

Sapphire Corporation Limited

24 Mar 10

Initiation Report

Finding gold in vanadium

Summary:

We initiate coverage on Sapphire Corporation Limited (Sapphire) with an intrinsic value of S\$0.025, representing an upside of 67% over the current price of S\$0.015. As the only vanadium play listed on the SGX, Sapphire offers a distinctive alternative to investors.

Vanadium is most commonly used as an alloying agent to strengthen steel. Current usage of vanadium per tonne of steel in China is less than half of that in the US. We are of the opinion that China is trending towards the use of more vanadium intensive steel as a result of (a) benevolent government policies to encourage the adoption of high quality steel products and (b) increasing demand for sophisticated steel materials.

Sapphire's steel business is tightly integrated with that of Sichuan Chuanwei Group Co. Ltd (Chuanwei), the largest privately owned steel group in Sichuan, giving it an advantage in scale, cost and access to raw materials. Sapphire obtains its raw materials from Chuanwei's Weiyuan Steel Co. Ltd (Weiyuan) which in turn purchases its iron ore from the related China Vanadium Titano-Magnetite Mining Company (China VTM).

Sapphire currently has effective stakes in China VTM, Weiyuan and Neijiang Bowei Fuel & Chemical Co. Ltd (Bowel). Its interest in China VTM is worth S\$167m based on the last traded price of HK\$4.88 on 23 March 2010. We believe that Sapphire is desirous of listing its other investments with the successful IPO of China VTM last year. China is consolidating its steel industry and we believe that established steel companies in China will enjoy a premium over time as the top ten steel makers look out for possible acquisition targets in a shrinking market of players. **Increase Exposure with intrinsic value of S\$0.025.**

Increase Exposure

Intrinsic Value S\$0.025
Prev Closing Price S\$0.015

Main Activities

Sapphire Corporation Limited is engaged in the manufacture and sale of steel and vanadium products in PRC. It has indirect interests in HKSE listed China Vanadium Titano-Magnetite Mining and other steel businesses in PRC.

Financial Highlights

(Y/E Dec) S\$m	FY08	FY09	FY10F
Revenue	10.5	133.8	207.2
Operating Profit	-3.9	11.5	16.9
Adj. Net Profit*	1.1	9.1	13.5
Adj. EPS (S cts)*	0.01	0.07	0.08

*Adjusted to exclude one-off fair value gains of S\$26.2m in FY09.
Source: Company, SIAS Research Estimate

Key ratios (FY10F)

PER	18.1
P/BV	1.1
ROA	6.6%
ROE	6.2%
Debt to Equity	2.9%
Current ratio	2.3

Source: SIAS Research Estimate

Indexed Price Chart

Green (FSSTI)
White (SAPPHIRE)



Source: Bloomberg

52wks High-Low S\$0.025/S\$0.005
Number of Shares 15,819 m
Market Capitalization S\$237.3m

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Prospecting for vanadium

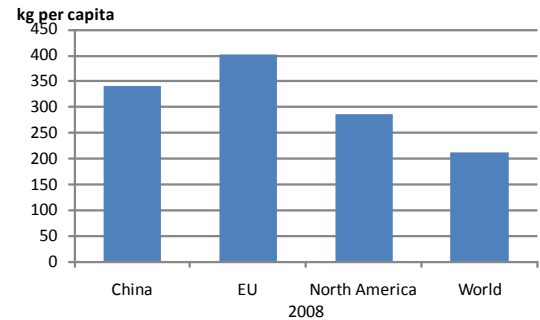
In our research on the resource industry (Resource Industry Outlook – You Scratch My Back, I’ll Scratch Yours, 08 March 2010), we had identified several commodities as a play on China’s hunger for resources, including vanadium – a common alloying agent used to strengthen steel. We like vanadium because it offers a unique play on the steel industry to investors.

Lagging vanadium use: Currently, China’s per capita consumption of crude steel easily exceeds that of the world. In 2008, China consumed 340kg of crude steel per person against the global average of 212kg. However, China’s usage of vanadium lags that of its peers. We estimate that unit vanadium usage in China grew by 50% to 0.038kg per tonne in 2009, some 24% less than the global average of 0.05kg per tonne, but still less than half of current consumption levels in North America. Hence, there is considerable room for growth in vanadium demand.

