBarsRequired(sbrAll,sbrAll);
BI=BarIndex();
PF_EndBar=LastValue(BI);
PF_Y=(H+L)/2;
PF_Order=Param("nth Order",3,1,8,1);
PF_ExtraB=Param("Extrapolate Backwards",0,0,50,1);
PF_ExtraF=Param("Extrapolate Forwards",0,0,50,1);
Lookback=Param("Lookback Period",100,50,500,1);
sv=ParamToggle("Use Selected Value","Off|On",1);
norm=ParamToggle("Error Levels","Fibonacci|Normal",1);
if (sv)
{
    PF_EndBar=SelectedValue(bi);
    PF_BegBar=PF_EndBar-Lookback;
}
else
{
    PF_BegBar=PF_EndBar-Lookback;
}
function D2Set(L_value,i,j,L_name)
{
    local L_value,L_name,i,j;
    StaticVarSet(L_name + ":" + i + "," + j, L_value);
}
function D2Get(i,j,L_name)
{
    local L_name,i,j;
    return(Nz(StaticVarGet(L_name + ":" + i + "," + j),0));
}
function
Gaussian_Eliminationsv(GE_Order,GE_N,GE_SumXn,GE_SumYXn)
{
    w=0;Coeff=0;
    n=GE_Order+1;
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=n;j++)
```

```

        {
        if (i==1 AND j==1)
            D2Set(GE_N,i,j,"b");
        else
            D2Set(GE_SumXn[i+j-2],i,j,"b");
        }
        w[i]=GE_SumYXn[i];
    }
    n1=n-1;
    for(i=1;i<=n1;i++)
    {
        big=abs(D2Get(i,i,"b"));
        q=i;
        i1=i+1;
        for(j=i1;j<=n;j++)
        {
            ab=abs(D2Get(j,i,"b"));
            if(ab>=big)
            {
                big=ab;
                q=j;
            }
        }
        if (big!=0)
        {
            if (q!=i)
            {
                for (j=1;j<=n;j++)
                {
                    Temp=D2Get(q,j,"b");
                    D2Set(D2Get(i,j,"b"),q,j,"b");
                    D2Set(Temp,i,j,"b");
                }
                Temp=w[i];
                w[i]=w[q];
                w[q]=Temp;
            }
        }
        for(j=i1;j<=n;j++)
        {
            t=D2Get(j,i,"b")/D2Get(i,i,"b");
            for(k=i1;k<=n;k++)
            {
                D2Set(D2Get(j,k,"b")-t*D2Get(i,k,"b"),j,k,"b");
            }
        }
    }

```

```

    }
    w[j]=w[j]-t*w[i];
  }
}
if(D2Get(n,n,"b")!=0)
{
  Coeff[n]=w[n]/D2Get(n,n,"b");
  i=n-1;
  while(i>0)
  {
    SumY=0;
    i1=i+1;
    for(j=i1;j<=n;j++)
    {
      SumY=SumY+D2Get(i,j,"b")*Coeff[j];
    }
    Coeff[i]=(w[i]-SumY)/D2Get(i,i,"b");
    i=i-1;
  }
}
return Coeff;
}
function
PolyFit(GE_Y,GE_BegBar,GE_EndBar,GE_Order,GE_ExtraB,GE_ExtraF)
{
  BI=BarIndex();
  GE_N=GE_EndBar-GE_BegBar+1;
  GE_XBegin=-((GE_N-1)/2);
  GE_X=IIf(BI<GE_BegBar,0,IIf(BI>GE_EndBar,0,(GE_XBegin+B
I-GE_BegBar)));
  GE_X_Max=LastValue(Highest(GE_X));
  GE_X=GE_X/GE_X_Max;
  X1=GE_X;
  GE_Y=IIf(BI<GE_BegBar,0,IIf(BI>GE_EndBar,0,GE_Y));
  GE_SumXn=Cum(0);
  GE_SumXn[1]=LastValue(Cum(GE_X));
  GE_X2=GE_X*GE_X;GE_SumXn[2]=LastValue(Cum(GE_X2));
  GE_X3=GE_X*GE_X2;GE_SumXn[3]=LastValue(Cum(GE_X3));
  GE_X4=GE_X*GE_X3;GE_SumXn[4]=LastValue(Cum(GE_X4));
  GE_X5=GE_X*GE_X4;GE_SumXn[5]=LastValue(Cum(GE_X5));
  GE_X6=GE_X*GE_X5;GE_SumXn[6]=LastValue(Cum(GE_X6));
  GE_X7=GE_X*GE_X6;GE_SumXn[7]=LastValue(Cum(GE_X7));
  GE_X8=GE_X*GE_X7;GE_SumXn[8]=LastValue(Cum(GE_X8));
  GE_X9=GE_X*GE_X8;GE_SumXn[9]=LastValue(Cum(GE_X9));

```



```

    GE_X10=GE_X*GE_X9;GE_SumXn[10]=LastValue(Cum(GE_X1
0));
    GE_X11=GE_X*GE_X10;GE_SumXn[11]=LastValue(Cum(GE_X
11));
    GE_X12=GE_X*GE_X11;GE_SumXn[12]=LastValue(Cum(GE_X
12));
    GE_X13=GE_X*GE_X12;GE_SumXn[13]=LastValue(Cum(GE_X
13));
    GE_X14=GE_X*GE_X13;GE_SumXn[14]=LastValue(Cum(GE_X
14));
    GE_X15=GE_X*GE_X14;GE_SumXn[15]=LastValue(Cum(GE_X
15));
    GE_X16=GE_X*GE_X15;GE_SumXn[16]=LastValue(Cum(GE_X
16));
    GE_SumYXn=Cum(0);
    GE_SumYXn[1]=LastValue(Cum(GE_Y));
    GE_YX=GE_Y*GE_X;GE_SumYXn[2]=LastValue(Cum(GE_YX
));
    GE_YX2=GE_YX*GE_X;GE_SumYXn[3]=LastValue(Cum(GE_
YX2));
    GE_YX3=GE_YX2*GE_X;GE_SumYXn[4]=LastValue(Cum(GE_
YX3));
    GE_YX4=GE_YX3*GE_X;GE_SumYXn[5]=LastValue(Cum(GE_
YX4));
    GE_YX5=GE_YX4*GE_X;GE_SumYXn[6]=LastValue(Cum(GE_
YX5));
    GE_YX6=GE_YX5*GE_X;GE_SumYXn[7]=LastValue(Cum(GE_
YX6));
    GE_YX7=GE_YX6*GE_X;GE_SumYXn[8]=LastValue(Cum(GE_
YX7));
    GE_YX8=GE_YX7*GE_X;GE_SumYXn[9]=LastValue(Cum(GE_
YX8));
    GE_Coeff=Cum(0);
    GE_Coeff=Gaussian_Eliminationsv(GE_Order,GE_N,GE_SumXn,
GE_SumYXn);
    for (i = 1; i <= GE_Order + 1; i++) printf(NumToStr(i, 1.0) + " = " +
NumToStr(GE_Coeff[i], 1.9) + "\n");
    GE_X=IIf(BI<GE_BegBar-GE_ExtraB-
GE_ExtraF,0,IIf(BI>GE_EndBar,0,(GE_XBegin+BI-
GE_BegBar+GE_ExtraF)/GE_X_Max));

    GE_X2=GE_X*GE_X;GE_X3=GE_X2*GE_X;GE_X4=GE_X3*G
E_X;GE_X5=GE_X4*GE_X;GE_X6=GE_X5*GE_X;

```

```

    GE_X7=GE_X6*GE_X;GE_X8=GE_X7*GE_X;GE_X9=GE_X8*
GE_X;GE_X10=GE_X9*GE_X;GE_X11=GE_X10*GE_X;
    GE_X12=GE_X11*GE_X;GE_X13=GE_X12*GE_X;GE_X14=GE
_X13*GE_X;GE_X15=GE_X14*GE_X;GE_X16=GE_X15*GE_X;

    GE_Yn=Iif(BI<GE_BegBar-GE_ExtraB-GE_ExtraF,-
1e10,Iif(BI>GE_EndBar,-1e10,GE_Coeff[1]+
    GE_Coeff[2]*GE_X+GE_Coeff[3]*GE_X2+GE_Coeff[4]*GE_X3
+GE_Coeff[5]*GE_X4+GE_Coeff[6]*GE_X5+
    GE_Coeff[7]*GE_X6+GE_Coeff[8]*GE_X7+GE_Coeff[9]*GE_X
8));

    return GE_Yn;
}
Yn=PolyFit(PF_Y,PF_BegBar,PF_EndBar,PF_Order,PF_ExtraB,PF_ExtraF
);
SetChartOptions(0, chartShowDates);
Title = "Symbol: "+ Name()+ "\nPoly Order: "+PF_Order;
Plot(C, "Close",colorLightGrey,styleCandle);
Plot(Yn,"",Iif(BI>PF_EndBar-PF_ExtraF,colorWhite,Iif(BI<PF_BegBar-
PF_ExtraF,colorWhite,colorBlue)),styleThick,Null,Null,PF_ExtraF);
if(norm)
{
    se=StdErr((C-Yn),LookBack);se=se[PF_EndBar];
    //se=StDev(C,LookBack);se=se[PF_EndBar];
    seh2=Yn+ValueWhen(Yn,se*2);
    sel2=Yn-ValueWhen(Yn,se*2);
    seh1=Yn+ValueWhen(Yn,se*1);
    sel1=Yn-ValueWhen(Yn,se*1);
    Plot(seh2,"",Iif(BI>PF_EndBar-
PF_ExtraF,colorWhite,Iif(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(255,0,0))),styleThick,Null,Null,PF_Extra
F);
    Plot(sel2,"",Iif(BI>PF_EndBar-
PF_ExtraF,colorWhite,Iif(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(0,255,0))),styleThick,Null,Null,PF_Extra
F);
    Plot(seh1,"",Iif(BI>PF_EndBar-
PF_ExtraF,colorWhite,Iif(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(255,100,100))),Null,Null,PF_ExtraF);
    Plot(sel1,"",Iif(BI>PF_EndBar-
PF_ExtraF,colorWhite,Iif(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(100,255,100))),Null,Null,PF_ExtraF);
}

```

