

## Equities

11 April 2011 | 14 pages

# Asia Pacific Hardware PC

## 2012 Could Be Another Tough Year For PC Companies

### ■ Industry Overview

- **Analyzing growth scenarios** — With NB growth slowing sharply since 3Q10 and no sign of demand recovery, this report analyzes whether the growth deceleration is permanent and also estimates long-term NB growth under different scenarios.
- **Our NB “Bull Case” stresses the importance of data creation** — We assume that consumers are not using tablet PC to substitute NB due to tablet PC’s inadequate data creation capability. Instead, the slowdown of NB growth is mainly due to the temporary wallet share moving from NB to tablet PC. As such, NB will stage a big comeback in 2012 at the expense of tablet PC. In this case, tablet PC will stay as a niche product that accounts for only 20-25% of total mobile PC even by 2014. Under this scenario, we estimate that NB growth could reach 22% in 2012 and long-term growth could stay at around 20% per year in the next 3-4 years. Moreover, importantly, we believe consumer NB growth can come back to grow about 25-30% a year from 2012-2015. As such, Acer and Asus could become the biggest winners under this scenario.
- **Our NB “Bear Case” assumes most consumers are rather casual PC users** — Under this scenario consumers are assumed to focus on data consumption (i.e. use PCs to work in the office and become casual users at home on their own PCs), which supports the permanent slowdown NB growth case. In this case, we believe NB growth could fall below 10% per year from 2011-2015. Moreover, consumer NB could decline by around 10% a year in the next few years in the developed market (but still growing around 20% a year in the emerging market). In this case, tablet PC would be a mainstream product accounting for around 40% of mobile PC.
- **Still cautious on PC names** — Based on recent comments from Apple and Acer, it seems the NB “Bear Case” is increasingly likely to happen, which could lead to an even tougher 2012 for Taiwan PC players and also major PC industry consolidation driven by sharp industry profitability deterioration. We base this conclusion on the assumption PC makers won’t have much success in tablet PC in the next 2-3 years. With Apple’s better products, significantly lower cost structure, substantial brand premium, and willingness to take lower margin (lower vs. other Apple products but still higher than those of other PC players), we believe it can control 50% market share even over longer term. We estimate Apple only makes around US\$100 gross profit dollar on its US\$500 tablet PC, which is why the PC brands are priced roughly in-line with Apple given their cost is easily US\$50-100 higher than that of Apple. In the near-term, with most PC brands launching tablet PCs at similar prices as iPad 2, they may have to sell their tablet PCs meaningfully below cost in 2H11 to clear inventory. We maintain our Sell ratings on Acer (2353.TW; NT\$57.10; 3M) and Asustek (2357.TW; NT\$251.00; 3H) given both could miss market expectation again in 2H11. Hon Hai (2317.TW; NT\$108.50; 1L) remains our top pick in the downstream sector with robust revenue momentum and margin expansion in 2H11.

### Kevin Chang

+886-2-8726-9084  
kevin.chang@citi.com

### Jonathan Gu

jonathan.gu@citi.com

See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

Citi Investment Research & Analysis is a division of Citigroup Global Markets Inc. (the “Firm”), which does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the Firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

## 2012 not necessarily a good year for NB

With NB growth slowing down sharply since 3Q10 and with no sign of demand recovery, we try to understand if this growth deceleration is permanent. While it is well understood that NB demand slowdown is driven by cannibalization of tablet PC, it is not clear whether consumers are delaying NB purchase due to budget constraint (average consumers normally can't afford to buy tablet PC and NB in the same year), or are simply replacing their NB with tablet PC. As yet we don't have enough evidence to make such a big call, thus we provide analysis to better understand the long-term NB growth and industry dynamics under different scenarios.

Based on the information we have so far, and comments from Apple (tablet PC market will eventually be bigger than NB) and Acer (Acer's Chairman indicated NB growth can fall to single digit due to the launch of tablet PC but its pan-Europe manager indicated that tablet PC cannibalization of NB is only temporary), it seems that the NB bear case is increasingly likely to happen. If that's the case, we believe the Taiwan PC players will again have a tough 2012 and beyond, and we believe major PC industry consolidation could happen in the next 2-3 years.

Figure 1. Scenario Comparison

(units in million)

Both subject to downside risk

Shipment (NB)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
NB Bull Case	108	143	168	200	207	253	309	375	451
Y/Y Growth	34.0%	32.1%	17.9%	18.8%	3.5%	22.3%	22.2%	21.2%	20.5%
NB Bear Case	108	143	168	200	207	226	248	272	294
Y/Y Growth	34.0%	32.1%	17.9%	18.8%	3.5%	9.1%	10.1%	9.3%	8.4%
IDC Case	108	143	168	200	222	259	299	347	N/A
Y/Y Growth	34.0%	32.1%	17.9%	18.8%	11.1%	16.7%	15.4%	16.1%	
Gartner Case	108	142	170	204	235	282	331	382	438
Y/Y Growth	32.9%	32.0%	19.8%	20.3%	14.9%	20.2%	17.1%	15.5%	14.8%

Shipment (Tablet PC)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
NB Bull Case	0	0	0	15	50	63	75	86	95
Y/Y Growth					233.3%	25.0%	20.0%	15.0%	10.0%
NB Bear Case	0	0	0	15	50	93	139	194	261
Y/Y Growth					233.3%	85.0%	50.0%	40.0%	34.1%
IDC Case	0	0	0	17	45	71	92	111	N/A
Y/Y Growth					162.4%	58.7%	29.9%	20.7%	
Gartner Case	0	0	0	18	70	108	160	223	294
Y/Y Growth					296.3%	55.1%	47.6%	39.3%	32.1%

IDC's tablet PC forecast is only half of that of Gartner

Shipment (Mobile PC)*	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
NB Bull Case	108	143	168	215	257	315	384	461	546
Y/Y Growth		32.1%	17.9%	27.8%	19.6%	22.8%	21.8%	20.0%	18.5%
NB Bear Case	108	143	168	215	257	318	387	466	555
Y/Y Growth	34.0%	32.1%	17.9%	27.8%	19.6%	23.9%	21.7%	20.3%	19.1%
IDC Case	108	143	168	217	267	330	391	458	N/A
Y/Y Growth	34.0%	32.1%	17.9%	28.9%	22.9%	23.7%	18.6%	17.1%	
Gartner Case	108	142	170	222	305	390	490	604	732
Y/Y Growth		32.0%	19.8%	30.7%	37.2%	28.2%	25.6%	23.2%	21.2%

\*Mobile PC = NB + Tablet

IDC has the lowest long-term mobile PC growth

Source: IDC, Gartner, Citi Investment Research and Analysis Estimates

## NB "Bull Case": Most consumers still care about data creation/productivity; Tablet PC to slow down sharply after 2011

Many investors believe tablet PC is just a fashion which may go away soon. Given tablet PC's limited data creation capability, many expect consumers will eventually go back to NB. There are many anecdotal stories used to argue that people go back to NB a couple of weeks after they buy tablet PCs and seldom use it again, and also that many consumers use the NB when traveling, instead of the more travel-friendly tablet PC. In conclusion, many believe the tablet PC is an interesting toy that will never be able to replace NB due to the former's inadequate data creation capability.

## Implication: NB to have a big 2012 and long-term growth to revert back to 15%-20%

In this scenario, investors assume that very few consumers are using tablet PC to replace tablet PC. Basically, the slowdown of NB growth is mainly due to the constraint of budget (most consumers are unlikely to buy tablet PC and NB in the same year). As such, they believe that NB may have a big 2012 after consumers delay their NB purchase for six quarters from 3Q10 to 4Q11. In this case, we estimate that NB growth could reach 22% in 2012 and long-term growth could revert back to around 20% per year in the next 3-4 years. Moreover, importantly, we believe consumer NB growth can come back to grow about 25%-30% a year from 2012-2015 in this NB "Bull Case" scenario. As such, Acer and Asus could become the biggest winners under this scenario.