Outdated production’s the culprit: The China steel industry is highly fragmented with 60% of its output produced by some 500 steel mills that were unapproved by the government. China’s use of vanadium in steel production is weak because many of them are still using outdated technology. This led to quality differences across the country. However, more and more steel mills are being upgraded as the government heightens industry restructuring efforts. In turn, this prepares the country to make high quality steel, such as vanadium intensive products.

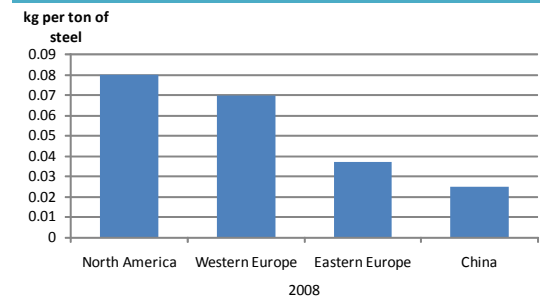
Steel use gaining sophistication: Vanadium is usually used to produce high intensity or light weight steel products. As China develops its economy, its industries will gain technological complexity, leading to more varied and yet specialized steel needs, thus driving demand for vanadium. Already, the Chinese government is targeting to raise self sufficiency in critical steel product types, with local production taking up at least 90% market share by 2011. For instance, the buildup of China’s high speed railway network requires high strength steel bars of 500MPa (megapascals), instead of the usual 335 to 400MPa rebars used in construction activities.

Figure 1: Crude steel consumption per capita



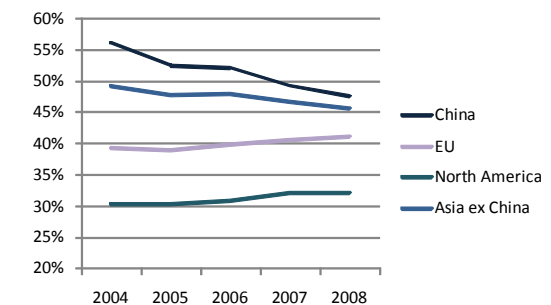
Source: World Steel Association

Figure 2: Vanadium usage per ton of steel



Source: Stratcor

Figure 3: Hot rolled long products (% of both long and flat products)



China produces disproportionately more long products than other regions. Developed nations typically make more flat products which are used more for consumer durables than for construction.

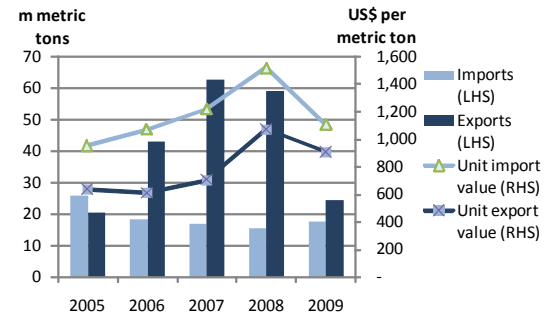
Source: World Steel Association, SIAS Research Estimate

In March 2009, the government announced that it targets 60% of steel rebars used to be of at least 400MPa in strength by 2011. 400MPa rebars typically have about 25% to 75% more vanadium content than lower grade materials. In developed markets like US and Germany, 335 MPa steel rebars are already very rarely used. We anticipate that China's steel consumption pattern will match that of developed nations such as Europe and US within the next five years as the Chinese government shifts industrial focus from quantity to quality.

Resource efficiency the way to go: Also, more and more users are warming up to the idea of using high strength steel to generate cost savings, translating to higher demand for vanadium enhanced steel. Applied to the automotive industry, high strength steel can cut vehicle weight by up to 40% and increase fuel efficiency.

The example in Figure 6 below estimates how much savings builders can obtain from higher strength steel bars. Of note, vanadium usage continues to increase even after taking account of the lower amount of steel required.

Figure 4: Import and export statistics, China



Source: National Bureau of Statistics of China, SIAS Research Estimate

Figure 5: Some benefits of using vanadium over substitutes

- 1) Higher castability with minimal cracking
- 2) Lower reheat temperature requirements during further processing
- 3) More consistent strengthening as more alloying agent is added

Source: Stratcor

Figure 6: Hypothetical example

Consider a construction project that requires 1 tonne of concrete reinforcing 335MPa rebar, of which its base composition is assumed to consist of 0.04% of vanadium.