```

else
{
    se=StDev(C,LookBack);se=se[PF_EndBar];
    r1=(1+5^0.5)/2;
    se=se*r1;
    seh3=Yn+ValueWhen(Yn,se);
    sel3=Yn-ValueWhen(Yn,se);
    seh2=Yn+ValueWhen(Yn,se/(1.382));
    sel2=Yn-ValueWhen(Yn,se/(1.382));
    seh1=Yn+ValueWhen(Yn,se/(1.382*1.618));
    sel1=Yn-ValueWhen(Yn,se/(1.382*1.618));

    Plot(seh3,"",IIf(BI>PF_EndBar-
PF_ExtraF,colorWhite,IIf(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(255,0,0))),styleThick,Null,Null,PF_Extra
F);
    Plot(sel3,"",IIf(BI>PF_EndBar-
PF_ExtraF,colorWhite,IIf(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(0,255,0))),styleThick,Null,Null,PF_Extra
F);
    Plot(seh2,"",IIf(BI>PF_EndBar-
PF_ExtraF,colorWhite,IIf(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(255,100,100))),styleDashed,Null,Null,PF
_ExtraF);
    Plot(sel2,"",IIf(BI>PF_EndBar-
PF_ExtraF,colorWhite,IIf(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(100,255,100))),styleDashed,Null,Null,PF
_ExtraF);
    Plot(seh1,"",IIf(BI>PF_EndBar-
PF_ExtraF,colorWhite,IIf(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(255,200,200))),styleDashed,Null,Null,PF
_ExtraF);
    Plot(sel1,"",IIf(BI>PF_EndBar-
PF_ExtraF,colorWhite,IIf(BI<PF_BegBar-
PF_ExtraF,colorWhite,ColorRGB(200,255,200))),styleDashed,Null,Null,PF
_ExtraF);
}
_SECTION_END();

```



8. Stock Screener 1

```
_SECTION_BEGIN("All in One Explorer - Manish");
```

```
i=0;
```

```
//52 Week High Low
```

```
High52 = HHV(High,250);
```

```
Low52 = LLV(Low,250);
```

```
//Bollinger Band
```

```
BB1=C>BBandTop(C,20,2) AND Ref(C,-1)<Ref(BBandTop(C,20,2),-1);
```

```
BB2=C<BBandBot(C,20,2) AND Ref(C,-1)>Ref(BBandBot(C,20,2),-1);
```

```
BBStatus=WriteIf(BB1,"Above Top",WriteIf(BB2,"Below  
Bottom",WriteIf(IsNull(MA(C,20)),"N/A","Neutral")));
```

```
BBColor=IIf(BB1,colorRed,IIf(BB2,colorGreen,colorLightGrey));
```

```

Iif(BB2,i+1,i);

//Moving Average (Short, Mid & Long Term)

MASHort = C>MA(C,15);

Iif(MASHort,i+1,i);

MAMid = C>MA(C,45);

Iif(MAMid,i+1,i);

MALong = C>MA(C,100);

Iif(MALong,i+1,i);

ShortStatus    =    WriteIf(MASHort,"Bullish",WriteIf(IsNull(MA(C,15))
,"N/A","Bearish"));

ShortColor = Iif(MASHort,colorGreen,colorRed);

MidStatus      =      WriteIf(MAMid,"Bullish",WriteIf(IsNull(MA(C,45)),"
N/A","Bearish"));

MidColor = Iif(MAMid,colorGreen,colorRed);

LongStatus     =     WriteIf(MALong,"Bullish",WriteIf(IsNull(MA(C,100))
,"N/A","Bearish"));

LongColor = Iif(MALong,colorGreen,colorRed);

//MACD

MACDBull=MACD(12,26)>Signal(12,26,9);

Iif(MACDBull,i+1,i);

MACDStatus=WriteIf(MACDBull,"Bullish",WriteIf(IsNull(MACD(12,26))
,"N/A","Bearish"));

```

```

MACDColor=Iif(MACDBull,colorGreen,colorRed);

//Aroon

Period=14;

LLVBarsSince=LLVBars(L,Period)+1;

HHVBarsSince=HHVBars(H,Period)+1;

AroonDown=100*(Period-LLVBarsSince)/(Period-1);

AroonUp=100*(Period-HHVBarsSince)/(Period-1);

AroonOsc=AroonUp-AroonDown;

Aroon=AroonOsc>0;

Iif(Aroon,i+1,i);

AroonStatus=WriteIf(Aroon,"Bullish",WriteIf(IsNull

(RSI(14)),"N/A","Bearish"));

AroonColor=Iif(Aroon,colorGreen,Iif(IsNull(RSI(14)

),colorLightGrey,colorRed));

//Stochastic

StochKBull=StochK(14,3)>StochD(14,3,3);

Iif(StochKBull,i+1,i);

StochKStatus=WriteIf(StochKBull,"Bullish",WriteIf(

IsNull(StochK(14,3)),"N/A","Bearish"));

StochKColor=Iif(StochKBull,colorGreen,colorRed);

//RSI

R1=RSI(14)>30 AND Ref(RSI(14),-1)<30 AND Ref(RSI(14),-2)<30;

```

R2=RSI(14)<70 AND Ref(RSI(14),-1)>70 AND Ref(RSI(14),-2)>70;

IIf(R1,i+1,i);

RSIStatus=WriteIf(R1,"Improving",WriteIf(R2,"Decli

ning",WriteIf(IsNull(RSI(14)),"N/A","Neutral")));

RSIColor=IIf(R1,colorGreen,IIf(R2,colorRed,colorLightGrey));

//www.pipschart.com

//MFI

M1=MFI(14)>80;

M2=MFI(14)<20;

IIf(M2,i+1,i);

MFIStatus=WriteIf(M1,"Overbought",WriteIf(M2,"Over

sold",WriteIf(IsNull(MFI(14)),"N/A","Neutral")));

MFIColor=IIf(M1,colorRed,IIf(M2,colorGreen,colorLightGrey));

TrendScore =

IIf(BB2,1,0)+

IIf(MAShort,1,0)+

IIf(MAMid,1,0) +

IIf(MAMid,1,0) +

IIf(MALong,1,0)+

IIf(MACDBull,1,0) +

IIf(Aroon,1,0) +

IIf(StochKBull,1,0)+

```

Iif(R1,1,0) +
Iif(M2,1,0) ;
/*
TrendScore =
Iif(C>=Ref(C,-11),1,-1)+
Iif(C>=Ref(C,-12),1,-1)+
Iif(C>=Ref(C,-13),1,-1)+
Iif(C>=Ref(C,-14),1,-1)+
Iif(C>=Ref(C,-15),1,-1)+
Iif(C>=Ref(C,-16),1,-1)+
Iif(C>=Ref(C,-17),1,-1)+
Iif(C>=Ref(C,-18),1,-1)+
Iif(C>=Ref(C,-19),1,-1)+
Iif(C>=Ref(C,-20),1,-1);
*/
Filter = 1;
//AddColumn(High52,"52 Week High");
//AddColumn(Low52,"52 Week Low");
AddColumn(C,"Close",1,Iif(C>Ref(C,-1),colorGreen,colorRed));
AddColumn(V,"Volume",1,Iif(V>Ref(V,-1),colorGreen,colorRed));
AddTextColumn(BBStatus,"BBand",1,colorWhite,BBColor);
AddTextColumn(ShortStatus,"Short MA(15)",1,colorWhite,ShortColor);

```



```

AddTextColumn(MidStatus,"Mid MA(45)",1,colorWhite,MidColor);
AddTextColumn(LongStatus,"Long MA(100)",1,colorWhite,LongColor);
AddTextColumn(MACDStatus,"MACD",1,colorWhite,MACDColor);
AddTextColumn(AroonStatus,"Aroon",1,colorWhite,AroonColor);
AddTextColumn(StochKStatus,"Stochastic",1,colorWhite,StochKColor);
AddTextColumn(RSIStatus,"RSI(14)",1,colorWhite,RSIColor);
AddTextColumn(MFIStatus,"MFI(14)",1,colorWhite,MFIColor);
AddColumn(TrendScore,"Score");
_SECTION_END();

```

The screenshot shows the AmiBroker software interface with a stock analysis table. The table has the following columns: Ticker, Date/Time, Close, Volume, BBand, Short MA(15), Mid MA(45), Long MA(100), MACD, Aroon, Stochastic, RSI(14), MFI(14), and Score. The table is color-coded with green for bullish and red for bearish signals. The table is filtered for the range of 1 recent days, from 01/01/2011 to 31/12/2020.

Apply to	Filter	Range	1 recent days	01/01/2011	31/12/2020								
Ticker	Date/Time	Close	Volume	BBand	Short MA(15)	Mid MA(45)	Long MA(100)	MACD	Aroon	Stochastic	RSI(14)	MFI(14)	Score
AALLJK	11/11/20...	10,750	3,286,800	Neutral	Bullish	Bullish	Bullish	Bearish	Bullish	Bearish	Neutral	Neutral	5.0
ABMMJK	11/11/20...	765	3,400	Below Bot.	Bearish	Bearish	Bearish	Bearish	Bearish	Bearish	Neutral	Overboug...	1.0
ABDAJK	10/11/20...	6,450	0	Neutral	Bullish	Bearish	Bearish	Bullish	Bullish	Bullish	Neutral	Overboug...	4.0
ABBAJK	11/11/20...	50	226,300	Neutral	Bearish	Bearish	Bearish	Bullish	Bullish	Bearish	Neutral	Overboug...	2.0
ACESJK	11/11/20...	1,715	14,034,200	Neutral	Bullish	Bullish	Bullish	Bullish	Bullish	Bullish	Neutral	Neutral	3.0
ACSTJK	11/11/20...	200	133,009,8...	Neutral	Bullish	Bearish	Bearish	Bullish	Bearish	Bullish	Neutral	Neutral	7.0
ADESJK	11/11/20...	1,225	159,100	Neutral	Bullish	Bullish	Bullish	Bullish	Bullish	Bullish	Neutral	Neutral	7.0
ADHLJK	11/11/20...	685	82,319,504	Neutral	Bullish	Bullish	Bullish	Bullish	Bullish	Bullish	Neutral	Overboug...	7.0
ADMFJK	11/11/20...	7,800	100,700	Neutral	Bullish	Bullish	Bullish	Bullish	Bullish	Bearish	Neutral	Neutral	6.0
ADMGJK	11/11/20...	143	1,230,000	Neutral	Bullish	Bullish	Bullish	Bearish	Bullish	Bearish	Neutral	Neutral	5.0
AGARJK	11/11/20...	500	1,500	Neutral	Bullish	Bearish	Bullish	Bearish	Bullish	Bullish	Neutral	Neutral	4.0
ADROJK	11/11/20...	1,205	218,766,2...	Neutral	Bullish	Bullish	Bullish	Bullish	Bearish	Bullish	Neutral	Neutral	6.0
AGILJK	11/11/20...	775	438,500	Neutral	Bullish	Bullish	Bullish	Bullish	Bullish	Bullish	Neutral	Overboug...	7.0
AGRSJK	11/11/20...	166	51,000	Neutral	Bearish	Bearish	Bullish	Bearish	Bearish	Bullish	Neutral	Neutral	2.0
AGROJK	11/11/20...	396	199,047,6...	Neutral	Bullish	Bullish	Bullish	Bearish	Bearish	Bullish	Neutral	Neutral	5.0
AIMSJK	11/11/20...	145	21,400	Neutral	Bullish	Bullish	Bearish	Bullish	Bullish	Bullish	Neutral	Neutral	6.0
AHAPJK	11/11/20...	56	75,100	Neutral	Bearish	Bullish	Bullish	Bearish	Bullish	Bullish	Neutral	Neutral	5.0
AISAJK	11/11/20...	216	21,967,600	Neutral	Bullish	Bullish	Bullish	Bearish	Bullish	Bearish	Neutral	Neutral	5.0
AKUJK	10/11/20...	50	200	Neutral	Bearish	Bearish	Bearish	Bullish	Bearish	Bearish	Neutral	Over sold	2.0
AKPLJK	11/11/20...	300	25,500	Neutral	Bullish	Bullish	Bearish	Bullish	Bullish	Bullish	Neutral	Neutral	6.0
AKRAJK	11/11/20...	2,860	47,925,400	Neutral	Bullish	Bullish	Bullish	Bullish	Bullish	Bullish	Neutral	Neutral	7.0
AKSJJK	11/11/20...	354	5,700	Neutral	Bearish	Bearish	Bullish	Bearish	Bearish	Bearish	Neutral	Neutral	1.0
ALDOJK	11/11/20...	428	1,400	Neutral	Bullish	Bullish	Bullish	Bullish	Bullish	Bullish	Neutral	Neutral	6.0
ALTOJK	11/11/20...	330	11,400	Neutral	Bullish	Bullish	Bearish	Bullish	Bullish	Bullish	Neutral	Overboug...	6.0
ALKAJK	11/11/20...	310	11,100	Neutral	Bullish	Bullish	Bearish	Bullish	Bullish	Bullish	Neutral	Overboug...	6.0