Figure 2. NB "Bull Case" – NB growth returning to historical norm and tablet PC growth to slow down sharply after 2011

(units in million)

Shipment (NB)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	68	85	96	104	98	110	120	130	143
Y/Y Growth	23%	25%	13%	8%	-6%	13%	9%	8%	10%
Consumer	34	48	64	69	58	69	77	85	95
Y/Y Growth		42%	32%	7%	-15%	18%	12%	10%	12%
Corporate	34	37	32	35	39	41	43	45	48
Y/Y Growth		7%	-13%	11%	11%	5%	5%	5%	5%
Emerging	40	58	72	96	109	143	189	245	309
Y/Y Growth	57%	45%	26%	33%	14%	31%	32%	29%	26%
Consumer	19	31	46	64	73	103	144	194	252
Y/Y Growth		64%	49%	40%	14%	40%	40%	35%	30%
Corporate	21	27	27	32	36	40	45	51	57
Y/Y Growth		28%	-1%	19%	14%	12%	12%	12%	12%
TOTAL	108	143	168	200	207	253	309	375	451
Y/Y Growth	34%	32%	18%	19%	4%	22%	22%	21%	20%
TOTAL Consumer Y/Y Growth		50%	39%	21%	-1%	30%	29%	26%	25%
TOTAL Corporate Y/Y Growth		15%	-8%	15%	12%	8%	8%	9%	9%

(units in million)

Shipment (Tablet PC)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	0	0	0	12	40	44	49	52	52
Consumer				12	40	44	49	52	52
Corporate									
Emerging	0	0	0	3	10	19	26	35	43
Consumer				3	10	19	26	35	43
Corporate									
TOTAL	0	0	0	15	50	63	75	86	95
Y/Y Growth					233%	25%	20%	15%	10%

Consumer NB to have a big 2012 growth

Sharp growth deceleration after 2011

Shipment (Mobile PC)*	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	68	85	96	116	138	154	169	182	195
Consumer	34	48	64	81	98	113	126	136	147
Y/Y Growth		42%	32%	26%	22%	14%	12%	9%	8%
Corporate	34	37	32	35	39	41	43	45	48
Emerging	40	58	72	99	119	162	215	279	351
Consumer	19	31	46	67	83	121	170	228	295
Y/Y Growth					24%	46%	40%	34%	29%
Corporate	21	27	27	32	36	40	45	51	57
Y/Y Growth									
TOTAL	108	143	168	215	257	315	384	461	546
Y/Y Growth		32%	18%	28%	20%	23%	22%	20%	19%

\*Mobile PC = NB + Tablet

Tablet PC to account for only 17% of mobile PC by 2015

Source: IDC, Citi Investment Research and Analysis Estimates

## Winners in this scenario: Almost everyone in the Taiwan NB food chain, especially Acer and Asustek

In this scenario, NB growth is likely to go back to 20%-25% while overall consumer NB growth could potentially go back to 30% Y/Y in 2012. With over 75% consumer NB exposure, we believe both Acer and Asustek would benefit in a meaningful way. The NB ODM and NB component makers would also post a strong performance.

Given Acer is still trading at 15x 2011E based on CIRA earnings forecasts, and the Asustek share price is holding up relatively well, we reckon many shareholders are still hoping consumer NB will stage a big comeback in 2012.

**Problem with this argument: It's an analyst-centric argument but most consumers have very different user behavior**

This argument focuses on tablet PC's lack of content creation functionality. We believe there is one key problem in this argument – How many consumers actually create much content with their own PC away from the office? Financial analysts use NB to create Excel spreadsheets, edit models, and to make PowerPoint presentations, thus content creation is critical, even during traveling. On the other hand, for most consumers their jobs do not normally require much traveling. Many consumers never touch Excel and PowerPoint after leaving their offices, thus we doubt those consumers need much data creation functionality with their personal NB.

**NB “Bear Case” – Most consumers are casual PC users; Tablet PC leads to sharp NB long-term growth slowdown**

If we believe most consumers are casual PC users (especially those who have not purchased a PC yet) who focus on data consumption, it is very likely that tablet PC will become a bigger market than NB by 2015-2016.

Driven by extremely user-friendly and intuitive user interface, light form factor, and longer battery life, some (including both Apple and Acer) believe that tablet PC shipment could eventually be bigger than the entire consumer PC. In our view, the argument hinges on the assumption that late adopters of PC care about data consumption and user-friendliness much more than productivity. In this scenario, corporate users, prosumers, and financial analysts continue to buy their NB every 3 years but a big portion of the late PC adoption happens with tablet PC rather than with NB.

**NB adoption in the past 3 years mainly driven by casual PC users that focus on data consumption**

In a way, consumer NB adoption became the biggest theme in technology when NB started to penetrate into the “non-traditional” NB users, which is a much bigger segment than traditional NB users. In the past, NB was mainly sold to corporate and consumers, with data creation and productivity being the most important consideration. For average consumers, most of them are happy to share a DT or NB with other household members. Since 2007/2008, consumer NB became a huge secular trend after data card/WIFI reached affordable prices and wide availability. All of a sudden, people were taking their NBs with them on public transportation and into coffee shops. PC companies like Dell, HP and Acer, started to tell investors that NB had become a personal necessity. In our view, what this means is that NB has started to penetrate into the mainstream and low-end consumer segment, which does not regard data creation as a very important function. Most late NB adopters are rather casual PC users who mainly do emails, surf the internet, use social networking websites, and watch video without doing much data creation.

If most consumers (especially those who have not bought a NB yet) are casual NB users, we believe that tablet PC would certainly be enough to fulfill their demands.

**Implication: Long-term NB growth dropping below 10%**

Assuming mobile PC (NB + tablet PC) to have a slightly higher than 20% CAGR from 2011-2015 (roughly in line with historical NB growth trend) and tablet PC shipment going up from 50M units in 2011 to 261M units in 2015, we believe NB growth could fall below 10% per year from 2011-2015. Moreover, given corporate NB is unlikely to be impacted by tablet PC, we believe corporate NB may still grow

more than 10% a year in the emerging market and 5%-6% a year in the developed market. As such, we believe consumer NB could decline by around 10% a year in the next few years in the developed market (but still grow around 20% a year in the emerging market).

While consumer NB growth in the developed market may decline sharply in the next few years, we note that the overall mobile PC growth remains very strong in the developed market. We estimate that mobile PC will still maintain 15%-20% growth per year in the next 5 years in the developed market.

### Industry consolidation very likely to happen

If annual NB growth falls to below 10%, we expect major industry consolidation to happen in the next 2-3 years. Most PC brands are already operating under razor thin margins. PC companies continue to stay in this business due to massive NB growth in the past 5 years. If NB growth slows to single digits, which may lead to even more price pressure, we believe the significant profitability deterioration could force significant PC industry consolidation in the next 2-3 years. Such a conclusion is based on the assumption that the PC brands won't be able to win meaningful share in the tablet PC business, as we have highlighted in a number of reports in the past few months.

