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Apple's financial success:
The precariousness of power exercised in global value chains

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1. Introduction: The conditions of success in present day financialized capitalism

The literature on financialization engages with how the world has moved on and this is represented at a number of levels of analysis. This literature emphasises the structural adjustment of national balance sheets from tangible to financial assets (Krippner, 2005) and how global financial and physical value chains are being elongated and recalibrated to extract additional cash which is then increasingly distributed to shareholders (Millberg, 2008). The object is to increase earnings capacity and modify cash and profit distribution towards investors (Andersson et al, 2007, Lazonick, 2008). Often, corporate narratives exaggerate the extent of financial transformation (Froud et al, 2006) promising more than the numbers deliver. Our specific use of the term 'financialization' in this paper draws upon this literature but also significantly reframes the analysis to focus upon the focal firm as a financial reporting entity and how power is deployed within global value chains to recalibrate the span of a focal firms activities to capture value and modify relative financial ratios and trajectories.

In the world of the stock market analyst, financial performance matters in terms of the influence this information has over the valuation of a reporting entities stock, and also on buy and sell side recommendations. There are no fixed standard measures of financial performance but a range of financial metrics that include, for example, cash flow return on investment (CFROI), Economic Value Added (EVA™), cash return on capital employed (Cash ROCE), earnings per share (EPS) and price earnings ratio (PE). The key metrics used by analysts often combine market value with a relevant reporting entity financial metric that is assumed to have a material correlation to market value (MV). Thus financial variables such Cash ROCE are correlated with higher or lower market valuations when, for example, the ratio increases or falls. In a UBS Warburg (2011) 'Valuation Primer', we are informed that:

A valuation multiple is simply an expression of market value relative to a key statistic that is assumed to relate to that value. To be useful, that statistic – whether earnings, cash flow or some other measure – must bear a logical relationship to the market value observed; to be seen, in fact, as the driver of that market value.

<http://pages.stern.nyu.edu/~ekerschn/pdfs/readingsemk/EMK%20NYU%20S07%20Global%20Tech%20Strategy%20Valuation%20Multiples%20Primer.pdf>

The literature on stock valuations often refers to such multiples as ‘point analysis’ but the numbers/ratios employed in the analysis congeal the product of complex interactions and on-going adjustments to the productive, financial and regulatory boundaries of a reporting entity. These ongoing adjustments and recalibrations congeal into and modify a reporting entity’s financial numbers (Haslam et al, 2012). A significant criticism often made by valuation practitioners and analysts is that the focus on ‘point values’ conceals much of what is ‘driving’ value. According to UBS Warburg (2001):

A multiple is a distillation of a great deal of information into a single number or series of numbers. By combining many value drivers into a point estimate, multiples may make it difficult to disaggregate the effect of different drivers, such as growth, on value. The danger is that this encourages simplistic – and possibly erroneous – interpretation.

<http://pages.stern.nyu.edu/~ekerschn/pdfs/readingsemk/EMK%20NYU%20S07%20Global%20Tech%20Strategy%20Valuation%20Multiples%20Primer.pdf>

Bowman et al (2012) are also critical of point value analysis because it frames our understanding in a way that denies ‘anomalies and adverse consequences’ because they are not in the field of the visible. The authors illustrate how power along supply chains can lead to huge inefficiencies and financial cost burden up or down-stream within in the (global) supply chain. The significance of this argument is that the use of power within supply chains needs to be deconstructed, accounted for, and made visible. Moreover, as we argue in this paper, these power relations (once revealed) are also not uniform but contingent and variable and this, in itself, provides the foundation for precarious financial transformation. Thus the turnaround in Apple Inc’s financial fortunes after the mid 2000’s were the direct result of combining block buster products with a series of moves that changed the mix of activities which Apple carried out within its own financial

boundary. Apple exercised power to externalise expenses such as product development and component manufacture whilst capturing value extracted within the boundary of its own financial accounts in the form of inflated cash margins and return on capital. Apple's US manufacturing facilities have long since closed and Apple today is internally focused on design, the provision of technical services and managing retail stores. Assembly is off-shored substituting relatively high internal with lower external employment costs, now congealed in purchases. At the same time R&D and apps development are outsourced and now account for just 2 percent of sales; well below the 10-15% reported by its peers. This recalibration of what is captured within and outside the Apple financial boundary, and how power is deployed to put pressure on suppliers to drive down costs, helped transform cash margins. In point value terms this was 'a brilliant corporate success'.