```

utbar=wrbar AND dcls AND tls>0 ;
utcond1=Ref(utbar,-1) AND dnbar ;
utcond2=Ref(utbar,-1) AND dnbar AND V>Ref(V,-1);
utcond3=utbar AND V> 2*Vrg;
trbar=Ref(V,-1)>Vrg AND Ref(upbar,-1) AND Ref(wrbar,-1) AND dnbar
AND dcls AND wrbar AND tll>0 AND H==HHV(H,10);
Hutbar=Ref(upbar,-1) AND Ref(V,-1)>1.5*Vrg AND dnbar AND dcls AND
NOT wrbar AND NOT utbar;
Hutcond=Ref(Hutbar,-1) AND dnbar AND dcls AND NOT utbar;
tctbar=Ref(upbar,-1) AND H==HHV(H,5)AND dnbar AND (dcls OR mcls)
AND V>vrg AND NOT wrbar AND NOT Hutbar ;
Scond1=(utcond1 OR utcond2 OR utcond3) ;
Scond2=Ref(scond1,-1)==0;
scond=scond1 AND scond2;
stdn0= tll<0 AND V>Ref(V,-1) AND Ref(dnbar,-1) AND upbar AND (ucls
OR mcls) AND tls<0 AND tlm<0;
stdn= V>Ref(V,-1) AND Ref(dnbar,-1) AND upbar AND (ucls OR mcls)
AND tls<0 AND tlm<0;
stdn1= tll<0 AND V>(vrg*1.5) AND Ref(dnbar,-1) AND upbar AND (ucls
OR mcls)AND tls<0 AND tlm<0;
stdn2=tls<0 AND Ref(V,-1)<Vrg AND upbar AND vhccls AND V>Vrg;
bycond1= stdn OR stdn1;
bycond= upbar AND Ref(bycond1,-1);
stvol= L==LLV(L,5) AND (ucls OR mcls) AND V>1.5*Vrg AND tll<0;
ndbar=upbar AND nrb AND VI AND dcls ;
nsbar=dnbar AND nrb AND VI AND dcls ;
nbbar= C>Ref(C,-1) AND VI AND nrb AND x1<2;
nbbar= Iif(C>Ref(C,-1) AND V<Ref(V,-1) AND V<Ref(V,-2) AND
x1<1.1,1,0);
lvtbar= vl AND L<Ref(L,-1) AND ucls;
lvtbar1= V<Vrg AND L<Ref(L,-1) AND ucls AND tll>0 AND tlm>0 AND
wrbar;
lvtbar2= Ref(Lvtbar,-1) AND upbar AND ucls;
dbar= V>2*Vrg AND dcls AND upbar AND tls>0 AND tlm>0 AND NOT
Scond1 AND NOT utbar;
eftup=H>Ref(H,-1) AND L>Ref(L,-1) AND C>Ref(C,-1) AND C>=((H-
L)*0.7+L) AND rg>arg AND V>Ref(V,-1);
eftupfl=Ref(eftup,-1) AND (utbar OR utcond1 OR utcond2 OR utcond3);
eftdn=H<Ref(H,-1) AND L<Ref(L,-1) AND C<Ref(C,-1) AND C<=((H-
L)*0.25+L) AND rg>arg AND V>Ref(V,-1);
_SECTION_END();
//=====
=====
=====

```

```

_SECTION_BEGIN("Chart");
Vcolor=Iif(tls>0 AND tlm>0 AND tll>0,colorLime,Iif(tls>0 AND tlm>0
AND tll<0,colorGreen,
Iif(tls>0 AND tlm<0 AND tll<0,colorPaleGreen,Iif(tls<0 AND tlm<0 AND
tll<0,colorRed,Iif(tls<0 AND tlm>0 AND tll>0,colorPaleGreen,
Iif(tls<0 AND tlm<0 AND tll>0,colorOrange,colorBlue))))));
GraphXSpace = 5;
PlotOHLC( Open, High, Low, Close, "", vcolor, styleBar | styleThick );
_SECTION_END();
//=====
=====
=====
// commentary
_SECTION_BEGIN("Commentary");
Vpc= utbar OR utcond1 OR utcond2 OR utcond3 OR stdn0 OR stdn1 OR
stdn2 OR stdn OR lvtbar1 OR Lvtbar OR Lvtbar2 OR Hutbar OR Hutcond
OR ndbar OR stvol OR tbar;

if( Status("action") == actionCommentary )
(
printf ( "===== " + "\n");
printf ( "VOLUME PRICE ANALYSIS" + "\n");
printf ( "RAJASWAMY" + "\n");
printf ( "===== " + "\n");
printf ( Name() + " - " + Interval(2) + " - " + Date() + " - " + "\n" + "High-
"+H+"\n"+"Low-"+L+"\n"+"Open-"+O+"\n"+
"Close-"+C+"\n" + "Volume= " + WriteVal(V)+"\n");
WriteIf(Vpc,"=====,");
WriteIf(Vpc,"VOLUME ANALYSIS COMMENTARY:\n,");

WriteIf(utbar , "Up-thrusts are designed to catch stops and to mislead as many
traders as possible.
They are normally seen after there has been weakness in the background. The
market makers know that the
market is weak, so the price is marked up to catch stops, encourage traders to
go long in a weak market,
AND panic traders that are already Short into covering their very good
position.", "")+
WriteIf(utcond3,"This upthrust bar is at high volume.This is a sure sign of
weakness. One may even seriously
consider ending the Longs AND be ready to reverse", "")+WriteIf(utbar OR
utcond3," Also note that A wide spread
down-bar that appears immediately after any up-thrust, tends to confirm the
weakness (the market makers are

```

locking in traders into poor positions).

With the appearance of an upthrust you should certainly be paying attention to your trade AND your stops. On many upthrusts you will find that the market will 'test' almost immediately."")+WriteIf(utcond1 , "A wide spread down bar following a Upthrust Bar.

This confirms weakness. The Smart Money is locking in Traders into poor positions", "");

WriteIf(utcond2 , "Also here the volume is high(Above Average).This is a sure sign of weakness. The Smart Money is locking in Traders into poor positions", "")+WriteIf(stdn, "Strength Bar. The stock has been in a down Trend. An upbar with higher Volume closing near the High is a sign of strength returning. The downtrend is likely to reverse soon. ", "")+

WriteIf(stdn1, "Here the volume is very much above average. This makes this indication more stronger. ", "")+

WriteIf(bycond, "The previous bar saw strength coming back. This upbar confirms strength. ", "")+

WriteIf(Hutbar, " A pseudo Upthrust. This normally appears after an Up Bar with above average volume. This looks like an upthrust bar closing down near the Low. But the Volume is normally Lower than average. this is a sign of weakness.If the Volume is High then weakness increases. Smart Money is trying to trap the retailers into bad position. ", "")+

WriteIf(Hutcond, "A downbar after a pseudo Upthrust Confirms weakness. If the volume is above average the weakness is increased. ", "")+

WriteIf(Lvtbar2, "The previous bar was a successful Test of supply. The current bar is a upbar with higher volume. This confirms strength", "")+

WriteIf(dbar, "A wide range, high volume bar in a up trend closing down is an indication the Distribution is in progress. The smart money is Selling the stock to the late Comers rushing to Buy the stock NOT to be Left Out Of a Bullish move. ", "")+

WriteIf(Lvtbar2, "The previous bar was a successful Test of supply. The current bar is a upbar with higher volume. This confirms strength", "")+

WriteIf(tcbar, "The stock has been moving up on high volume. The current bar is a Downbar with high volume. Indicates weakness and probably end of the up move", "")+

WriteIf(eftup, "Effort to Rise bar. This normally found in the beginning of a Markup Phase and is bullish sign. These may be found at the top of an Upmove as the Smart money makes a

last effort to move the price to the maximum", "")+

WriteIf(eftdn, "Effort to Fall bar. This normally found in the beginning of a Markdown phase.", "")+

WriteIf(nsbar,"No Supply. A no supply bar indicates supply has been removed and the Smart money can markup the price. It is better to wait for confirmation", "")+

WriteIf(stvol,"Stopping Volume. This will be an downbar during a bearish period closing towards the Top accompanied by High volume.

A stopping Volume normally indicates that smart money is absorbing the supply which is a Indication that they are Bullish on the Market.

Hence we Can expect a reversal in the down trend. ", "")+

WriteIf(ndbar, "No Demand

Brief Description:

Any up bar which closes in the middle OR Low, especially if the Volume has fallen off,

is a potential sign of weakness.

Things to Look Out for:

if the market is still strong, you will normally see signs of strength in the next few bars,

which will most probably show itself as a:

* Down bar with a narrow spread, closing in the middle OR High.

* Down bar on Low Volume.", "");

_SECTION_END();

_SECTION_BEGIN("Advanced Trend Lines");

ShowSR = ParamToggle("Show Vert S/R", "No|Yes", 0);

SRPer = Param("S/R Percentage", 3, 1);

SRBack = Param("S/R Back", 5, 1);

function GetXSupport(Lo, Percentage, Back)

{
return ((BarCount - 1) - LastValue(TroughBars(Lo, Percentage, Back)));

}
function GetYSupport(Lo, Percentage, Back)

{
return (LastValue(Trough(Lo, Percentage, back)));

}
function GetXResistance(Hi, Percentage, Back)

{
return ((BarCount - 1) - LastValue(PeakBars(Hi, Percentage, Back)));

}
function GetYResistance(Hi, Percentage, Back)

{
return (LastValue(Peak(Hi, Percentage, Back)));

}
if>ShowSR

{
for(i=1; i<=SRBack; i++)

{