Switching to higher strength steel will yield the following results:

Scenarios	Only 400MPa rebar is used	Only 500MPa rebar is used
Tonnage of steel required (Savings)	0.84 tonnes (16%)	0.72 tonnes (28%)
Estimated vanadium content	0.06% - 0.083%	0.10% - 0.15%
Incremental vanadium usage (Tonnage x Vanadium content – 0.04%)	0.01% - 0.03%	0.032% - 0.068%
Percentage increase in vanadium usage	25% - 75%	80% - 170%

The price differential for every 100MPa in yield strength is estimated to be about 7% - 10% of base price. Hence, tonnage savings exceed the increased cost of using higher strength rebars.

The actual amount of vanadium content used depends on the technology employed and nitrogen levels during production. The higher the nitrogen level, the less amount of vanadium required. Hence, range estimates were used.

Source: SIAS Research Estimate, Stratcor, Vanitec.org

Market's looking upwards: To match up to standards in Western markets, we estimate that China will need to produce some 48% more vanadium over the next 2 years, equivalent to an additional 24,000 tonnes of output. Vanadium in the form of pentoxide flakes, trades at about 100,000 yuan per tonne, valuing the additional demand at 2.4bn Yuan, a significant amount for an industry dominated by only two major competitors producing an estimated 60% of the country's output.

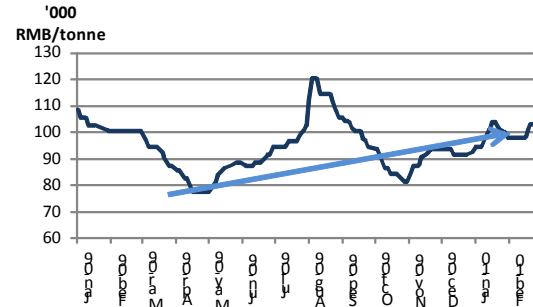
Tight supplies: Furthermore, the supply of vanadium in China is expected to be tight going forward. Small scale plants extracting trace amounts of vanadium from stone coal account for a significant proportion of production. Reports estimate these plants to number in the hundreds. These plants are likely to be using traditional methods that release pollutive exhaust gas containing high chlorine levels. With China's focus on enforcing environmental standards, many of these plants are expected to be closed. This creates market space for expansion. Last October, Liaoning province closed or suspended the operations of more than 40 steel mills in a crack down against pollutive emissions.

The confluence of these industry factors captures vanadium in an advantageous situation of lower supply and increased demand. Hence, we initiate coverage on Sapphire, which is the only listed vanadium play in Singapore.

Vandium FOUND!

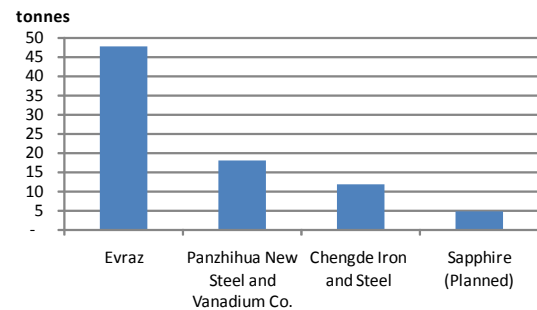
Sapphire currently has the capacity to produce 3,500 tonnes per annum (tpa.) of vanadium pentoxide (V_2O_5) and intends to bring total capacity up to 5,000 tpa. of V_2O_5 by 2010 and 3,000 tpa. of ferrovanadium by 2011. If successful, its capacity easily places it as one of China's top five V_2O_5 producers. V_2O_5 is mixed with iron to form ferrovanadium – the substance that is added to steel. Via a series of strategic investments, Sapphire has over the years transformed itself from a debt laden, loss making construction company to a profitable major steel enterprise in Sichuan, China, with significant stakes in a number of related entities that form an integrated value chain from mine to plant gate.