Figure 3. NB "Bear Case" – Tablet PC continues to cannibalize consumer NB to reach close to half of total mobile PC by 2015

(units in million)

Consumer NB in developed market to decline 10% per year from 2012 to 2015

Shipment (NB)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	68	85	96	104	98	94	91	88	86
Y/Y Growth	23%	25%	13%	8%	-6%	-4%	-3%	-3%	-2%
Consumer	34	48	64	69	58	52	47	42	38
Y/Y Growth		42%	32%	7%	-15%	-10%	-10%	-10%	-10%
Corporate	34	37	32	35	39	41	43	45	48
Y/Y Growth		7%	-13%	11%	11%	5%	5%	5%	5%
Emerging	40	58	72	96	109	132	158	184	208
Y/Y Growth	57%	45%	26%	33%	14%	21%	20%	16%	13%
Consumer	19	31	46	64	73	92	113	133	152
Y/Y Growth		64%	49%	40%	14%	25%	23%	18%	14%
Corporate	21	27	27	32	36	40	45	51	57
Y/Y Growth		28%	-1%	19%	14%	12%	12%	12%	12%
TOTAL	108	143	168	200	207	226	248	272	294
Y/Y Growth	34%	32%	18%	19%	4%	9%	10%	9%	8%
TOTAL Consumer Y/Y Growth		50%	39%	21%	-1%	9%	11%	10%	8%
TOTAL Corporate Y/Y Growth		15%	-8%	15%	12%	8%	8%	9%	9%

Long term consumer NB growth could fall below 10%

(units in million)

Shipment (Tablet PC)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	0	0	0	12	40	65	90	117	143
Consumer				12	40	65	90	117	143
Corporate									
Emerging	0	0	0	3	10	28	49	78	117
Consumer				3	10	28	49	78	117
Corporate									
TOTAL	0	0	0	15	50	93	139	194	261
Y/Y Growth					233%	85%	50%	40%	34%

Shipment (Mobile PC)*	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	68	85	96	116	138	158	181	205	229
Consumer	34	48	64	81	98	117	137	159	182
Y/Y Growth		42%	32%	26%	22%	19%	17%	16%	14%
Corporate	34	37	32	35	39	41	43	45	48
Emerging	40	58	72	99	119	160	206	261	326
Consumer	19	31	46	67	83	119	161	211	269
Y/Y Growth		64%	49%	47%	24%	43%	35%	31%	28%
Corporate	21	27	27	32	36	40	45	51	57
Y/Y Growth		28%	-1%	19%	14%	12%	12%	12%	12%
TOTAL	108	143	168	215	257	318	387	466	555
Y/Y Growth		32%	18%	28%	20%	24%	22%	20%	19%

\*Mobile PC = NB + Tablet

Assume mobile PC to have a slightly higher than 20% CAGR  
Tablet PC to account for 47% of mobile PC by 2015

Source: IDC, Citi Investment Research and Analysis

## Winners and losers in this scenario

Almost all the PC players, including both brands and ODM, would be big losers in this scenario. Over the longer-term, we expect major consolidation to happen within the Asia PC brands and believe Lenovo could be the consolidator given its high China/Emerging/Corporate Market exposure, which has been relatively unaffected by tablet PC. We suspect that Asus and Acer could not both continue to operate successfully in the long-term under the NB 'Bear Case' scenario, thus the Big 3 Asia PC brands could consolidate into two companies. The impact on ODM is harder to tell. Unlike the PC brand, it is easier for ODM to diversify into other businesses, which is exactly what the ODMs are trying very hard to do. For example, Quanta is getting into cloud/server business and Pegatron into the Apple business. Moreover, Hon Hai is getting very passive on NB, which may help other ODMs. Hence, we may not necessarily see meaningful industry consolidation in NB ODM.

## Hon Hai is the clear winner in this scenario

We consider Hon Hai to be the biggest winner among Taiwan tech companies in this 'Bear Case' scenario. It is the single source supplier of Apple's iPad and has less than 5% revenue exposure to NB. We estimate that Hon Hai has around 35%-40% revenue exposure to Apple and 30%-35% revenue exposure to corporate demand (corporate DT, server and networking), both of which are seeing very strong demand.

## IDC: Still a believer in NB; not keen on tablet PC

IDC's forecast is very similar to our NB 'Bull Case', suggesting total mobile PC growth stays at around 20% a year (similar to our view) but expecting minimum cannibalization from tablet PC. Based on IDC's forecast, NB will slow down to 11% Y/Y growth in 2011 (which we believe could be subject to downside risk) but will return to 15%-16% growth per annum from 2012-2014. Moreover, IDC expects tablet PC shipments to reach 111M units by 2014, only half of Gartner's 2014 estimate of 223M units. Based on IDC's forecast, tablet PC will only account for 24% of total mobile PC shipment in 2014, which suggests that NB will maintain its mainstream status while tablet PC will be a relatively niche product.

Figure 4. IDC Case

(units in million)								
<b>Shipment (NB)</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011E</b>	<b>2012E</b>	<b>2013E</b>	<b>2014E</b>
TOTAL	108	143	168	200	222	259	299	347
Y/Y Growth	34.0%	32.1%	17.9%	18.8%	11.1%	16.7%	15.4%	16.1%
<b>Shipment (Tablet PC)</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011E</b>	<b>2012E</b>	<b>2013E</b>	<b>2014E</b>
TOTAL	0	0	0	17	45	71	92	111
Y/Y Growth					162%	59%	30%	21%
<b>Shipment (Mobile PC)*</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011E</b>	<b>2012E</b>	<b>2013E</b>	<b>2014E</b>
TOTAL	108	143	168	217	267	330	391	458
Y/Y Growth		32.1%	17.9%	28.9%	22.9%	23.7%	18.6%	17.1%

\*Mobile PC = NB + Tablet

Tablet PC to account for 24% of mobile PC by 2014

Source: IDC, Citi Investment Research and Analysis

## Winners and losers in this scenario

If the IDC scenario proves to be true, the winners would be all the players in the PC food chain (refer to detailed analysis under the NB 'Bull Case').

## Gartner: Big PC up cycle, both tablet PC and NB will do well

Gartner has a very bullish forecast for both NB and tablet PC. According to its forecast, NB growth will reach 15% Y/Y in 2011 (in our view this is subject to substantial downside risk). Based on this high shipment assumption for 2011, Gartner expects another 15%-20% annual growth from 2012-2015, which is similar to IDC's NB growth projection. However, Gartner also expects massive tablet PC growth with shipment going from 70M units in 2011 (vs. IDC's 45M units) to 223M units in 2014 (vs. IDC's 111M units). Based on Gartner's forecast, mobile PC (NB + tablet PC) will grow a whopping 37% Y/Y in 2011 (vs. our estimate of 20%). Based on this huge 2011 base, Gartner expects around 25% CAGR from 2012-2015.

Gartner expects tablet PC to account for 40% of total mobile PC shipment by 2015, suggesting that tablet PC will be a relatively mainstream product.

Gartner expects total mobile PC market to reach 732M units in 2015, more than triple from only 222M units in 2010.

Figure 5. Gartner Case

(units in million)

Shipment (NB)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	71	88	101	109	117	128	139	148	158
Y/Y Growth	23%	24%	15%	8%	7%	10%	8%	6%	7%
Consumer	33	46	62	68	72	79	88	95	102
Y/Y Growth	28%	40%	34%	10%	5%	11%	11%	8%	7%
Corporate	38	42	39	41	46	49	51	53	56
Y/Y Growth	20%	10%	-6%	6%	10%	8%	5%	3%	6%
Emerging	36	54	69	95	118	154	191	234	280
Y/Y Growth	56%	48%	28%	38%	24%	31%	24%	22%	20%
Consumer	14	22	33	50	63	85	109	136	168
Y/Y Growth	72%	63%	47%	51%	27%	36%	28%	25%	23%
Corporate	23	31	36	45	55	68	82	97	112
Y/Y Growth	48%	39%	15%	26%	20%	25%	20%	19%	15%
TOTAL	108	142	170	204	235	282	331	382	438
Y/Y Growth	33%	32%	20%	20%	15%	20%	17%	15%	15%
TOTAL Consumer Y/Y Growth	39%	47%	38%	24%	15%	22%	20%	17%	17%
TOTAL Corporate Y/Y Growth	29%	21%	3%	15%	15%	17%	13%	13%	12%

NB come back to 15-20% Y/Y growth

(units in million)

Shipment (Tablet PC)	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	0	0	0	14	56	76	104	134	162
Consumer				14	56	76	104	134	162
Corporate									
Emerging	0	0	0	4	14	32	56	89	132
Consumer				4	14	32	56	89	132
Corporate									
TOTAL	0	0	0	18	70	108	160	223	294
Y/Y Growth					296%	55%	48%	39%	32%