```

x0 = GetXSupport(L, SRPer, i);
x1 = BarCount-1;
y0 = GetYSupport(L, SRPer, i);
x = LineArray(x0, y0, x1, y0, 0);
Plot(x, "", IIf(LastValue(C) > x, colorGreen, colorRed),
styleLine|styleDashed|styleThick);
x0 = GetXResistance(H, SRPer, i);
y0 = GetYResistance(H, SRPer, i);
x = LineArray(x0, y0, x1, y0, 0);
Plot(x, "", IIf(LastValue(C) > x, colorGreen, colorRed),
styleLine|styleDashed|styleThick);

}
}
//=====
=====
//plotting the chart shapes
_SECTION_BEGIN("Indications");
PlotShapes( shapeSmallSquare*(utbar AND NOT scnd) , colorRed, 0, H, 10
);
PlotShapes(shapeSmallCircle*trbar, colorBlue, 0, H, 20 );
PlotShapes(shapeSmallDownTriangle*scnd, colorRed, 0, H, -20);
PlotShapes(shapeSmallSquare*stdn, colorLime, 0, L, -20 );
PlotShapes(shapeSmallSquare*stdn1, colorLime, 0, L, -20 );
PlotShapes(shapeSmallSquare*1vtbar1, colorLime, 0, L, -20 );
PlotShapes(shapeSmallUpTriangle*1vtbar2, colorYellow, 0, L, -20 );
PlotShapes(shapeHollowSmallCircle*stvol, colorLime, 0, L, -10 );
PlotShapes(shapeSmallUpTriangle*bycond, colorLime, 0, L, -20 );
PlotShapes(shapeSmallSquare*(Hutbar) , colorBlue, 0, H, 10 );
PlotShapes(shapeSmallDownTriangle*(Hutcond) , colorBlue, 0, H, -20 );
PlotShapes(shapeSmallDownTriangle*tcbar , colorYellow, 0, H, -20 );
PlotShapes(shapeSmallUpTriangle*stdn2, colorAqua, 0, L, -20 );
PlotShapes(shapeSmallSquare*(dbar) , colorBlue, 0, H, 10 );
PlotShapes(shapeSmallSquare*1vtbar, colorCustom12, 0, L, -20);
PlotShapes(shapeSmallSquare*(ndbar) , colorBlue, 0, H, 10 );
PlotShapes(shapeSmallCircle*nsbar, colorLime, 0, L, -20 );
PlotShapes(shapeSmallCircle*eftup, colorTurquoise, 0, mp, 0 );
PlotShapes(shapeSmallCircle*eftdn, colorYellow, 0, mp, 0 );
_SECTION_END();
//=====
=====
=====
=====
//TITLE

```

```

_SECTION_BEGIN("Title");
if( Status("action") == actionIndicator )
(
Title = EncodeColor(colorWhite)+ "Volume Price Analysis" + " - " + Name()
+ " - " + EncodeColor(colorRed)+ Interval(2) + EncodeColor(colorWhite) +
" - " + Date() + " - " +EncodeColor(colorLime)+ "Volume=" +WriteVal(V)+"-
-"+EncodeColor(colorYellow)+"\n"+
WriteIf (utbar, " An Upthrust Bar. A sign of weakness. ", "")+
WriteIf (utcond1, " A downbar after an Upthrust. Confirm weakness. ", "")+
WriteIf (utcond2 AND NOT utcond1, " A High Volume downbar after an
Upthrust. Confirm weakness.", "")+
WriteIf (utcond3, "This upthrust at very High Voume, Confirms
weakness", "")+
WriteIf (stdn1, "Strength seen returning after a down trend. High volume adds
to strength. ", "")+
WriteIf (stdn0 AND NOT stdn, "Strength seen returning after a down trend.
", "")+
WriteIf (stdn AND NOT stdn1, "Strength seen returning after a long down
trend. ", "")+
WriteIf (Lvtbar, "Test for supply. ", "")+
WriteIf (Lvtbar2, "An Upbar closing near High after a Test confirms strength.
", "")+
WriteIf (bycond, "An Upbar closing near High. Confirms return of Strength.
", "")+
WriteIf (dbar, "A High Volume Up Bar closing down in a uptrend shows
Distribution. ", "")+
WriteIf (Hutbar, "Psuedo UpThrust. A Sign of Weakness. ", "")+
WriteIf (Hutcond, "A Down Bar closing down after a Pseudo Upthrust
confirms weakness. ", "")+
WriteIf (Lvtbar1, "Test for supply in a uptrend. Sign of Strength. ", "")+
WriteIf (stdn2, "High volume upbar closing on the high indicates strength.
", "")+
WriteIf (Tcbar, "High volume Downbar after an upmove on high volume
indicates weakness. ", "")+
WriteIf (ndbar, "No Demand. A sign of Weakness. ", "")+
WriteIf (nsbar, "No Supply. A sign of Strength. ", "")+
WriteIf (eftup, "Effort to Rise. Bullish sign ", "")+
WriteIf (eftdn, "Effort to Fall. Bearish sign ", "")+
WriteIf (eftupfl, "Effort to Move up has failed. Bearish sign ", "")+
WriteIf (stvol, "Stopping volume. Normally indicates end of bearishness is
nearing. ", "")+
("\n      Volume:      ")+WriteIf(V>Vp2,EncodeColor(colorLime)+"Very
High",WriteIf(V>Vp1,EncodeColor(colorLime)+"
High",WriteIf(V>Vrg,EncodeColor(colorLime)+"Above Average",

```



```

WriteIf(V<Vrg AND V>Vn1,EncodeColor(colorRed)+"Less than
Average",WriteIf(V<Vn1,"Low","")))))+
(EncodeColor(colorYellow)+" Spread: ") + WriteIf(rg
>(arg*2),EncodeColor(colorLime)+"
Wide",WriteIf(rg>arg,EncodeColor(colorLime)+" Above
Average",EncodeColor(colorRed)+" Narrow"))+
(EncodeColor(colorYellow)+" Close:
")+WriteIf(Vhcls,EncodeColor(colorLime)+"Very
High",WriteIf(ucls,EncodeColor(colorLime)+"High",WriteIf(mcls,EncodeC
olor(colorYellow)+"Mid",
WriteIf(dcls,EncodeColor(colorRed)+"Down","Very Low")))))+
("\n Trend: ") + WriteIf(tls>0,EncodeColor(colorLime)+" Short Term-
UP",EncodeColor(colorRed)+" Short Term-Down")+
WriteIf(tlm>0,EncodeColor(colorLime)+" MID Term-
UP",EncodeColor(colorRed)+" Mid Term-Down")+
WriteIf(tll>0,EncodeColor(colorLime)+" Long Term-
Up",EncodeColor(colorRed)+" Long term-Down"));
_SECTION_END();

```

```

//=====
=====
=====
=====

```

```

_SECTION_BEGIN("Exploration");

```

```

Lq=V;
Lqok=Lq>100000;

```

```

Filter= (utbar OR utcond2 OR utcond3 OR stdn OR stdn0 OR stdn1 OR stdn2
OR eftup OR eftdn OR stvol OR Hutbar OR Hutcond
OR tbar OR Lvtbar2 OR dbar OR bycond) AND Lqok;
tcolor = Iif(stdn OR stdn1, 42,Iif(bycond , colorPaleGreen,Iif(stdn2,
colorPaleGreen,
Iif(utbar OR utcond1, 33,Iif(utcond2 OR utcond3, 25,Iif(eftup,
colorLime,Iif(eftdn,colorRed,Iif(hutbar,33,
Iif(hutcond,colorOrange,Iif(stdn0,42,Iif(stvol,42, Iif(utcond1,colorOrange,
Iif(dbar,33,Iif(tbar,33,colorWhite)))))))))))));
AddTextColumn(
WriteIf (utbar, "Sign of weakness. ",
WriteIf (utcond1, "Confirmed weakness. ",
WriteIf (utcond2 AND NOT utcond1, "Confirms weakness.",
WriteIf (utcond3, "Confirms weakness",
WriteIf (stdn1, "strength returning. ",
WriteIf (stdn0 AND NOT stdn, "strength returning. ",
WriteIf (stdn AND NOT stdn1, "strength returning. ",

```