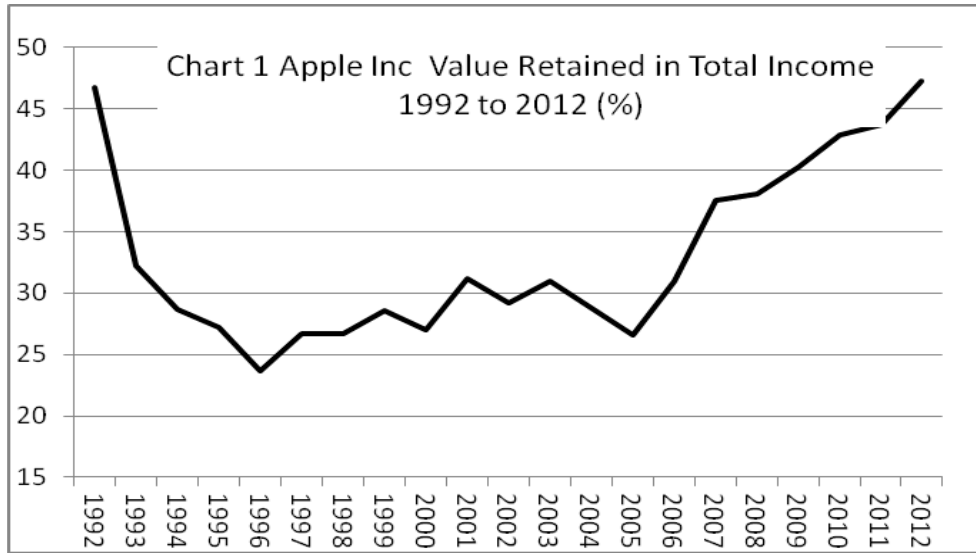
In this paper our concern is not with identifying point values and how these inform and influence correlation coefficients and valuation estimates. Rather, our proposition is that reporting entity point values should be supplemented by a process of deconstruction that reframes the social analysis, and generates critical narratives about whether outcomes are precarious or sustainable. In terms of supplementing point values, we argue it is important to add context in terms of how power is variably deployed to modify a reporting entity's key financial operating ratios. Thus a reporting entity's financial data provides information about changing cost structure, adjustments to financial boundaries and activity displacement. Furthermore, it is necessary to compare a focal firm with other firms within its business model to construct alternative critical narratives about relative performance over single firm point values. Our framework of analysis is thus deliberately grounded in accounting and we employ the numbers to generate critical narratives about how Apple deploys power over its global value chains to capture value, displace cost and transfer financial risk.

In a financialized world, point values are employed to assess financial performance where the financial numbers congeal both value creation and value capture, where a dollar earned from value capture is just as good as a dollar earned from value creation. Apple's management have been adept at re-drawing the boundaries of the firm to include (only) higher return activities through the exercise of power over suppliers in a global value chain. In the following sections we consider how Apple has progressively recalibrated its financial boundaries through a combination of out-sourcing and off-shoring. Our financial analysis contrasts the exceptional financial performance of Apple with that of suppliers that are beneficiaries of Apple's off-shoring and out-sourcing strategy. This process of contemporaneous value capture and financial displacement is located within a prism of variable power relations, and this frames our argument about the precarious nature of Apple's profit margins and returns on capital.