Tablet PC also enjoys strong growth momentum

Shipment (Mobile PC)*	2007	2008	2009	2010	2011E	2012E	2013E	2014E	2015E
Developed	71	88	101	123	173	204	243	282	320
Consumer	33	46	62	82	127	155	192	229	264
Corporate	38	42	39	41	46	49	51	53	56
Emerging	36	54	69	99	132	186	247	323	412
Consumer	14	22	33	53	77	118	165	225	300
Corporate	23	31	36	45	55	68	82	97	112
TOTAL	108	142	170	222	305	390	490	604	732
Y/Y Growth	33%	32%	20%	31%	37%	28%	26%	23%	21%

\*Mobile PC = NB + Tablet

25% CAGR during 2011 - 2015

Tablet PC to account for 40% of mobile PC by 2015

Source: Gartner, Citi Investment Research and Analysis

## Acer Inc

### Valuation

Our NT\$49 TP for Acer is based on 13x FY11E EPS, the 5-year avg P/E of 13x to reflect a slowing in Acer's earnings growth momentum relative to that period. We see Acer as the major victim of a deceleration in consumer NB growth as a result of the cannibalization from tablet PC. We use a P/E-based valuation methodology, as we believe the market will be primarily focused on Acer's earnings performance and outlook as the dynamics of the NB sector change to its disadvantage.

### Risks

Our quantitative risk-rating system, which tracks 260-day historical share price volatility, assigns a Low Risk rating to Acer. However, we use a Medium Risk flag given low visibility for end-demand in the NB sector. Upside risks to our target price include: 1) stronger-than-expected global PC/NB demand; 2) stronger-than-expected Acer tablet sell-through; and 3) rapid market-share gains.

## ASUSTeK Computer

### Valuation

Our NT\$230 TP for ASUSTek is based on 11x FY11E EPS, at a slight discount to an adjusted 5-year avg P/E of 11.7x. Our discount reflects sharply slowing growth in NB shipments, though this is mitigated somewhat by the company's execution strengths (as shown in market-share gains and inventory management in 2H10). We switch to a P/E-based valuation methodology from DCF, as we believe the market will be primarily focused on ASUSTek's earnings performance and outlook as the dynamics of the NB sector change to the company's disadvantage.

### Risks

Our quantitative risk-rating system, which tracks 260-day historical share price volatility, assigns a High Risk rating to ASUSTek. Upside risks that could sustain the shares above our target price include: 1) stronger-than-expected PC demand; and 2) higher-than-expected market share gains, especially in China.

## Hon Hai Precision

### Valuation

Our target price of NT\$148 is based on a target PE multiple of 14x 2011E EPS to reflect the contribution of Apple and Sony products' growth momentum. The target PE multiple of 14x is slightly below Hon Hai's five-year trading average of 16x given our expectation of lower-than-expected earnings growth momentum for Hon Hai than historical.

### Risks

We rate Hon Hai shares Low Risk, in line with our quantitative risk-rating system, which tracks 260-day historical share price volatility. Downside risks that could prevent the stock from reaching our target price include: 1) any sharp rebound in raw-material costs; 2) further market-share losses from FIH; and 3) weaker-than-expected demand for 3C products. Upside risks include: 1) faster-than-expected progress in NB segment; 2) stronger-than-expected new product shipments; and 3) sharp cost reductions.

## Appendix A-1

### Analyst Certification

The research analyst(s) primarily responsible for the preparation and content of this research report are named in bold text in the author block at the front of the product except for those sections where an analyst's name appears in bold alongside content which is attributable to that analyst. Each of these analyst(s) certify, with respect to the section(s) of the report for which they are responsible, that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc and its affiliates. No part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this report.

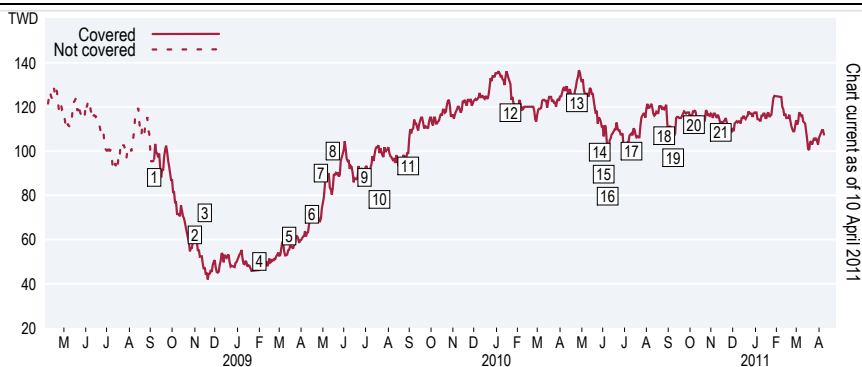
### IMPORTANT DISCLOSURES

#### Hon Hai Precision (2317.TW)

##### Ratings and Target Price History Fundamental Research

Analyst: Kevin Chang

Covered since September 5 2008



Date	Rating	Target Price	Closing Price
1 5-Sep-08	*1M	*130.30	96.54
2 2-Nov-08	1M	*74.53	62.11
3 16-Nov-08	1M	*69.10	46.58
4 2-Feb-09	1M	*55.90	46.20
5 15-Mar-09	1M	*65.22	55.12
6 16-Apr-09	1M	*83.07	69.49
7 29-Apr-09	1M	*93.17	69.41

\* Indicates change

Date	Rating	Target Price	Closing Price
8 15-May-09	1M	*118.79	83.46
9 30-Jun-09	1M	*118.75	90.62
10 21-Jul-09	1M	*127.68	99.11
11 31-Aug-09	1M	*133.93	99.11
12 21-Jan-10	*2L	133.93	130.36
13 26-Apr-10	2L	*139.29	132.14
14 27-May-10	2L	*117.86	114.73

Date	Rating	Target Price	Closing Price
15 2-Jun-10	2L	*108.93	106.70
16 8-Jun-10	2L	*101.79	99.55
17 11-Jul-10	*1L	*147.32	107.59
18 26-Aug-10	1L	*150.00	119.00
19 8-Sep-10	1L	*140.00	108.00
20 7-Oct-10	1L	*154.00	118.00
21 14-Nov-10	1L	*148.00	113.50

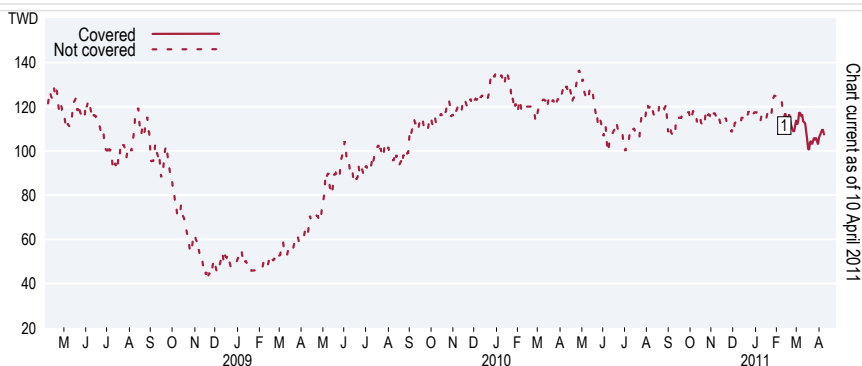
Rating/target price changes above reflect Eastern Standard Time