```

Writeln (Lvtbar, "Test for supply. ",
Writeln (Lvtbar2, "confirms strength. ",
Writeln (bycond, "Confirms return of Strength. ",
Writeln (dbar, "Distribution. ",
Writeln (Hutbar, "Sign of Weakness. ",
Writeln (Hutcond, "Confirms weakness. ",
Writeln (Lvtbar1, "Sign of Strength. ",
Writeln (stdn2, "Indicates strength. ",
Writeln (Tcbar, "Indicates weakness. ",
Writeln (ndbar, "A sign of Weakness. ",
Writeln (stvol, "End of bearishnees near ",
Writeln (eftup, "Bullish sign ",
Writeln (eftdn, "Bearish sign ",
Writeln (eftupfl, "Bearish sign ", ""))))))))))))))))), "Signal" , 1,
colorDefault, tcolor,110);
AddTextColumn(
Writeln (utbar, " An Upthrust Bar. ",
Writeln (utcond1, " A downbar after an Upthrust. ",
Writeln (utcond2 AND NOT utcond1, " A High Volume downbar after an
Upthrust.",
Writeln (utcond3, "This upthrust at very High Voume.",
Writeln (stdn1, "Strength seen returning after a down trend. ",
Writeln (stdn0 AND NOT stdn, "Strength seen returning after a down trend.
",
Writeln (stdn AND NOT stdn1, "Strength seen returning after a long down
trend. ",
Writeln (Lvtbar, "Test for supply. ",
Writeln (Lvtbar2, "An Upbar closing near High. ",
Writeln (bycond, "An Upbar closing near High.",
Writeln (dbar, "A High Volume Up Bar closing down in a uptrend. ",
Writeln (Hutbar, "Psuedo UpThrust. ",
Writeln (Hutcond, "A Down Bar closing down after a Pseudo Upthrust. ",
Writeln (Lvtbar1, "Test for supply in a uptrend. ",
Writeln (stdn2, "High volume upbar closing on the high. ",
Writeln (Tcbar, "High volume Downbar after an upmove on high volume. ",
Writeln (ndbar, "No Demand. A sign of Weakness. ",
Writeln (stvol, "Stopping volume. ",
Writeln (eftup, "Effort to Rise. ",
Writeln (eftdn, "Effort to Fall. ",
Writeln (eftupfl, "Effort to Move up has failed. ", ""))))))))))))))))),
"Condition" , 1, colorDefault, tcolor,250);
_SECTION_END ();
//=====
=====

```

```

//background stock name (works only on Amibroker version 5.00 onwards.
//=====
=====
_SECTION_BEGIN("Name");
GfxSetOverlayMode(1);
GfxSetFont("Tahoma", Status("pxheight")/6 );
GfxSetTextAlign( 6 );// center alignment
//GfxSetTextColor( ColorRGB( 200, 200, 200 ) );
GfxSetTextColor( ColorHSB( 42, 42, 42 ) );
GfxSetBkMode(0); // transparent
GfxTextOut( Name(), Status("pxwidth")/2, Status("pxheight")/12 );
GfxSetFont("Tahoma", Status("pxheight")/12 );
GfxTextOut( "VPA", Status("pxwidth")/2, Status("pxheight")/3 );
GfxSetFont("Tahoma", Status("pxheight")/36 );
GfxTextOut( "www.vpanalysis.blogspot.com", Status("pxwidth")/2,
Status("pxheight")/2 );
_SECTION_END();
Score = 0;
/*AROON*/
//////////AROON//////////
Period = 14;
LLVBarsSince = LLVBars(L, Period) + 1;
HHVBarsSince = HHVBars(H, Period) + 1;
AroonDn = 100 * (Period - LLVBarsSince) / (Period - 1);
AroonUp = 100 * (Period - HHVBarsSince) / (Period - 1);
/* SubScore1 - Price vs. Medium MA */
SubScore1 = Iif (Close > MA(Close, 14), 1, -1);
SubScore1_Status = Writelf(SubScore1 > 0,"Bullish","Bearish");
SubScore1_Col = Iif(SubScore1 > 0, colorGreen, colorRed);
/* SubScore2 - Price vs. Long MA */
SubScore2 = Iif (Close > MA(Close, 45), 1, -1);
SubScore2_Status = Writelf(SubScore2 > 0,"Bullish","Bearish");
SubScore2_Col = Iif(SubScore2 > 0, colorGreen, colorRed);
/* SubScore3 - Medium MA vs Long MA */
SubScore3 = Iif (MA(Close, 14) > MA(Close, 45), 1, -1);
SubScore3_Status = Writelf(SubScore3 > 0,"Bullish","Bearish");
SubScore3_Col = Iif(SubScore3 > 0, colorGreen, colorRed);
/* SubScore4 - RSI Overbought or Oversold */
SubScore4 = Iif (RSIa(Close,14) < 30, 1, 0);
SubScore4a = Iif (RSIa(Close,14) > 70, -1, 0);
r=RSI(14) < 70 AND Ref (RSI(14),-1) > 70 AND Ref (RSI(14),-2) > 70;
r2= RSI(14) > 70 AND Ref (RSI(14),-1) < 70 AND Ref (RSI(14),-2) < 70;
r_status= Writelf(r, "Declining", Writelf(r2, "Improving", "Neutral"));
r_Col=Iif(r, colorGreen, Iif(r2, colorRed, colorLightGrey));

```

```

//Bollinger Bands
bb= C > BBandTop( C, 20, 2) AND Ref( C,-1) < Ref(BBandTop( C, 20, 2),-
1);
bb1= C < BBandBot( C, 20, 2) AND Ref( C,-1) > Ref(BBandBot( C, 20, 2),-
1);
bb_status= WriteIf(BB, "AboveTop", WriteIf(r2, "BelowBottom",
"Neutral"));
bb_Col=Iif(r, colorGreen, Iif(r2, colorRed, colorLightGrey));
/* SubScore6 - MACD crosses above 0 */
SubScore6 = Iif( MACD(12, 26) > 0, 1, -1);
SubScore6_Status = WriteIf(SubScore6 > 0,"Bullish","Bearish");
SubScore6_Col = Iif(SubScore6 > 0, colorGreen, colorRed);
/* SubScore7 - MACD crosses above Signal */
SubScore7 = Iif( Cross ( MACD( 12, 26), Signal( 12, 26, 9 )) OR
MACD(12,26) > Signal(12,26,9), 1, -1);
SubScore7_Status = WriteIf(SubScore7 > 0,"Bullish","Bearish");
SubScore7_Col = Iif(SubScore7 > 0, colorGreen, colorRed);

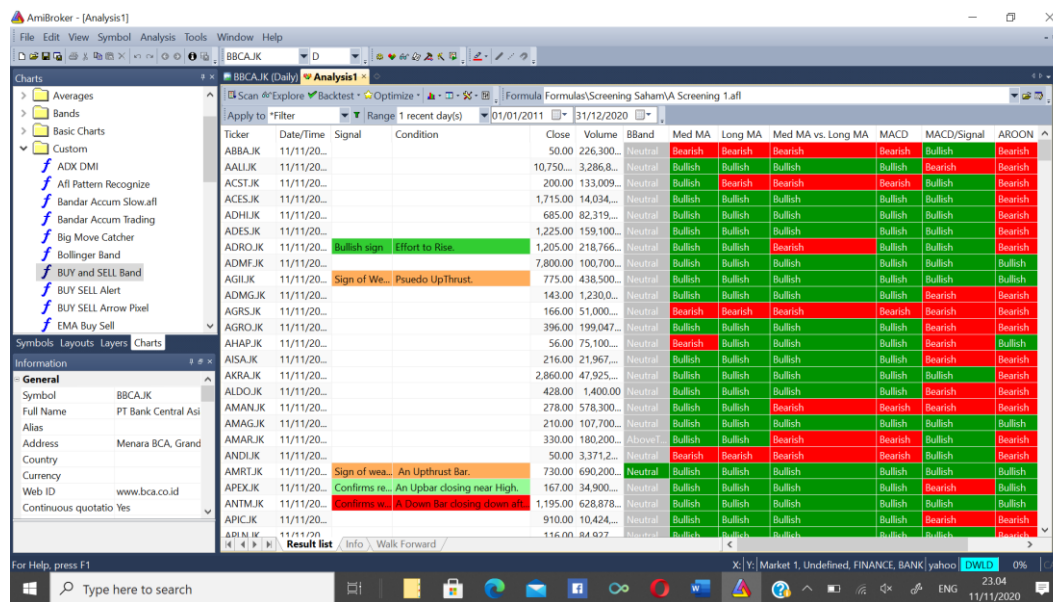
/* SubScore8 - AROON Score */
SubScore8 = Iif( AroonUp > 70 AND AroonDn < 30, 1, -1 );
SubScore8_Status = WriteIf(SubScore8 > 0,"Bullish","Bearish");
SubScore8_Col = Iif(SubScore8 > 0, colorGreen, colorRed);
/* SubScore9 - MFI Overbought or Oversold */
SubScore9 = Iif( MFI(7) < 20, 1, 0);
SubScore9a = Iif( MFI(7) > 80, -1, 0);
m = MFI(7) < 20;
m2 = MFI(7) > 80;
MFI_status = WriteIf(m, "Oversold", WriteIf(m2, "Overbought", "Neutral"));
MFI_col = Iif(m, colorGreen, Iif(m2, colorRed, colorLightGrey));
/* SubScore10 - Stochastic */
Subscore10 = Iif( StochK(14,3) > StochD(14,3,3), 1, -1);
SubScore10_Status = WriteIf(SubScore10 > 0,"Bullish","Bearish");
SubScore10_Col = Iif(SubScore10 > 0, colorGreen, colorRed);
/* TOTAL SCORE */
Score = SubScore1 + SubScore2 + SubScore3 + SubScore4 + SubScore4a +
SubScore6 + SubScore7 + SubScore8 + SubScore9 + SubScore9a +
SubScore10;
Score_Col=Iif(Score > 0, bkcolor = colorGreen, bkcolor = colorRed);
/* RESULTS */
Filter = MA(Volume,21) > 40000;
AddColumn( Close, "Close " );
AddColumn( Volume, "Volume " );
AddTextColumn(bb_status, "BBand", 1, colorWhite, bb_Col);

```