2. Apple's Financial Transformation

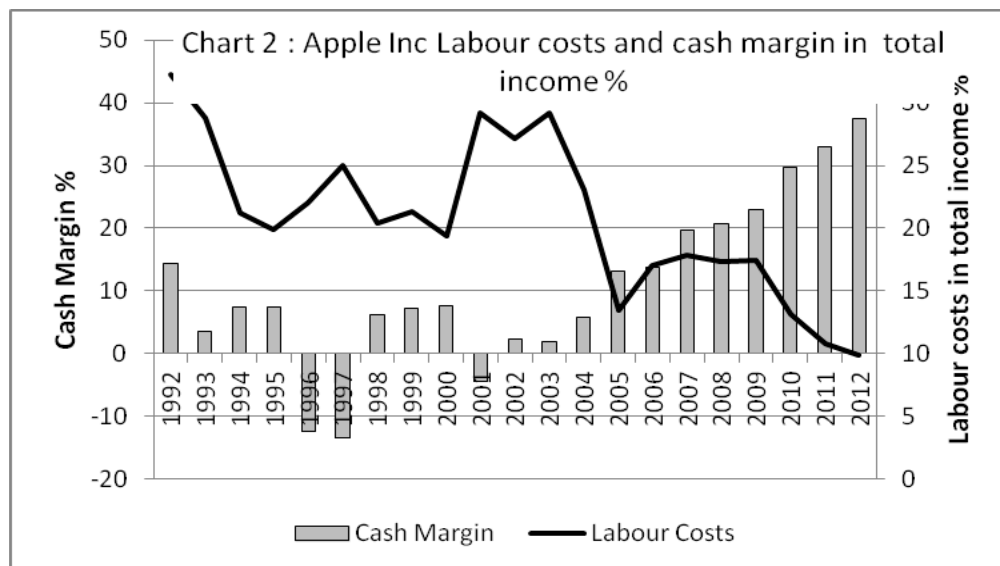
The transformation of Apple Inc can be split into three distinct periods as far as value retained in total income is concerned. Value retained¹ is found as total income after deducting all external costs and thus it reflects how the financial boundary of the reporting entity, in this case Apple Inc, is changing over time. The higher the value retained in total income the smaller share of total income taken by external costs, and vice versa. From the period 1992 to 1995 the value retained in total income at Apple drops from 45 to 25 percent, suggesting that external costs in total income have increased. The period 1995 to 2005 is a relatively stable period during which value retained in total income lies in the range 25-30% and similar to an average US manufacturing firm. Thereafter, value retained out of total income is transformed and moves up from 30 to 45 percent of total income, restoring the value retained to its 1992 position (see Chart 1).

¹ Value retained is total income minus all external costs. Or Total revenue minus value retained (as labour costs plus cash [earnings before depreciation interest and tax])



Source: Securities and Exchange Commission (Edgar Dataset) 10-Ks

Apple's transformation coincides with capturing a greater share of the financial value chain as measured by its value retention ratio. Within the financial boundary of the reporting entity, in this case Apple, the financial composition of value retained has also been modified with internal labour costs falling from an erratic 20-30 percent of income to 10 percent of total income and this, in turn, has boosted the cash margin in total income from 3 percent to near 30 percent of total come (see chart 2)



Source: Securities and Exchange Commission (Edgar Dataset) 10-Ks

Table 1: Apple Inc cost structures and cash margin (2002 and 2012) in total income

	2002	2012
Total Income	100	100
External Costs	70	52
Value Retained	30	48
Labour Costs	27	10
Cash EBITDA margin	3	38

Source: Securities and Exchange Commission (Edgar Dataset) 10-Ks

Table 1 summarises the changes in Apple’s financial boundary in terms of its share of value captured out of the financial value chain. This increases from 30 to 48 percent of total income as external costs in total income fall. Moreover, internal labour costs in total income also decline from 27 to 10 percent and this, in turn, mechanically lifts the cash margin from 3 to 38 percent of total income.

This spectacular turnaround in Apple’s financial fortune was generated, we argue, by power exerted over a global financial value chain, where power translates into *cost displacement* and *value capture*. Our argument is that we can understand Apple’s financial transformation as the product of what is happening both inside and outside the reporting entity where simultaneous manipulations are in play. On the one hand, Apple’s outsourcing of manufacturing and R&D (software applications development) helped to displace internal relatively high labour by lower external labour costs and correspondingly reduced supplier margins that, in return, then become embedded in external costs. For example, Apple’s R&D spend out of total income is significantly lower than the average of a benchmark group of firms involved in hardware, software and internet S&P 500 digital lifestyle business model. In 2012 Apple spent 3 percent of total income on R&D compared to the average, for our benchmark group, of 10%. A common thread running through the Apple business model is that point value measures are the product of cost displacement and value capture. Apple outsources apps development and these are then sold on to iPhone and iPad users through the Apple iTunes store. It is

estimated that in 2012, Apple paid \$7bn to apps developers and took a top slice of 30 percent on these revenues (roughly 10 percent of net income in 2012).

At the moment, there are 775,000 apps available in the app store. App developers have been paid more than \$7 billion by Apple. This huge number suggests that Apple is making considerable amount of money (\$3 billion) by hosting these 775,000+ growing applications at its app store. This clearly shows a trend towards applications becoming the mainstay of Apple’s flexing power.