#### Hon Hai Precision (2317.TW)

##### Ratings and Target Price History Best Ideas Research Relative Call (3 Month)

Analyst: Kevin Chang

Covered since September 5 2008



Date	Rating	Target Price	Closing Price
1 11-Feb-11	*ADD MP	-	116.00

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

## Acer Inc (2353.TW)

### Ratings and Target Price History

### Fundamental Research

Analyst: Kevin Chang  
Covered since July 30 2010

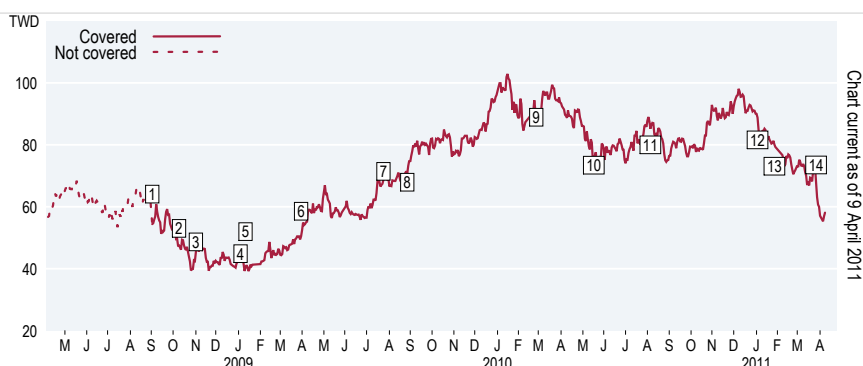


Chart current as of 9 April 2011

	Date	Rating	Target Price	Closing Price
1	2-Sep-08	*1M	*73.19	54.40
2	9-Oct-08	1M	*67.26	47.53
3	2-Nov-08	1M	*71.22	42.48
4	4-Jan-09	1M	*49.46	42.14
5	12-Jan-09	1M	*47.48	40.26

\* Indicates change

	Date	Rating	Target Price	Closing Price
6	31-Mar-09	1M	*61.32	50.44
7	24-Jul-09	1M	*81.92	68.73
8	27-Aug-09	1M	*87.91	70.73
9	25-Feb-10	1M	*109.89	90.11
10	18-May-10	1M	*99.90	75.92

	Date	Rating	Target Price	Closing Price
11	5-Aug-10	1M	*97.00	85.20
12	4-Jan-11	*3M	*75.00	88.80
13	27-Jan-11	3M	*60.00	80.10
14	27-Mar-11	3M	*49.00	72.80

Rating/target price changes above reflect Eastern Standard Time

## Acer Inc (2353.TW)

### Ratings and Target Price History

### Best Ideas Research

### Relative Call (3 Month)

Analyst: Kevin Chang  
Covered since July 30 2010

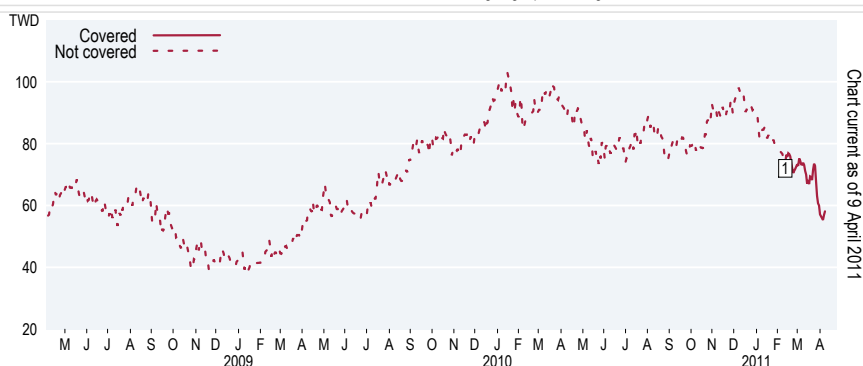


Chart current as of 9 April 2011

	Date	Rating	Target Price	Closing Price
1	11-Feb-11	*ADD LP	-	73.70

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

## ASUSTeK Computer (2357.TW)

### Ratings and Target Price History

### Fundamental Research

Analyst: Kevin Chang  
Covered since July 30 2010

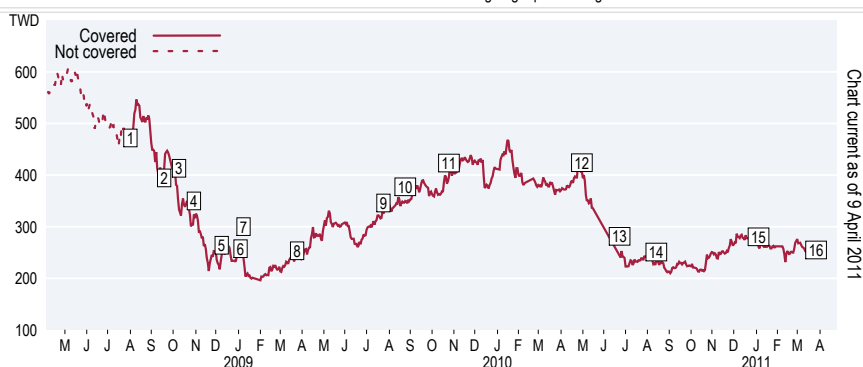


Chart current as of 9 April 2011

	Date	Rating	Target Price	Closing Price
1	1-Aug-08	*3M	*459.81	477.96
2	18-Sep-08	*1M	*492.35	412.51
3	9-Oct-08	1M	*452.43	333.33
4	30-Oct-08	1M	*385.89	323.69
5	9-Dec-08	1M	*332.67	245.51
6	4-Jan-09	*3M	*186.29	244.84

\* Indicates change

	Date	Rating	Target Price	Closing Price
7	8-Jan-09	3M	*159.68	238.86
8	25-Mar-09	*3H	159.68	252.83
9	24-Jul-09	*1H	*439.12	325.35
10	25-Aug-09	1H	*453.33	350.00
11	26-Oct-09	1H	*513.33	396.67
12	30-Apr-10	1H	*520.00	406.67

	Date	Rating	Target Price	Closing Price
13	23-Jun-10	*1L	*300.00	NA
14	13-Aug-10	*3H	*204.00	235.00
15	5-Jan-11	3H	*245.00	261.00
16	27-Mar-11	3H	*230.00	253.50

Rating/target price changes above reflect Eastern Standard Time

## ASUSTeK Computer (2357.TW)

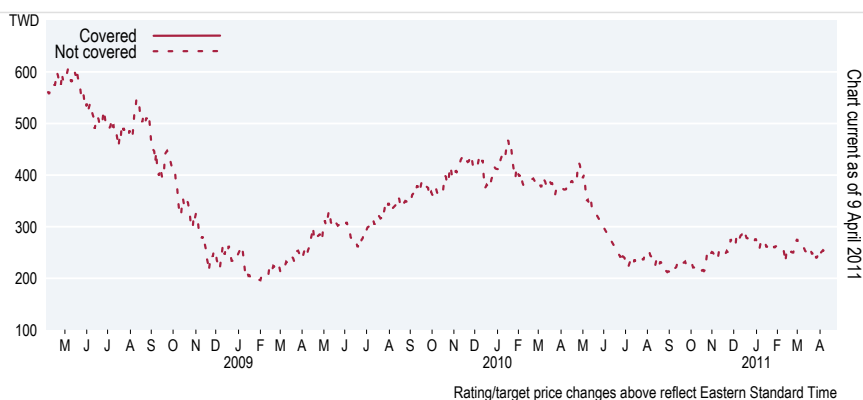
### Ratings and Target Price History

#### Best Ideas Research

#### Relative Call (3 Month)

Analyst: Kevin Chang

Covered since July 30 2010



Citigroup Global Markets Inc. or its affiliates beneficially owns 1% or more of any class of common equity securities of Acer Inc. This position reflects information available as of the prior business day.

Within the past 12 months, Citigroup Global Markets Inc. or its affiliates has acted as manager or co-manager of an offering of securities of Acer Inc.

Citigroup Global Markets Inc. or its affiliates has received compensation for investment banking services provided within the past 12 months from Acer Inc, ASUSTeK Computer.

Citigroup Global Markets Inc. or an affiliate received compensation for products and services other than investment banking services from Hon Hai Precision, Acer Inc, ASUSTeK Computer in the past 12 months.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as investment banking client(s): Acer Inc, ASUSTeK Computer.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, securities-related: Hon Hai Precision, Acer Inc, ASUSTeK Computer.

Citigroup Global Markets Inc. currently has, or had within the past 12 months, the following as clients, and the services provided were non-investment-banking, non-securities-related: Hon Hai Precision, Acer Inc, ASUSTeK Computer.