Figure 7: V2O5 98% flake prices



Source: Bloomberg

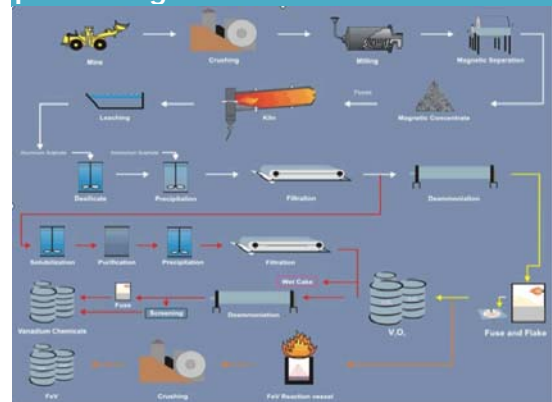
Figure 8: Vanadium pentoxide production capacity



Evraz is the world's largest vanadium pentoxide producer. Panzhuhua New Steel and Vanadium Co is the world's third largest and China's biggest producer, by capacity.

Source: SIAS Research Estimate, various sources

Figure 9: Typical vanadium processing flow chart

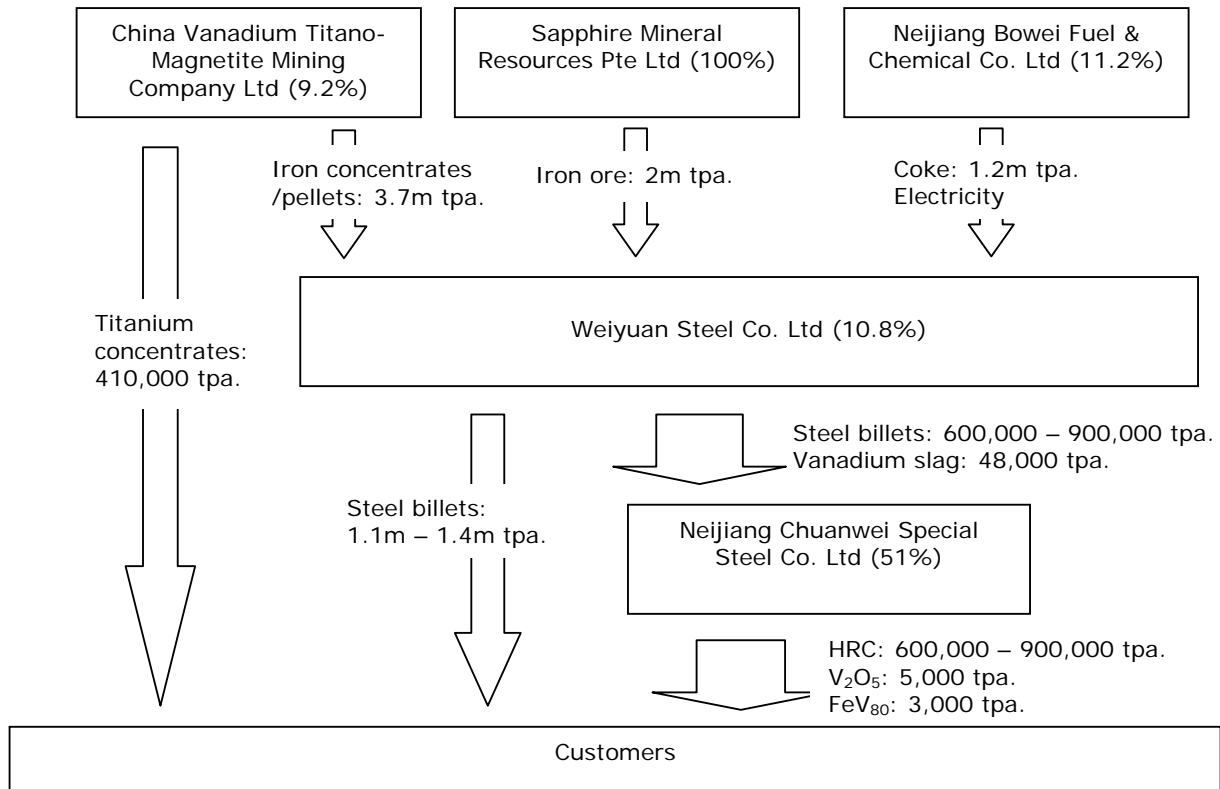


Source: Xstrata

Initiation Report

Sapphire entered the China steel industry in 2007 by partnering with an established local partner, Sichuan Chuanwei Group Co. Ltd (Chuanwei), which generously injected its subsidiaries into a holding company called Trisonic International Ltd (Trisonic). Sapphire gained an indirect stake in these companies by acquiring a 19.6% effective interest in Trisonic (diluted to 16% as of 2009). Subsequently, Sapphire set up Sapphire Mineral Resources Pte Ltd (SMR) to source raw materials for both Trisonic and other steel businesses, and also acquired a controlling stake in Neijiang Chuanwei Special Steel Co. Ltd (Special Steel). As such, Sapphire controls Special Steel and SMR from Singapore, while Chuanwei continues to manage the rest of the steel making business. To ensure that Special Steel is well governed, Sapphire appointed a CFO to monitor Special Steel following its acquisition. Chuanwei is the largest privately owned integrated steel group in Sichuan province and is one of China's top 500 companies.

Figure 10: Group value chain and estimated product flow through



Figures are based on current and planned capacities or mandates and do not reflect actual conversion ratios from inputs to final products. Where data is unavailable, estimates were used. Sapphire Mineral Resources Pte Ltd also supplies minerals to other steel businesses. Effective stakes are in brackets. HRC: Hot rolled coil. FeV₈₀: Ferrovanadium 80%

Source: Company, China VTM, SIAS Research Estimate

Hot rolled money

Other than vanadium pentoxide, Special Steel also produces hot rolled coils (HRC) of thickness between 1.2mm to 20mm and of width 430mm to 862mm. Such steel strips are commonly used to make cars, home appliances, pipes and in construction. Generally, we are moderately optimistic of Special Steel's HRC business as a result of benign macro economic prospects.