<http://seekingalpha.com/article/1102111-app-monetization-drives-revenue-growth-for-apple>

Table 2: R&D in Total Income Apple and Benchmark Companies (2012)

	Sales \$ bn	R&D \$bn	R&D in Sales
Hewlett Packard	120.4	3.4	2.8
Google	29.3	3.8	12.8
Intel	54.0	8.4	15.5
Yahoo	6.5	1.2	18.7
CISCO	46.0	5.4	11.7
Microsoft	73.7	9.8	13.3
Total /Average	329.9	31.9	9.7
Apple Inc	156.5	3.3	2.1

Source: Annual report and accounts, various years

Thus it is possible for both internal labour costs and external purchase expenses to drop relative to total income as power is exercised over suppliers to recalibrate the balance of internal versus external expense, where external expenses are not simply displacing internal costs. In the following section we explore how Apple’s power over the global value chain has been employed to modify value capture and cash extraction at the expense of its suppliers. Our argument is that the power relations driving value capture (as distinct from value creation) are not uniform. Thus deconstructing point values reveals how variable power relations governing the process of value capture are contingent and variable and this, we argue, helps to explain why Apple’s financial transformation is both commendable and precarious at the same time.

3. Apple: value capture and variable power relations over suppliers

In this section we focus on how Apple exercises power over its value chain through its outsourcing and off-shoring of its financial value chain. The purpose is to extract cost reduction and capture value by manipulating the financial boundary between what is inside and what is outside of its financial statements. This process of value chain recalibration and deepening of the global out-sourcing and off-shoring project by US and European firms also coincides with changes in corporate governance. In an era of shareholder value, financial metrics linked to boosting profit margins and earnings on capital employed are coupled to managerial remuneration. Mahony et al (2006), Millberg (2008) and Millberg et al (2010) integrate the motivation to out-source and off-shore with the pressure to generate higher returns to shareholders in the US, and managerial point value financial incentives. This argument is also developed to also suggest that that out-sourcing and off-shoring of services from the US increased profits but that these additional earnings were not deployed into re-investment and productive renewal but instead distributed to shareholders.

At the same time the cost savings from off-shoring are considerable, and the recent rise in off-shoring has corresponded with historic highs in the profits share of national income. Despite the profit increases, rates of investment have not grown accordingly.

(Mahony et al, 2006:16)

Apple Inc's strategy of financial disintegration is confirmed from a series of key financial metrics: total internal labour costs as a share of total income, research and development (R&D) as a share of total income and capital expenditure out of total operating cash flows. In 2012 labour cost in total income was 20 percentage points lower, R&D expenses 6 percentage points lower and the share of cash employed to finance capital spend down from 22 to 14 percent (see table 3) against a base year, 1992.

Table 3: Apple Inc Labour, R&D and Capital Expenditure (% of total income)

	2012	1992
Labour costs	9.6	31.9
R&D expense	2.1	8.6
Operating Cash Margin	37.0	13.1
Capital spend in cash	14.0	22.0

Source: Securities and Exchange Commission (Edgar Dataset) 10-Ks

Apple's power over its suppliers has been cleverly deployed to displace costs into the supply chain whilst simultaneously capturing a transformation in its own operating margins and residual free cash. Accenture (2007) confirms the cost reducing benefits of out-sourcing and off-shoring:

Accenture research has found that leading organizations are accelerating their adoption of global sourcing strategies, especially in North America and Europe. Establishing a presence in low-cost countries is a key contributor to the growing use of global sourcing. Parallel research conducted by Accenture in conjunction with the China Supply Chain Council found that business spending in low-cost countries has increased 85 percent in the past few years

http://www.accenture.com/SiteCollectionDocuments/PDF/OutlookPDF_GlobalDelivery_02.pdf

In this paper we consider how Apple's power over its global supply chain (and suppliers) is not a single uniform relation but is variable in nature, contingent, adapting and adjusting as power relations shift. Thus there is always the possibility of financial instability when nature of these complex client-supplier relations is dynamic. It is estimated that Apple is dependent upon 150 global suppliers to manufacture and retail its iPhone, iPad and iMac products and although many of these are small it is the difficulties and troubled relations with some that could have a material effect on Apple's bottom line. To illustrate our arguments we use three Apple-supplier relationships to make visible a variety of power relations and financial operating contexts: Foxconn (China), Samsung (Korea) and Molex Inc (US). Apple employs Foxconn a China-based company to assemble the Apple iPhone and iPad range of products and Foxconn itself depends upon suppliers such as Sharp for liquid crystal display (LCD)

components. Samsung supplies Apple with memory chips (significantly the A6 chip for the Apple iPhone5) and Molex Inc a US supplies multiple connectors for the iPhone range. These supplier relations reveal the often precarious nature of value capture because it depends upon variable and unpredictable financial impacts generated between Apple and its suppliers.