Analysts' compensation is determined based upon activities and services intended to benefit the investor clients of Citigroup Global Markets Inc. and its affiliates ("the Firm"). Like all Firm employees, analysts receive compensation that is impacted by overall firm profitability which includes investment banking revenues.

For important disclosures (including copies of historical disclosures) regarding the companies that are the subject of this Citi Investment Research & Analysis product ("the Product"), please contact Citi Investment Research & Analysis, 388 Greenwich Street, 28th Floor, New York, NY, 10013, Attention: Legal/Compliance. In addition, the same important disclosures, with the exception of the Valuation and Risk assessments and historical disclosures, are contained on the Firm's disclosure website at [www.citigroupgeo.com](http://www.citigroupgeo.com). Valuation and Risk assessments can be found in the text of the most recent research note/report regarding the subject company. Historical disclosures (for up to the past three years) will be provided upon request.

### Citi Investment Research & Analysis Ratings Distribution

#### Data current as of 31 Mar 2011

	12 Month Rating			Relative Rating		
	Buy	Hold	Sell	Buy	Hold	Sell
Citi Investment Research & Analysis Global Fundamental Coverage	52%	37%	11%	9%	82%	9%
% of companies in each rating category that are investment banking clients	43%	41%	41%	51%	41%	45%

#### Guide to Citi Investment Research & Analysis (CIRA) Fundamental Research Investment Ratings:

CIRA's stock recommendations include a risk rating and an investment rating.

**Risk ratings**, which take into account both price volatility and fundamental criteria, are: Low (L), Medium (M), High (H), and Speculative (S).

**Investment ratings** are a function of CIRA's expectation of total return (forecast price appreciation and dividend yield within the next 12 months) and risk rating.

Analysts may place covered stocks "Under Review" in response to exceptional circumstances (e.g. lack of information critical to the analyst's thesis) affecting the company and/or trading in the company's securities (e.g. trading suspension). Stocks placed "Under Review" will be monitored daily by management. As soon as practically possible, the analyst will publish a note re-establishing a rating and investment thesis.

To satisfy regulatory requirements, we correspond Under Review to Hold in our ratings distribution table for our 12-month fundamental rating system. However, we reiterate that we do not consider Under Review to be a recommendation.

**Relative three-month ratings:** CIRA may also assign a three-month relative call (or rating) to a stock to highlight expected out-performance (most preferred) or under-performance (least preferred) versus the analyst's coverage universe over a 3 month period. The relative call may highlight a specific near-term catalyst or event impacting the company or the market that is anticipated to have a short-term price impact on the equity securities of the company. Absent any specific catalyst the analyst(s) will indicate the most and least preferred stocks in his coverage universe, explaining the basis for this short-term view. This three-month view may be different from and does not affect a stock's fundamental equity rating, which reflects a longer-term total absolute return expectation. For purposes of NASD/NYSE ratings-distribution-disclosure rules, most preferred calls correspond to a buy recommendation and least preferred calls correspond to a sell recommendation. Any stock not assigned to a most preferred or least preferred call is considered non-relative-

rated (NRR). For purposes of NASD/NYSE ratings-distribution-disclosure rules we correspond NRR to Hold in our ratings distribution table for our 3-month relative rating system. However, we reiterate that we do not consider NRR to be a recommendation.

For securities in emerging markets (Asia Pacific, Emerging Europe/Middle East/Africa, and Latin America), investment ratings are: Buy (1) (expected total return of 15% or more for Low-Risk stocks, 20% or more for Medium-Risk stocks, 30% or more for High-Risk stocks, and 40% or more for Speculative stocks); Hold (2) (5%-15% for Low-Risk stocks, 10%-20% for Medium-Risk stocks, 15%-30% for High-Risk stocks, and 20%-40% for Speculative stocks); and Sell (3) (5% or less for Low-Risk stocks, 10% or less for Medium-Risk stocks, 15% or less for High-Risk stocks, and 20% or less for Speculative stocks).

Investment ratings are determined by the ranges described above at the time of initiation of coverage, a change in investment and/or risk rating, or a change in target price (subject to limited management discretion). At other times, the expected total returns may fall outside of these ranges because of market price movements and/or other short-term volatility or trading patterns. Such interim deviations from specified ranges will be permitted but will become subject to review by Research Management. Your decision to buy or sell a security should be based upon your personal investment objectives and should be made only after evaluating the stock's expected performance and risk.

---

#### NON-US RESEARCH ANALYST DISCLOSURES

Non-US research analysts who have prepared this report (i.e., all research analysts listed below other than those identified as employed by Citigroup Global Markets Inc.) are not registered/qualified as research analysts with FINRA. Such research analysts may not be associated persons of the member organization and therefore may not be subject to the NYSE Rule 472 and NASD Rule 2711 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account. The legal entities employing the authors of this report are listed below:

Citigroup Global Markets Taiwan Securities Co. Limited      Kevin Chang; Jonathan Gu

---

#### OTHER DISCLOSURES

Citigroup Global Markets Inc. and/or its affiliates has a significant financial interest in relation to Hon Hai Precision. (For an explanation of the determination of significant financial interest, please refer to the policy for managing conflicts of interest which can be found at [www.citigroupgeo.com](http://www.citigroupgeo.com).)

This Product has been modified by the author following a discussion with one or more of the named issuers/issuers of the named securities.

For securities recommended in the Product in which the Firm is not a market maker, the Firm is a liquidity provider in the issuers' financial instruments and may act as principal in connection with such transactions. The Firm is a regular issuer of traded financial instruments linked to securities that may have been recommended in the Product. The Firm regularly trades in the securities of the issuer(s) discussed in the Product. The Firm may engage in securities transactions in a manner inconsistent with the Product and, with respect to securities covered by the Product, will buy or sell from customers on a principal basis.

Securities recommended, offered, or sold by the Firm: (i) are not insured by the Federal Deposit Insurance Corporation; (ii) are not deposits or other obligations of any insured depository institution (including Citibank); and (iii) are subject to investment risks, including the possible loss of the principal amount invested. Although information has been obtained from and is based upon sources that the Firm believes to be reliable, we do not guarantee its accuracy and it may be incomplete and condensed. Note, however, that the Firm has taken all reasonable steps to determine the accuracy and completeness of the disclosures made in the Important Disclosures section of the Product. The Firm's research department has received assistance from the subject company(ies) referred to in this Product including, but not limited to, discussions with management of the subject company(ies). Firm policy prohibits research analysts from sending draft research to subject companies. However, it should be presumed that the author of the Product has had discussions with the subject company to ensure factual accuracy prior to publication. All opinions, projections and estimates constitute the judgment of the author as of the date of the Product and these, plus any other information contained in the Product, are subject to change without notice. Prices and availability of financial instruments also are subject to change without notice. Notwithstanding other departments within the Firm advising the companies discussed in this Product, information obtained in such role is not used in the preparation of the Product. Although Citi Investment Research & Analysis (CIRA) does not set a predetermined frequency for publication, if the Product is a fundamental research report, it is the intention of CIRA to provide research coverage of the/those issuer(s) mentioned therein, including in response to news affecting this issuer, subject to applicable quiet periods and capacity constraints. The Product is for informational purposes only and is not intended as an offer or solicitation for the purchase or sale of a security. Any decision to purchase securities mentioned in the Product must take into account existing public information on such security or any registered prospectus.

Investing in non-U.S. securities, including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of the U.S. Securities and Exchange Commission. There may be limited information available on foreign securities. Foreign companies are generally not subject to uniform audit and reporting standards, practices and requirements comparable to those in the U.S. Securities of some foreign companies may be less liquid and their prices more volatile than securities of comparable U.S. companies. In addition, exchange rate movements may have an adverse effect on the value of an investment in a foreign stock and its corresponding dividend payment for U.S. investors. Net dividends to ADR investors are estimated, using withholding tax rates conventions, deemed accurate, but investors are urged to consult their tax advisor for exact dividend computations. Investors who have received the Product from the Firm may be prohibited in certain states or other jurisdictions from purchasing securities mentioned in the Product from the Firm. Please ask your Financial Consultant for additional details. Citigroup Global Markets Inc. takes responsibility for the Product in the United States. Any orders by US investors resulting from the information contained in the Product may be placed only through Citigroup Global Markets Inc.