```

AddTextColumn(SubScore1_status, "Med MA",1, colorWhite,
SubScore1_Col);
AddTextColumn(SubScore2_status, "Long MA",1, colorWhite,
SubScore2_Col);
AddTextColumn(SubScore3_status, "Med MA vs. Long MA",1, colorWhite,
SubScore3_Col);
AddTextColumn(SubScore6_status, "MACD ",1, colorWhite,
SubScore6_Col);
AddTextColumn(Subscore7_status, "MACD/Signal ",1, colorWhite,
SubScore7_Col);
AddTextColumn(SubScore8_status, "AROON",1, colorWhite,
SubScore8_Col);
AddTextColumn(SubScore10_status, "Stochastic",1, colorWhite,
SubScore10_Col);
AddTextColumn(r_status, "RSI-14",1, colorWhite, r_Col);
AddTextColumn(MFI_status, "MFI", 1, colorWhite, MFI_Col);
AddColumn(Score, "Score ",1.0, colorWhite, Score_Col);

```



10. Stock Screener 3

lookback = 14;
buyrange = 20;

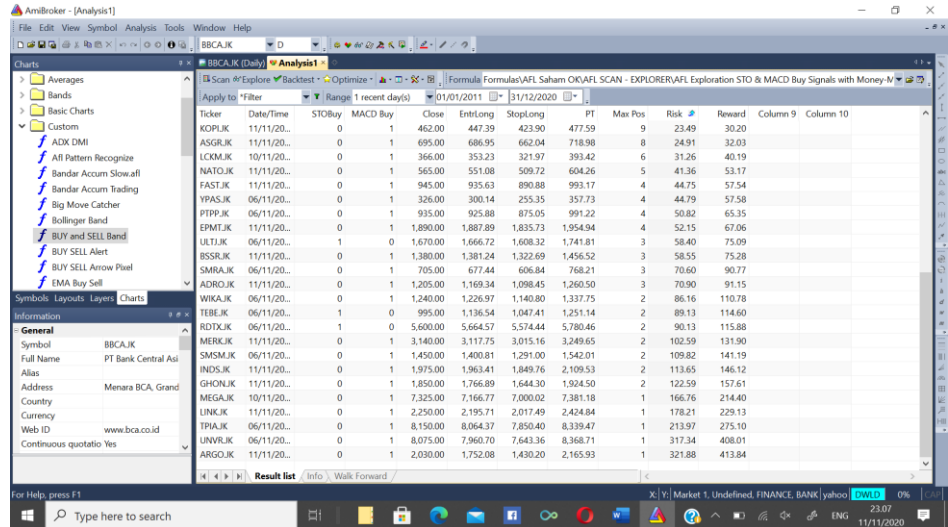
```

sellrange = 80;
stochKworkaround = StochK(14);
stochDworkaround = EMA( StochK(14), 3);

Buy = StochK(14) < buyrange AND Cross(stochKworkaround,
stochDworkaround) OR Cross( MACD(), Signal() );
//Sell      =      StochK(14)>      buyrange      AND      Cross
(stochDworkaround,stochKworkaround) OR Cross ( Signal(),MACD() ); //
EMA(Close,5)-(EMA(ATR(1),10);
Sell = EMA(Close,5)-(EMA(ATR(1),10) );
Filter = StochK(14) < buyrange AND Cross(stochKworkaround,
stochDworkaround) OR Cross( MACD(), Signal() );
NumColumns=11;
Column0 = StochK(14) < buyrange AND Cross(stochKworkaround,
stochDworkaround);
Column0Name = "STOBuy";
Column0Format = 1;
Column1 = Cross( MACD(), Signal() );
Column1Name = "MACD Buy";
Column1Format = 1;
Column2 = Close;
Column2Name = "Close";
Column2Format = 1.2;
Column3 = EMA(Close,5)+(EMA(ATR(1),10)/4);
Column3Name = "EntrLong";
Column3Format = 1.2;
Column4 = EMA(Close,5)-(EMA(ATR(1),10)*1.50);
Column4Name = "StopLong";
Column4Format = 1.2;
Column5 = (EMA(Close,5)+(EMA(ATR(1),10)*2.5));
Column5Name = "PT";
Column5Format = 1.2;
Column6 = ((10000)*2/100)/(EMA(Close,5)+ (EMA(ATR(1),10)/4)-
(EMA(Close,5)-(EMA(ATR(1),10)*1.50)));
Column6Name = "Max Pos";
Column6Format = 1;
Column7 = (EMA(Close,5)+(EMA(ATR(1),10)/4)) - (EMA(Close,5)-
(EMA(ATR(1),10)*1.50));
Column7Name = "Risk";
Column7Format = 1.2;
Column8 = (EMA(Close,5)+(EMA(ATR(1),10)*2.5)) -
(EMA(Close,5)+(EMA(ATR(1),10)/4));
Column8Name = "Reward";
Column8Format = 1.2;

```

Apabila kodeing tersebut dijalankan maka akan diperoleh hasil sebagai berikut :



11. Backtesting

```

_SECTION_BEGIN("Price");
SetChartOptions(0,chartShowArrows|chartShowDates|chartLogarithmic|chartWrapTitle);
Plot( C, "Close", ParamColor("Color", colorBlack ), styleNoTitle | ParamStyle("Style") | GetPriceStyle() );
if( ParamToggle("Tooltip shows", "All Values|Only Prices" ) )
{
    Tooltip=StrFormat("Open: %g\nHigh: %g\nLow: %g\nClose: %g\nVolume: "+NumToStr( V, 1 ), O, H, L, C, SelectedValue( ROC( C, 1 ) ));
}
_SECTION_END();

```

```

_SECTION_BEGIN("Fractal-EOD-4");

```

```

UpFractal= ValueWhen(
(Ref(H,-2) > Ref(H, -4)) AND
(Ref(H,-2) > Ref(H, -3)) AND
(Ref(H,-2) > Ref(H, -1)) AND
(Ref(H,-2) > H), Ref(H,-2));

```

```

DownFractal= ValueWhen(
  (Ref(L,-2) <= Ref(L, -4)) AND
  (Ref(L,-2) <= Ref(L, -3)) AND
  (Ref(L,-2) <= Ref(L, -1)) AND
  (Ref(L,-2) <= L), Ref(L,-2));

Plot(UpFractal, "UF", ParamColor("Up Fractal Color",colorBlue),
ParamStyle("Up Fractal Style", styleLine));
Plot(DownFractal, "DF",ParamColor("Down Fractal Color",colorRed),
ParamStyle("Down Fractal Style", styleLine));

UF=UpFractal;
DF=DownFractal;

_SECTION_END();

_N(Title = StrFormat("Fractal-EOD-4 : {{NAME}} - {{INTERVAL}}
{{DATE}} O %g, H %g, L %g, C %g (%.1f%%) RSI " +WriteVal( RSI(),
1.1 ) + " {{VALUES}}", O, H, L, C, SelectedValue( ROC( C, 1 ) ));

_SECTION_BEGIN("Trade System");

SetTradeDelays( 1, 1, 1, 1); // EOD : Sinyal hari ini, eksekusi besok

// MaxOpenPos=Optimize("MaxOpenPositions", 8, 4, 10, 1);
// MaxOpenPos setelah dioptimize berdasarkan CAR/MDD
MaxOpenPos = 8;
SetOption("MaxOpenPositions", MaxOpenPos);

PositionSize=-100/MaxOpenPos;
PositionScore=RSI();

// Menentukan Value = Volume * AveragePrice
AvgPrice=(O+H+L+C)/4;
DV=AvgPrice*V*500;

MinimumValue = Iif(DateNum()<1050101, 2500000000,5000000000);

Likuid = MA(DV,20) > MinimumValue;

// Syarat BUY
UFBreak=C>UF AND Ref(C,-1)<=UF AND Likuid ;
Buy=UFBreak ;
BuyPrice=Open ;

```



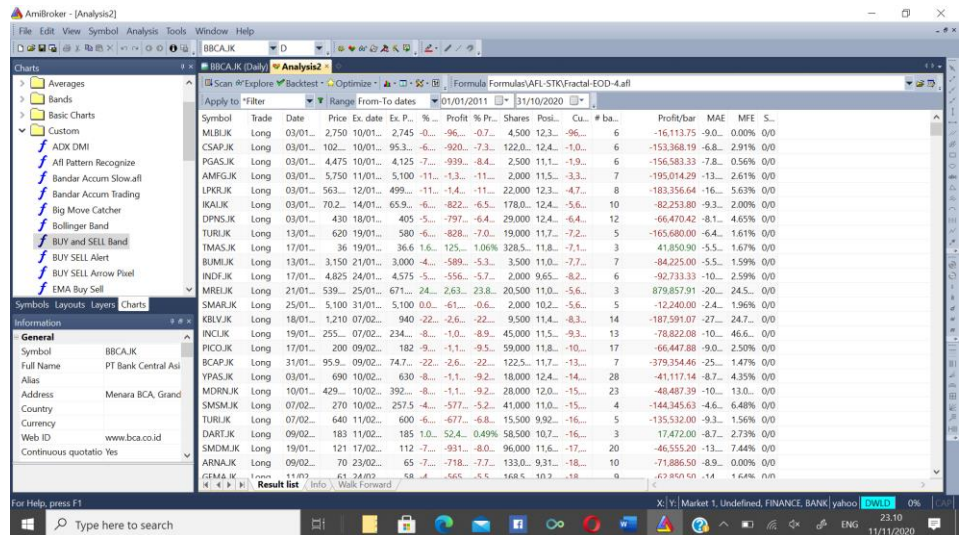
```
// Syarat SELL
DFBreak=(L<DF AND Ref(C,-1)>=DF);
Sell=DFBreak ;
SellPrice= Open;

Buy=ExRem(Buy,Sell);
Sell=ExRem(Sell,Buy);

PlotShapes(IIf(Buy,shapeSmallUpTriangle,Null), colorBlue, 0, L, -15);
PlotShapes(IIf(Sell,shapeSmallDownTriangle,Null), colorRed , 0, H, -15);

_SECTION_END();
```

Jika Koding tersebut dijalankan maka akan diperoleh hasil :



12. Walk Forward