In the near term, Special Steel will continue to benefit from further reconstruction spending in Wenchuan county, following the earthquakes of 2008. Total budgeted investment for 2010 amounts to 335bn Yuan. The government is targeting 8% GDP growth and 20% fixed assets investment growth this year, unchanged from 2009, leading the China Iron & Steel Association to forecast new steel consumption of at least 60m tonnes or 11% of 2009 demand in 2010.

We noted that Special Steel's HRC are competitive compared to its peers, based on the the range of dimensions offered. Moreover, Special Steel also enjoys access to China VTM's mined products like for instance titanium oxide, enjoying opportunities for new product development, such as titanium steel. Nonetheless, we think that the vanadium business will be Special Steel's main growth driver compared to HRC as a result of capacity expansion.

Defensive steel

From time to time, the China steel industry will be plagued by problems such as lack of raw materials or over capacity. However, Special Steel enjoys several advantages over its peers:

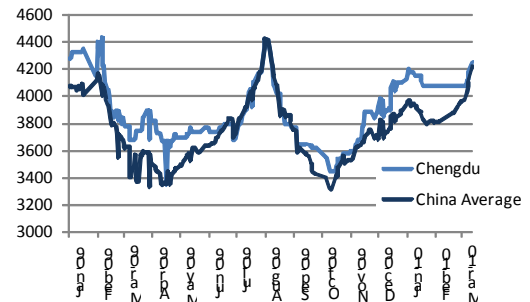
- (a) An established presence in China from which to sell its 'Chuanwei' brand of products. Currently, Sapphire and its associates have a 61% and 86% market share in Sichuan and Chongqing respectively. Due to challenging terrain, the Sichuan highway network is relatively less developed and high transport costs discourage low priced exports to Sichuan, imposing a price floor for Sichuan steel against imports from other provinces.

Figure 11: Sichuan province



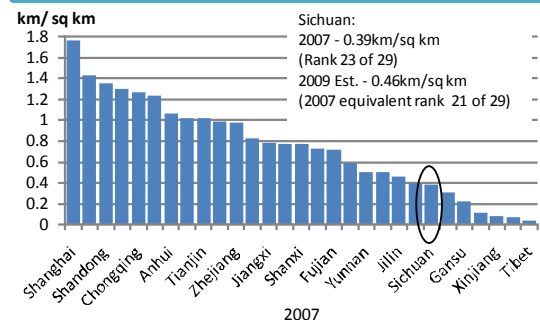
Source: chinaodysseytours.com

Figure 12: Hot rolled sheet prices



Source: Bloomberg

Figure 13: Highway density



Source: National Bureau of Statistics of China

- (b) A secure source of raw materials via China VTM and Weiyuan. Furthermore, any shock in input prices will translate into higher profits for these companies, which are 9.2% and 10.8% owned by Sapphire respectively, buffering the effects of cost inflation.
- (c) Cost efficiency as a result of an integrated process chain. Special Steel obtains steel billets directly from Weiyuan's plant which is located right next to it. Combined with economies of scale, minute savings in transportation and other efficiencies lead to a considerable cost advantage for Special Steel.