**Important Disclosures for Morgan Stanley Smith Barney LLC Customers:** Morgan Stanley & Co. Incorporated (Morgan Stanley) research reports may be available about the companies that are the subject of this Citi Investment Research & Analysis (CIRA) research report. Ask your Financial Advisor or use [smithbarney.com](http://smithbarney.com) to view any available Morgan Stanley research reports in addition to CIRA research reports.

Important disclosure regarding the relationship between the companies that are the subject of this CIRA research report and Morgan Stanley Smith Barney LLC and its affiliates are available at the Morgan Stanley Smith Barney disclosure website at [www.morganstanleysmithbarney.com/researchdisclosures](http://www.morganstanleysmithbarney.com/researchdisclosures). The required disclosures provided by Morgan Stanley and Citigroup Global Markets, Inc. on Morgan Stanley and CIRA research relate in part to the separate businesses of Citigroup Global Markets, Inc. and Morgan Stanley that now form Morgan Stanley Smith Barney LLC, rather than to Morgan Stanley Smith Barney LLC in its entirety. For Morgan Stanley and Citigroup Global Markets, Inc. specific disclosures, you may refer to [www.morganstanley.com/researchdisclosures](http://www.morganstanley.com/researchdisclosures) and [https://www.citigroupgeo.com/geopublic/Disclosures/index\\_a.html](https://www.citigroupgeo.com/geopublic/Disclosures/index_a.html).

This CIRA research report has been reviewed and approved on behalf of Morgan Stanley Smith Barney LLC. This review and approval was conducted by the same person who reviewed this research report on behalf of CIRA. This could create a conflict of interest.

The Citigroup legal entity that takes responsibility for the production of the Product is the legal entity which the first named author is employed by. The Product is made available in Australia through Citigroup Global Markets Australia Pty Ltd. (ABN 64 003 114 832 and AFSL No. 240992), participant of the ASX Group and regulated by the Australian Securities & Investments Commission. Citigroup Centre, 2 Park Street, Sydney, NSW 2000. The Product is made available in Australia to Private Banking wholesale clients through Citigroup Pty Limited (ABN 88 004 325 080 and AFSL 238098). Citigroup Pty Limited provides all financial product advice to Australian Private Banking wholesale clients through bankers and relationship managers. If there is any doubt about the suitability of investments held in Citigroup Private Bank accounts, investors should contact the Citigroup Private Bank in Australia. Citigroup companies may compensate affiliates and their representatives for providing products and services to clients. The Product is made available in Brazil by Citigroup Global Markets Brasil - CCTVM SA, which is regulated by CVM - Comissão de Valores Mobiliários, BACEN - Brazilian Central Bank, APIMEC - Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais and ANBID - Associação Nacional dos Bancos de Investimento. Av. Paulista, 1111 - 11º andar - CEP. 01311920 - São Paulo - SP. If the Product is being made available in certain provinces of Canada by Citigroup Global Markets (Canada) Inc. ("CGM Canada"), CGM Canada has approved the Product. Citigroup Place, 123 Front Street West, Suite 1100, Toronto, Ontario M5J 2M3. This product is available in Chile through Banchile Corredores de Bolsa S.A., an indirect subsidiary of Citigroup Inc., which is regulated by the Superintendencia de Valores y Seguros. Agustinas 975, piso 2, Santiago, Chile. The Product is made available in France by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 1-5 Rue Paul Cézanne, 8ème, Paris, France. If the Product is made available in Hong Kong by, or on behalf of, Citigroup Global Markets Asia Ltd., it is attributable to Citigroup Global Markets Asia Ltd., Citibank Tower, Citibank Plaza, 3 Garden Road, Hong Kong. Citigroup Global Markets Asia Ltd. is regulated by Hong Kong Securities and Futures Commission. If the Product is made available in Hong Kong by The Citigroup Private Bank to its clients, it is attributable to Citibank N.A., Citibank Tower, Citibank Plaza, 3 Garden Road, Hong Kong. The Citigroup Private Bank and Citibank N.A. is regulated by the Hong Kong Monetary Authority. The Product is made available in India by Citigroup Global Markets India Private Limited, which is regulated by Securities and Exchange Board of India. Bakhtawar, Nariman Point, Mumbai 400-021. The Product is made available in Indonesia through PT Citigroup Securities Indonesia. 5/F, Citibank Tower, Bapindo Plaza, Jl. Jend. Sudirman Kav. 54-55, Jakarta 12190. Neither this Product nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable capital market laws and regulations. This Product is not an offer of securities in Indonesia. The securities referred to in this Product have not been registered with the Capital Market and Financial Institutions Supervisory Agency (BAPEPAM-LK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market laws and regulations. The Product is made available in Israel through Citibank NA, regulated by the Bank of Israel and the Israeli Securities Authority. Citibank, N.A., Platinum Building, 21 Ha'arba'ah St, Tel Aviv, Israel. The Product is made available in Italy by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. Foro Buonaparte 16, Milan, 20121, Italy. The Product is made available in Japan by Citigroup Global Markets Japan Inc. ("CGMJ"), which is regulated by Financial Services Agency, Securities and Exchange Surveillance Commission, Japan Securities Dealers Association, Tokyo Stock Exchange and Osaka Securities Exchange. Shin-Marunouchi Building, 1-5-1 Marunouchi, Chiyoda-ku, Tokyo 100-6520 Japan. If the Product was distributed by Nikko Cordial Securities Inc. it is being so distributed under license. In the event that an error is found in an CGMJ research report, a revised version will be posted on the Firm's Global Equities Online (GEO) website. If you have questions regarding GEO, please call (81 3) 6270-3019 for help. The Product is made available in Korea by Citigroup Global Markets Korea Securities Ltd., which is regulated by the Financial Services Commission, the Financial Supervisory Service and the Korea Financial Investment Association (KOFIA). Citibank Building, 39 Da-dong, Jung-gu, Seoul 110-180, Korea. KOFIA makes available registration information of research analysts on its website. Please visit the following website if you wish to find KOFIA registration information on research analysts of Citigroup Global Markets Korea Securities Ltd. <http://dis.kofia.or.kr/fts/dis2/fundMgr/DISFundMgrAnalystPop.jsp?companyCd2=A03030&pageDiv=02>. The Product is made available in Malaysia by Citigroup Global Markets Malaysia Sdn Bhd, which is regulated by Malaysia Securities Commission. Menara Citibank, 165 Jalan Ampang, Kuala Lumpur, 50450. The Product is made available in Mexico by Acciones y Valores Banamex, S.A. De C. V., Casa de Bolsa, Integrante del Grupo Financiero Banamex ("Accival") which is a wholly owned subsidiary of Citigroup Inc. and is regulated by Comisión Nacional Bancaria y de Valores. Reforma 398, Col. Juárez, 06600 Mexico, D.F. In New Zealand the Product is made available through Citigroup Global Markets New Zealand Ltd. (Company Number 604457), a Participant of the New Zealand Exchange Limited and regulated by the New Zealand Securities Commission. Level 19, Mobile on the Park, 157 Lambton Quay, Wellington. The Product is made available in Pakistan by Citibank N.A. Pakistan branch, which is regulated by the State Bank of Pakistan and Securities Exchange Commission, Pakistan. AWT Plaza, 1.1. Chundrigar Road, P.O. Box 4889, Karachi-74200. The Product is made available in the Philippines through Citicorp Financial Services and Insurance Brokerage Philippines, Inc., which is regulated by the Philippines Securities and Exchange Commission. 20th Floor Citibank Square Bldg. The Product is made available in Poland by Dom Maklerski Banku Handlowego SA an indirect subsidiary of Citigroup Inc., which is regulated by Komisja Nadzoru Finansowego. Dom Maklerski Banku Handlowego S.A. ul. Senatorska 16, 00-923 Warszawa. The Product is made available in the Russian Federation through ZAO Citibank, which is licensed to carry out banking activities in the Russian Federation in accordance with the general banking license issued by the Central Bank of the Russian Federation and brokerage activities in accordance with the license issued by the Federal Service for Financial Markets. Neither the Product nor any information contained in the Product shall be considered as advertising the securities mentioned in this report within the territory of the Russian Federation or outside the Russian Federation. The Product does not constitute an appraisal within the meaning of the Federal Law of the Russian Federation of 29 July 1998 No. 135-FZ (as amended) On Appraisal Activities in the Russian Federation. 8-10 Gasheka Street, 125047 Moscow. The Product is made available in Singapore through Citigroup Global Markets Singapore Pte. Ltd., a Capital Markets Services Licence holder, and regulated by Monetary Authority of Singapore. 1 Temasek Avenue, #39-02 Millenia Tower, Singapore 039192. The Product is made available by The Citigroup Private Bank in Singapore through Citibank, N.A., Singapore branch, a licensed bank in Singapore that is regulated by Monetary Authority of Singapore. This report is distributed in Singapore by Citibank Singapore Ltd ("CSL") to selected Citigold/Citigold Private Clients. CSL provides no independent research or analysis of the substance or in preparation of this report. Please contact your Citigold/Citigold Private Client Relationship Manager in CSL if you have any queries on or any matters arising from or in connection with this report. Citigroup Global Markets (Pty) Ltd. is incorporated in the Republic of South Africa (company registration number 2000/025866/07) and its registered office is at 145 West Street, Sandton, 2196, Saxonwold. Citigroup Global Markets (Pty) Ltd. is regulated by JSE Securities Exchange South Africa, South African Reserve Bank and the Financial Services Board. The investments and services contained herein are not available to private customers in South Africa. The Product is made available in Spain by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. 29 Jose Ortega Y Gasset,