```
_SECTION_BEGIN("Price");
SetChartOptions(0,chartShowArrows|chartShowDates|chartLogarithmic|chartWrapTitle);
Plot( C, "Close", ParamColor("Color", colorBlack ), styleNoTitle | ParamStyle("Style") | GetPriceStyle() );
if( ParamToggle("Tooltip shows", "All Values|Only Prices" ) )
{
```

```

ToolTip=StrFormat("Open: %g\nHigh: %g\nLow: %g\nClose: %g
(%.1f%%)\nVolume: "+NumToStr( V, 1 ), O, H, L, C, SelectedValue( ROC(
C, 1 )));
}
_SECTION_END();

_SECTION_BEGIN("Fractal-EOD-WF");

UpFractal= ValueWhen(
(Ref(H,-2) > Ref(H, -4)) AND
(Ref(H,-2) > Ref(H, -3)) AND
(Ref(H,-2) > Ref(H, -1)) AND
(Ref(H,-2) > H), Ref(H,-2));

DownFractal= ValueWhen(
(Ref(L,-2) <= Ref(L, -4)) AND
(Ref(L,-2) <= Ref(L, -3)) AND
(Ref(L,-2) <= Ref(L, -1)) AND
(Ref(L,-2) <= L), Ref(L,-2));

Plot(UpFractal, "UF", ParamColor("Up Fractal Color",colorBlue),
ParamStyle("Up Fractal Style", styleLine));
Plot(DownFractal, "DF",ParamColor("Down Fractal Color",colorRed),
ParamStyle("Down Fractal Style", styleLine));

UF=UpFractal;
DF=DownFractal;

_SECTION_END();

_N(Title = StrFormat("Fractal-EOD-WF : {{NAME}} - {{INTERVAL}}
{{DATE}} O %g, H %g, L %g, C %g (%.1f%%) RSI "+WriteVal( RSI(),
1.1 ) + " {{VALUES}}", O, H, L, C, SelectedValue( ROC( C, 1 )) ));

_SECTION_BEGIN("Trade System");

SetTradeDelays( 1, 1, 1, 1); // EOD : Sinyal hari ini, eksekusi besok

MaxOpenPos=Optimize("MaxOpenPositions", 8, 4, 10, 1);
// MaxOpenPos setelah dioptimize berdasarkan CAR/MDD
// MaxOpenPos = 8;
SetOption("MaxOpenPositions", MaxOpenPos);

PositionSize=-100/MaxOpenPos;

```

PositionScore=RSI();

// Menentukan Value = Volume * AveragePrice

AvgPrice=(O+H+L+C)/4;

DV=AvgPrice*V*500;

MinimumValue = Iif(DateNum()<1050101, 2500000000,5000000000);

Likuid = MA(DV,20) > MinimumValue;

// Syarat BUY

UFBreak=C>UF AND Ref(C,-1)<=UF AND Likuid ;

Buy=UFBreak ;

BuyPrice=Open ;

// Syarat SELL

DFBreak=(L<DF AND Ref(C,-1)>=DF);

Sell=DFBreak ;

SellPrice= Open;

Buy=ExRem(Buy,Sell);

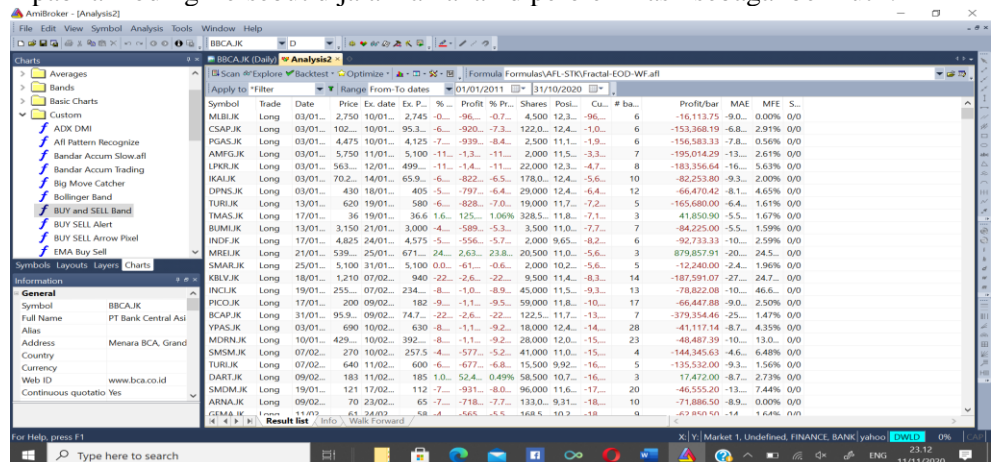
Sell=ExRem(Sell,Buy);

PlotShapes(IIf(Buy,shapeSmallUpTriangle,Null), colorBlue, 0, L, -15);

PlotShapes(IIf(Sell,shapeSmallDownTriangle,Null), colorRed , 0, H, -15);

_SECTION_END());

Apabila Koding Tersebut dijalankan akan diperoleh Hasil sebagai berikut :



13. .Monte Carlo Simulation

```
_SECTION_BEGIN("Price");
SetChartOptions(0,chartShowArrows|chartShowDates|chartLogarithmic|chartWrapTitle);
Plot( C, "Close", ParamColor("Color", colorBlack ), styleNoTitle | ParamStyle("Style") | GetPriceStyle() );
if( ParamToggle("Tooltip shows", "All Values|Only Prices" ) )
{
  ToolTip=StrFormat("Open: %g\nHigh: %g\nLow: %g\nClose: %g (%.1f%%)\nVolume: "+NumToStr( V, 1 ), O, H, L, C, SelectedValue( ROC( C, 1 ))) );
}
_SECTION_END();

_SECTION_BEGIN("Fractal-EOD-WF");

UpFractal= ValueWhen(
  (Ref(H,-2) > Ref(H, -4)) AND
  (Ref(H,-2) > Ref(H, -3)) AND
  (Ref(H,-2) > Ref(H, -1)) AND
  (Ref(H,-2) > H), Ref(H,-2));

DownFractal= ValueWhen(
  (Ref(L,-2) <= Ref(L, -4)) AND
  (Ref(L,-2) <= Ref(L, -3)) AND
  (Ref(L,-2) <= Ref(L, -1)) AND
  (Ref(L,-2) <= L), Ref(L,-2));

Plot(UpFractal, "UF", ParamColor("Up Fractal Color",colorBlue),
ParamStyle("Up Fractal Style", styleLine));
Plot(DownFractal, "DF",ParamColor("Down Fractal Color",colorRed),
ParamStyle("Down Fractal Style", styleLine));

UF=UpFractal;
DF=DownFractal;

_SECTION_END();

_N(Title = StrFormat("Fractal-EOD-MC : {{NAME}} - {{INTERVAL}} {{DATE}} O %g, H %g, L %g, C %g (%.1f%%) RSI "+WriteVal( RSI(), 1.1 ) + " {{VALUES}}", O, H, L, C, SelectedValue( ROC( C, 1 ) ) ));

_SECTION_BEGIN("Trade System");
```

```

SetTradeDelays( 1, 1, 1, 1); // EOD

//MaxOpenPos=Optimize("MaxOpenPositions", 8, 4, 10, 1);
// MaxOpenPos setelah dioptimize berdasarkan CAR/MDD
MaxOpenPos = 8;
SetOption("MaxOpenPositions", MaxOpenPos);

PositionSize=-100/MaxOpenPos;
//PositionScore=RSI();

/*MonteCarlo Simulation*/
MonteCarlo=Optimize("MonteCarlo Iteration",1,1,100,1);
PositionScore = Random()*MonteCarlo;

// Menentukan Value = Volume * AveragePrice
AvgPrice=(O+H+L+C)/4;
DV=AvgPrice*V*500;

MinimumValue = Iif(DateNum()<1050101, 2500000000,5000000000);

Likuid = MA(DV,20) > MinimumValue;

// Syarat BUY
UFBreak=C>UF AND Ref(C,-1)<=UF AND Likuid ;
Buy=UFBreak ;
BuyPrice=Open ;

// Syarat SELL
DFBreak=(L<DF AND Ref(C,-1)>=DF);
Sell=DFBreak ;
SellPrice= Open;

Buy=ExRem(Buy,Sell);
Sell=ExRem(Sell,Buy);

PlotShapes(Iif(Buy,shapeSmallUpTriangle,Null), colorBlue, 0, L, -15);

PlotShapes(Iif(Sell,shapeSmallDownTriangle,Null), colorRed , 0, H, -15);