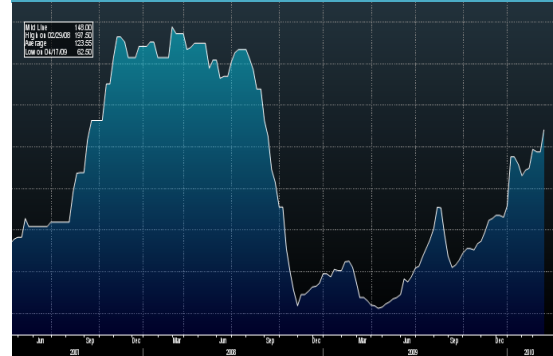
Going for Round Two?

Having recognized a S\$26.2m gain from the Hong Kong listing of China VTM in FY09, we believe that Sapphire is itching for further investment gains. Back in 2004, Sapphire had to issue some 16x more shares than it had outstanding to pay off total liabilities of some S\$100m. Instead of winding up the company, the board of directors and management decided to push on and explore new growth opportunities for Sapphire.

Fast forward to 2010, we think that Sapphire's investment in Chuanwei's companies is ripe for a payoff. To improve industry competitiveness, the Chinese government is pushing for consolidation among smaller steel firms with the intention to create three to five steel firms of 50m tonnes of annual capacity each and a number of medium sized provincial leaders with 10m to 30m tpa. of capacity. This stands in sharp contrast against the current situation of more than 500 mills. We think the acquisition premium paid to acquirees will increase over time as the number of available industry players shrink.

We opine that a listing will unlock the value of Weiyuan and Bowei, making them more expensive to acquire. However, Bowei is a standalone electricity and coke provider for Weiyuan. Weiyuan as the steel plant behind Chuanwei is a much more attractive listing entity.

Figure 14: Iron ore prices (3yr chart)



Source: Bloomberg

Figure 15: China VTM share price since listing



Source: Bloomberg

Figure 16: Board of Directors

Director	Date of Appointment
Tan Eng Liang (Chairman)	Nov-2001
Teo Cheng Kwee (CEO)	Nov-1985
Foo Tee Heng (Executive Director)	Feb 1990 re-elected Apr 2007
Yang Jian	Jul-2009
Mo Zhi Guo	Jul-2009
Chan Kum Onn Roger	Oct 1999 re-elected Apr 2008
Wei Jian Ping	Sep-2008
Duan Bing	Jun-2009

Source: Company

If a listing materializes, Sapphire might reap a one-off fair value gain of S\$32.8m based on our valuation of its stake at S\$68.8m. Alternatively, we conjure that Sapphire may even acquire a majority stake in Weiyuan via a mix of debt and equity funding, being the only other way for Weiyuan to be listed. While this may dilute shareholder value in the short term, it will give current shareholders a greater share of future profits from Weiyuan. Sapphire currently does not have much debt on its balance sheet. We do not quantify nor value the effects of this possible 'back door' listing in order to be prudent.

Figure 17: Panzhihua New Steel & Vanadium Co. (6mth price chart)