4th Floor, Madrid, 28006, Spain. The Product is made available in Taiwan through Citigroup Global Markets Taiwan Securities Company Ltd., which is regulated by Securities & Futures Bureau. No portion of the report may be reproduced or quoted in Taiwan by the press or any other person. 14 and 15F, No. 1, Songzhi Road, Taipei 110, Taiwan. If the Product is related to non-Taiwan listed securities, neither the Product nor any information contained in the Product shall be considered as advertising the securities or making recommendation of the securities. The Product is made available in Thailand through Citicorp Securities (Thailand) Ltd., which is regulated by the Securities and Exchange Commission of Thailand. 18/F, 22/F and 29/F, 82 North Sathorn Road, Silom, Bangkok, Bangkok 10500, Thailand. The Product is made available in Turkey through Citibank AS which is regulated by Capital Markets Board. Tekfen Tower, Eski Buyukdere Caddesi # 209 Kat 2B, 23294 Levent, Istanbul, Turkey. In the U.A.E, these materials (the "Materials") are communicated by Citigroup Global Markets Limited, DIFC branch ("CGML"), an entity registered in the Dubai International Financial Center ("DIFC") and licensed and regulated by the Dubai Financial Services Authority ("DFSA") to Professional Clients and Market Counterparties only and should not be relied upon or distributed to Retail Clients. A distribution of the different CIRA ratings distribution, in percentage terms for Investments in each sector covered is made available on request. Financial products and/or services to which the Materials relate will only be made available to Professional Clients and Market Counterparties. The Product is made available in United Kingdom by Citigroup Global Markets Limited, which is authorised and regulated by Financial Services Authority. This material may relate to investments or services of a person outside of the UK or to other matters which are not regulated by the FSA and further details as to where this may be the case are available upon request in respect of this material. Citigroup Centre, Canada Square, Canary Wharf, London, E14 5LB. The Product is made available in United States by Citigroup Global Markets Inc, which is a member of FINRA and registered with the US Securities and Exchange Commission. 388 Greenwich Street, New York, NY 10013. Unless specified to the contrary, within EU Member States, the Product is made available by Citigroup Global Markets Limited, which is regulated by Financial Services Authority.

Pursuant to Comissão de Valores Mobiliários Rule 483, Citi is required to disclose whether a Citi related company or business has a commercial relationship with the subject company. Considering that Citi operates multiple businesses in more than 100 countries around the world, it is likely that Citi has a commercial relationship with the subject company.

Many European regulators require that a firm must establish, implement and make available a policy for managing conflicts of interest arising as a result of publication or distribution of investment research. The policy applicable to CIRA's Products can be found at [www.citigroupgeo.com](http://www.citigroupgeo.com).

Compensation of equity research analysts is determined by equity research management and Citigroup's senior management and is not linked to specific transactions or recommendations.

The Product may have been distributed simultaneously, in multiple formats, to the Firm's worldwide institutional and retail customers. The Product is not to be construed as providing investment services in any jurisdiction where the provision of such services would not be permitted.

Subject to the nature and contents of the Product, the investments described therein are subject to fluctuations in price and/or value and investors may get back less than originally invested. Certain high-volatility investments can be subject to sudden and large falls in value that could equal or exceed the amount invested. Certain investments contained in the Product may have tax implications for private customers whereby levels and basis of taxation may be subject to change. If in doubt, investors should seek advice from a tax adviser. The Product does not purport to identify the nature of the specific market or other risks associated with a particular transaction. Advice in the Product is general and should not be construed as personal advice given it has been prepared without taking account of the objectives, financial situation or needs of any particular investor. Accordingly, investors should, before acting on the advice, consider the appropriateness of the advice, having regard to their objectives, financial situation and needs. Prior to acquiring any financial product, it is the client's responsibility to obtain the relevant offer document for the product and consider it before making a decision as to whether to purchase the product. CIRA concurrently disseminates its research via proprietary and non-proprietary electronic distribution platforms. Periodically, individual analysts may also opt to circulate research to one or more clients by email. Such email distribution is discretionary and is done only after the research has been disseminated via the aforementioned distribution channels.

---

© 2011 Citigroup Global Markets Inc. Citi Investment Research & Analysis is a division of Citigroup Global Markets Inc. Citi and Citi with Arc Design are trademarks and service marks of Citigroup Inc. and its affiliates and are used and registered throughout the world. All rights reserved. Any unauthorized use, duplication, redistribution or disclosure of this report (the "Product"), including, but not limited to, redistribution of the Product by electronic mail, posting of the Product on a website or page, and/or providing to a third party a link to the Product, is prohibited by law and will result in prosecution. The information contained in the Product is intended solely for the recipient and may not be further distributed by the recipient to any third party. Where included in this report, MSCI sourced information is the exclusive property of Morgan Stanley Capital International Inc. (MSCI). Without prior written permission of MSCI, this information and any other MSCI intellectual property may not be reproduced, disseminated or used to create any financial products, including any indices. This information is provided on an "as is" basis. The user assumes the entire risk of any use made of this information. MSCI, its affiliates and any third party involved in, or related to, computing or compiling the information hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of this information. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in, or related to, computing or compiling the information have any liability for any damages of any kind. MSCI, Morgan Stanley Capital International and the MSCI indexes are services marks of MSCI and its affiliates. The Firm accepts no liability whatsoever for the actions of third parties. The Product may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the Product refers to website material of the Firm, the Firm has not reviewed the linked site. Equally, except to the extent to which the Product refers to website material of the Firm, the Firm takes no responsibility for, and makes no representations or warranties whatsoever as to, the data and information contained therein. Such address or hyperlink (including addresses or hyperlinks to website material of the Firm) is provided solely for your convenience and information and the content of the linked site does not in anyway form part of this document. Accessing such website or following such link through the Product or the website of the Firm shall be at your own risk and the Firm shall have no liability arising out of, or in connection with, any such referenced website.

---

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST

---