_SECTION_END();

```

AmiBroker - [Analysis2]

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BBCAJK

Charts

Analysis2

Formula Formulas\AFL-STK\Fractal-EOD-MC.afl

Symbol	Trade	Date	Price	Ex. date	Ex. P...	% ...	Profit % Pr...	Shares	Posi...	Cu...	# ba...	Profit/bar	MAE	MFE	S...	
CSAPJK	Long	03/01...	102...	10/01...	95.3...	-6...	-920	-7.3	122.0	12.4	-920...	6	-153,368.19	-6.8	2.91%	0/0
MLBLJK	Long	03/01...	2,750	10/01...	2,745	-0...	-96...	-0.7	4,500	12.3	-1.0...	6	-16,113.75	-9.0	0.00%	0/0
PGASJK	Long	03/01...	4,475	10/01...	4,125	-7...	-939	-8.4	2,500	11.1	-1.9...	6	-156,583.33	-7.8	0.56%	0/0
AMFGJK	Long	03/01...	5,750	11/01...	5,100	-11...	-1.3	-11...	2,000	11.5	-3.3...	7	-195,014.29	-13...	2.61%	0/0
LPKRJK	Long	03/01...	563...	12/01...	499...	-11...	-1.4	-11...	22,000	12.3	-4.7...	8	-183,356.64	-16...	5.63%	0/0
IKALJK	Long	03/01...	70.2...	14/01...	65.9...	-6...	-822	-6.5	178.0	12.4	-5.6...	10	-82,253.80	-9.3	2.00%	0/0
DPNSJK	Long	03/01...	430	18/01...	405	-5...	-797	-6.4	29,000	12.4	-6.4...	12	-66,470.42	-8.1	4.65%	0/0
TURLJK	Long	13/01...	620	19/01...	580	-6...	-828	-7.0	19,000	11.7	-7.2...	5	-165,680.00	-6.4	1.61%	0/0
TMASJK	Long	17/01...	36	19/01...	36.6	1.6...	125	1.06%	328.5	11.8	-7.1...	3	41,850.90	-5.5	1.67%	0/0
BUMLJK	Long	13/01...	3,150	21/01...	3,000	-4...	-589	-5.3	3,500	11.0	-7.7...	7	-84,225.00	-5.5	1.59%	0/0
INDFJK	Long	17/01...	4,825	24/01...	4,575	-5...	-556	-5.7	2,000	9.65	-8.2...	6	-92,733.33	-10...	2.59%	0/0
UNVRJK	Long	18/01...	3,220	24/01...	2,800	-13...	-1.5	-13...	3,500	11.2	-9.7...	5	-306,642.00	-14...	1.55%	0/0
MRELJK	Long	21/01...	539...	25/01...	671...	24...	2.63	23.8	20,500	11.0	-7.1...	3	879,857.91	-20...	24.5	0/0
SMARJK	Long	25/01...	5,100	31/01...	5,100	0.0...	-61	-0.6	2,000	10.2	-7.2...	5	-12,240.00	-2.4	1.96%	0/0
INCUJK	Long	19/01...	255...	07/02...	234...	-8...	-1.0	-8.9	45,000	11.5	-8.2...	13	-78,822.08	-10...	46.6	0/0
PICOJK	Long	17/01...	200	09/02...	182	-9...	-1.1	-9.5	59,000	11.8	-9.3...	17	-66,447.88	-9.0	2.50%	0/0
BCAPJK	Long	31/01...	95.9...	09/02...	74.7...	-22...	-2.3	-22...	110.0	10.5	-11...	7	-340,644.82	-25...	1.47%	0/0
YPASJK	Long	03/01...	690	10/02...	630	-8...	-1.1	-9.2	18,000	12.4	-12...	28	-41,117.14	-8.7	4.35%	0/0
MDRNJK	Long	10/01...	429...	10/02...	392...	-8...	-1.1	-9.2	28,000	12.0	-14...	23	-48,487.39	-10...	13.0	0/0
MIDLJK	Long	25/01...	380	10/02...	355	-6...	-816	-7.1	30,000	11.4	-14...	12	-68,012.50	-7.8	0.00%	0/0
SMSMJJK	Long	07/02...	270	10/02...	257.5	-4...	-542	-5.2	38,500	10.3	-15...	4	-135,544.06	-4.6	6.48%	0/0
DARTJK	Long	09/02...	183	11/02...	185	1.0...	52.8	0.49%	59,000	10.7	-15...	3	17,621.33	-8.7	2.73%	0/0
SMDMJJK	Long	19/01...	121	17/02...	112	-7...	-931	-8.0	96,000	11.6	-16...	20	-46,555.20	-13...	7.44%	0/0
AKKJJK	Long	16/02...	53.7...	22/02...	44.8...	-16...	-1.8	-17...	197.0	10.5	-18...	5	-364,690.03	-16...	2.78%	0/0
ARNAJK	Long	09/02...	70	23/02...	65	-7...	-626	-7.7	116.0	8.12	-18...	10	-67,698.00	-8.9	0.00%	0/0

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25 April 2021

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LK	Lucky Kartanto- Sby-1237 /whoami	13:30
A	avedeolucky In reply to this message You are Lucky and your ID is 174323767	13:30
LK	Lucky Kartanto- Sby-1237 /pdf	13:30
LK	Lucky Kartanto- Sby-1237 /pdf	13:47
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31,950.00 +875.00 (+2.82%)

13.74B USD 1.24T IDR

Valuation Measures

Market Cap (USD)	136.13B	Bank Price History	50D	100D	200D
Enterprise Value	132.27B	5Y (YTD) High/Low	9.32		
EV/EBITDA	20.06	52 Week Range	23,820		
EV/EBIT	9.26	52 Week % Change	95.25%		
EV/Revenue	6.74	52 Week High	26,900.00		
EV/Operating Income	11.06	52 Week Low	21,400.00		
Price/Book (Liquor)	4.37	Volatility (Trading Volume)	41,270,000		
Enterprise Value/Revenue	6.74	200 Day Moving Average	22,840.00		
Enterprise Value/EBITDA	20.06				

Financial Highlights

Price of Share	31,950	Market Capitalization	136,130
Price of New Share	31,950	Market Value	136,130
Most Recent Quarter (QoQ)	31,950		
Profitability			
Profit Margin	62.73%	% Total to Dividends	0.00%
Operating Margin (QoQ)	53.86%	% Total to Institutions	20.06%
		Dividend Yield	0.00%
		Dividend Payout Ratio	0.00%
		Short % of Float	0.00%
		Short % of Shares Outstanding	0.00%
		Short Interest (Shares)	0

Income Statement

Revenue (USD)	47,037	Dividends & Splits	
Revenue Per Share (USD)	3,376.90	Forward Annual Dividend Rate	0.00
Operating Profit (USD)	25,297	Forward Annual Dividend Yield	0.00%
EBITDA	969	Trading Annual Dividend Yield	0.00%
Net Income (USD)	29,227	5 Year Average Dividend Yield	0.00%
Dividend Payout Ratio (USD)	0.00%	Dividend Rate	0.00%
		Dividend Yield	0.00%

Balance Sheet

Total Cash	133.97	Total Debt	2.3
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Key Statistics: Market Cap: 136.13B USD, Enterprise Value: 132.27B USD, EV/EBITDA: 20.06, EV/EBIT: 9.26, EV/Revenue: 6.74, EV/Operating Income: 11.06, Price/Book: 4.37, Profit Margin: 62.73%, Operating Margin: 53.86%, Revenue: 47.037B USD, Revenue Per Share: 3,376.90 USD, EBITDA: 969 USD, Net Income: 29.227B USD, Dividend Payout Ratio: 0.00%, Dividend Yield: 0.00%, Total Cash: 133.97B USD, Total Debt: 2.3B USD.

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Valuation Measures		Trading Information		Miscellaneous Data	
Market Cap (USD) (M)	588,737	Stock Price History	5.44	52-Week High	6,730.00
Enterprise Value	13,897	52-Week Low	2,370.00	52-Week Range	4,360.00
Trading P/B	22.00	10-Day Moving Average	5,892.43	200-Day Moving Average	4,360.00
Forward P/E	16.00	10-Day Volume Change	49.42%	52-Week Volume Change	10.00%
P/E Ratio (w/ reported)	16.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000
Price/Earnings (cont)	17.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000
Price/Book (cont)	22.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000
Enterprise Value/Revenue	1.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000
Enterprise Value/EBITDA	16.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000

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Valuation Measures		Trading Information		Miscellaneous Data	
Market Cap (USD) (M)	588,737	Stock Price History	5.44	52-Week High	6,730.00
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Price/Earnings (cont)	17.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000
Price/Book (cont)	22.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000
Enterprise Value/Revenue	1.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000
Enterprise Value/EBITDA	16.00	10-Day Avg. Volume	100,000	52-Week Avg. Volume	100,000

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Vol (30-Day)†</td><td>15,106</td></tr> <tr><td>Shares Outstanding†</td><td>34,658</td></tr> <tr><td>Insider Shares Outstanding‡</td><td>N/A</td></tr> <tr><td>Price</td><td>8.88</td></tr> <tr><td>% Held by Insiders†</td><td>59.36%</td></tr> <tr><td>% Held by Institutions‡</td><td>29.69%</td></tr> <tr><td>Market Share†</td><td>N/A</td></tr> <tr><td>Share Ratio†</td><td>N/A</td></tr> <tr><td>Share % of Float†</td><td>N/A</td></tr> <tr><td>Share % of Shares Outstanding‡</td><td>N/A</td></tr> <tr><td>Market Share (Open Interest)†</td><td>N/A</td></tr> </table> <p>Dividends & Splits</p> <table border="0"> <tr><td>Forward Annual Dividend Rate†</td><td>230</td></tr> <tr><td>Trailing Annual Dividend Rate†</td><td>1,945</td></tr> <tr><td>Trailing Annual Dividend Yield†</td><td>2.82%</td></tr> <tr><td>5-Year Dividend Growth Rate†</td><td>3.23%</td></tr> <tr><td>Payoff Ratio†</td><td>59.27%</td></tr> <tr><td>Dividend Date†</td><td>N/A</td></tr> <tr><td>Ex-Dividend Date†</td><td>Apr 04, 2021</td></tr> <tr><td>Last Split Ratio†</td><td>0.0</td></tr> </table>	52-Week High\$	9,43	52-Week Change†	28.82%	52-Week Volume Change†	95.22%	52-Week High†	36,100.00	52-Week Low†	22,400.00	100-Day Moving Average‡	41,840.00	200-Day Moving Average‡	52,643.86	Avg. Vol (3-Month)†	18,778	Avg. Vol (30-Day)†	15,106	Shares Outstanding†	34,658	Insider Shares Outstanding‡	N/A	Price	8.88	% Held by Insiders†	59.36%	% Held by Institutions‡	29.69%	Market Share†	N/A	Share Ratio†	N/A	Share % of Float†	N/A	Share % of Shares Outstanding‡	N/A	Market Share (Open Interest)†	N/A	Forward Annual Dividend Rate†	230	Trailing Annual Dividend Rate†	1,945	Trailing Annual Dividend Yield†	2.82%	5-Year Dividend Growth Rate†	3.23%	Payoff Ratio†	59.27%	Dividend Date†	N/A	Ex-Dividend Date†	Apr 04, 2021	Last Split Ratio†	0.0	<p><small>See Statistics Table for Abbreviations of Symbols.</small></p> <p>Abbreviation Guide:</p> <ul style="list-style-type: none"> MC - Market Capitalization EV - Enterprise Value P/E - Price to Earnings Ratio EPS - Earnings Per Share FCF - Free Cash Flow EBITDA - Earnings Before Interest and Taxes <p>Footnotes:</p> <ul style="list-style-type: none"> * Calculated by Reuters † Calculated by Yahoo Finance ‡ Calculated from multiple companies information by Reuters § Based on the latest available information ¶ Based on the latest available information ‡ Based on the latest available information § Based on the latest available information ¶ Based on the latest available information ‡ Based on the latest available information § Based on the latest available information ¶ Based on the latest available information <p><small>© 2021 Yahoo Finance. All rights reserved.</small></p>
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