Source: Bloomberg

Figure 18: Valuation of Weiyuan and Bowei

Industry Comparables	P/BV	Debt / Equity (%)	ROE (%)
Wuhan Iron and Steel	1.96	105	19.4
Panzhihua New Steel & Vanadium	3.20	72	-3.9
Shanxi Taigang Stainless Steel	2.30	166	6.6
Hebei Iron & Steel	1.62	145	15.0
Maanshan Iron & Steel	1.22	85	2.9
Fosun International	1.57	137	6.7
Gansu Jiu Steel Group Hongxing Iron	2.82	42	1.0
Inner Mongolia BaoTou Steel Union	2.01	108	6.5
Bengang Steel Plates	0.68	45	1.0
Liuzhou Iron & Steel	3.91	142	0.3
Average	2.13	105	5.5
	S\$ m		
Current book value of Sapphire's associates	98.5		
Less:			
Book value of China VTM as at end Jun 09	23.1		
2H09 share of profits from associates	30.7	Mainly due to IPO of China VTM	
Estimated book value of Weiyuan & Bowei	44.7		
Market value based on industry P/BV	95.2		
Adjusted market value	85.7	10% margin of safety	
		Implied book value of 1.9	
Bowei's fair value	17.1	Assume 20% of total	
Weiyuan's fair value	68.6	Assume 80% of total	
Total fair value gain	41.0		
Due to Bowei	8.2		
Due to Weiyuan	32.8	Will be realized if listing occurs	

Source: SIAS Research Estimate, Company

Crunching numbers steel

We forecast revenue of S\$207.2m in FY10F, up 55% over FY09. The growth can be attributed to full year recognition of results from Special Steel which was acquired in June 09 and increased capacity for vanadium products. Gross margin is expected to rise from 13% in FY09 to 14% in FY10F and 17% by FY11F due to higher expected vanadium pentoxide prices going forward and the addition of the ferrovanadium business in FY11F.

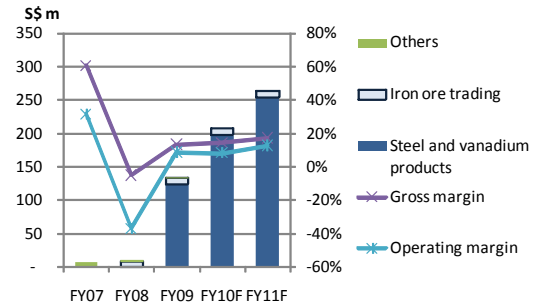
To reflect only operating performance, no fair value gains from Sapphire's investments were included in our profit forecasts; their fair value were instead incorporated in our valuation. Excluding the S\$26.2m gain from the listing of China VTM in FY09, net profit attributable to shareholders is projected to increase from S\$9.05m to S\$13.5m this year, up 49% YoY. We value Sapphire using the sum-of-parts methodology to derive an intrinsic value of S\$0.025, with an upside of 67%.

Based on our analysis, it will take a 35% change in the intrinsic value of Sapphire's investments to result in a S\$0.005 fluctuation in share price. Hence, our valuation of Sapphire's investments is robust. On the other hand, a 1% decrease in raw material costs will lead to a 0.4 percentage point increase in FY10F operating margin, equivalent to a 1.6% percent change in value per share, assuming a 50% pass on of cost savings to customers, but *excluding* the effects of a decrease in share of profit from associates.

Bringing vanadium to the market

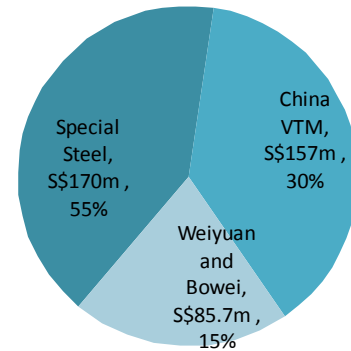
We think that the key investment risks of Sapphire are (a) poor financial visibility over the privately held Bowei and Weiyuan and (b) price volatility within the iron ore and steel markets. However, we have already applied a safety margin of 10% on Weiyuan and Bowei for prudence. The resulting P/BV of 1.9 times as implied by our valuation is lower than the industry average of 2.13. As such, we have been conservative in our estimates.

Figure 19: Revenue Mix



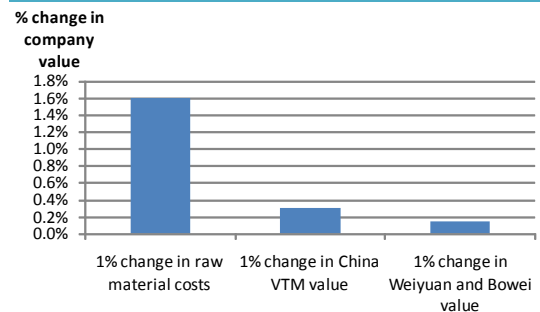
Source: SIAS Research Estimate, Company

Figure 20: Breakdown of valuation



Source: SIAS Research Estimate

Figure 21: Sensitivity analysis



Source: SIAS Research Estimate

Moreover, we are positive on the long term prospects of vanadium and are optimistic of Sapphire's outlook where we have identified possible scenarios in which value can be unlocked. We emphasize that Sapphire has turned around from a construction company to an enterprise backed by a sound business selling steel and vanadium products in China. Hence, we initiate coverage on Sapphire Corporation Limited with an *Increase Exposure* view on an intrinsic value of S\$0.025, representing an upside of 67%.

Figure 22: Sum-of-parts valuation

Special Steel		
Forecasted free cashflow to equity		
FY10F	4	S\$ m, due to capex spending
FY11F	19	S\$ m, on higher utilization
PV of free cashflows	20	S\$ m
PV of terminal growth	314	S\$ m
Cost of equity	10.3%	
Terminal growth rate	5.0%	
Total PV	333	S\$ m
% interest	51%	
Sapphire's stake	170	S\$ m
China VTM		
Average price over last 20 days	4.58	HK\$ (Current price at HK\$4.88)
No of shares outstanding	2,075	m shares
Market value	9,499	HK\$ m
	1,704	S\$ m (@5.5748)
Sapphire's stake	157	(@ 9.2%)
Bowei and Weiyuan Steel		
Book value of Sapphire's stake	44.7	S\$ m
Industry P/BV	2.12	
Applied P/BV	1.9	10% discount
Estimated value	85.7	S\$ m
Total value	412	S\$ m
No of shares outstanding	16.2	bn shares; forecasted
Value per share	0.025	S\$

Source: SIAS Research Estimate

Figure 23: Financial Forecast and Estimate

	FY07	FY08	FY09	FY10F	FY11F
Revenue	8.2	10.5	133.8	207.2	278.7
Gross Profit	5.0	(0.5)	17.6	29.6	47.7
Operating Profit	2.6	(3.9)	11.5	16.9	34.9
Net Profit Attributable to Shareholders	19.3	1.1	35.3	13.5	21.8
Total Current Assets	27.1	53.0	110.0	130.1	166.1
Total Non-Current Assets	62.1	77.6	230.4	239.2	248.1
Total Current Liabilities	7.6	5.7	52.3	58.9	63.4
Total Non-Current Liabilities	0.0	33.4	3.0	3.0	3.0
Total Equity	81.6	91.4	285.1	307.5	347.8
Cash from Operating Activities	(8.2)	(8.7)	7.8	22.3	38.1
Cash from Investing Activities	(37.6)	(7.3)	(20.9)	(18.1)	(18.8)
Cash from Financing Activities	49.6	14.9	17.5	0.0	0.0
Net change in cash	3.8	(1.1)	4.4	4.2	19.3
Inventory Days	1.4	0.7	21.3	34.9	37.2
Receivable Days	158.3	407.9	52.8	44.1	46.7
Payable Days	893.3	195.8	74.6	94.7	81.6
ROE (%)	43.6	1.3	23.5	6.2	9.3
ROA (%)	104.8	1.2	33.3	6.6	10.9
Debt/Equity (%)	0.0	0.0	3.1	2.9	2.6
Current Ratio	3.5	9.3	2.1	2.2	2.6
EPS (S cents)	0.37	0.01	0.28	0.08	0.13
BV/Share (S cents)	1.11	1.17	1.32	1.37	1.51
PER	4.1	150.0	5.4	18.1	11.2
P/BV	1.35	1.28	1.14	1.09	0.99

Source: SIAS Research Estimate

Definition:

Increase Exposure – The current price of the stock is significantly lower than the underlying fundamental value of the firm. Readers can consider increasing their exposure in their portfolio to a higher level.

Invest – The current price of the stock is sufficiently lower than the underlying fundamental value of the firm. Readers can consider adding this stock to their portfolio.

Fairly Valued – The current price of the stock is reflective of the underlying fundamental value of the firm. Readers may not need to take actions at current price.

Take Profit – The current price of the stock is sufficiently higher than the underlying fundamental value of the firm. Readers can consider rebalancing their portfolio to take advantage of the profits.

Reduce Exposure - The current price of the stock is significantly higher than the underlying fundamental value of the firm. Readers can consider reducing their holdings in their portfolio.

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