Foxconn International Holdings (FIH) is a subsidiary of Taiwan's Hon Hai, which is the world's largest contract assembler, employing over one million people in total, and reportedly depends upon Apple contracts for up to 50 percent of its revenue. FIH is domiciled in the Cayman Islands and listed on the Hong Kong stock exchange. It is Hon Hai's principal handset manufacturer and assembler, having 126,000 of their workforce located in China, and with most of those in the Guangdong Province. FIH is a separate company from Foxconn which manufactures computers and consumer electronics and Foxconn Technology who are a light metal and thermal manufacturer and assembler. As Froud et al (2012) observe:

Chinese firms like FIH generally assume a subcontractor role for a large US brand, so the supply chain is trans-Pacific not national, and their position within that chain is a subordinate one to that of lead US firms like Apple

Foxconn has in recent years been caught between a rock and a hard place. On the one hand international competition is forcing price erosion, and this has hit margins whilst rapid growth in demand has required an increase in employment. This has inflated the pressure to improve working conditions and wages following adverse publicity. The pressure on margins at Foxconn is rather unusual when Chinese (domestic) manufacturing operations run with reasonably steady bottom line profit margins. Over the period 2005 to 2011 Foxconn's average profit after tax was 1.1% and recent years it has mostly been in loss-making territory (see table 4).

Table 4: Foxconn profit margin relative to Chinese domestic manufacturing firms

	Chinese Domestic Manufacturing	Foxconn Holdings
	%	%
2005	6.7	6.0
2007	6.1	6.7
2011	5.5	1.1

Sources: Foxconn annual reports, various years. China manufacturing profits:

<http://www.stats.gov.cn/english/statisticaldata/yearlydata/>

Note: profit margin is after tax profits as a share of total income.

Foxconn’s relations with its growing workforce are well known. It has a reputation for harsh working conditions, long hours, breaches of labour law and high suicide rates. Recent strikes and unrest have added to the problem of component supply for the iPhone5. Both the expansion of employment and labour disputes add financial pressure on Foxconn’s already slender margins, prompting some to argue that Apple may have to sacrifice some of its margins to financially stabilise a key components supplier. According to a recent Bloomberg (2012) report

These strikes might send a signal to Apple that it has to set aside a bigger portion of its profit to satisfying these assembly plant workers,’ said Daniel Chang, an analyst with Macquarie Securities Ltd. in Taipei. ‘Apple needs Foxconn as it’s the only company out there that has the capacity and ability to amass such a big number of workers to do assembling work. For Apple, Foxconn is pretty much irreplaceable.

<http://www.bloomberg.com/news/2012-10-07/foxconn-labour-disputes-disrupt-iphone-output-for-2nd-time.html>

Foxconn, on behalf of Apple, sources components from other suppliers such as LCD displays from: Sharp, LG and Japan Display: a complex amalgam of three companies. Yet the financial position of these suppliers, reported recently in the Washington Post (Yasu and Yang, 2012) indicates potential instability.

Sharp said last month there was “material doubt” about its ability to survive after forecasting a record ¥450 billion, full-year loss on falling demand for its display panels.

<http://washpost.bloomberg.com/Story?docid=1376-MEJ66N6KLVSX01-3MB61R77SPUB3PQQS2R38RNCJP>

Foxconn had agreed to inject capital funds into Sharp through a share purchase agreement thus also securing strategic components for the Apple iPad and iPhone. Instability in Sharps financials prompted the deal to be re-negotiated as Sharps share price dropped from roughly ¥600 to ¥300

Sharp initially agreed in March to sell a 9.9 percent stake to Taiwan billionaire Terry Gou's Foxconn, the assembler of Apple Inc. iPhones and iPads, at 550 yen a share. Sharp's forecast for bigger losses caused the shares to plunge, prompting the two companies to renegotiate terms.

<http://washpost.bloomberg.com/Story?docId=1376-MEJ66N6KLVSX01-3MB61R77SPUB3PQQS2R38RNCJP>

Froud et al (2012) observe that subcontractors like Foxconn have a relation similar to clothing sub-contractors and retail distributors they cut, make and trim but do not have control over prices and are constantly under pressure to match price erosion.

The relation between FIH and Apple is much like that between a cut, make trim (CMT) firm which controls assembly while the lead firm controls design, purchasing, distribution and retail. For the subcontractor this model narrows the scope for productive intervention and squeezes margin because the subcontractor cannot lower the cost of external inputs or bypass the lead firm to reach retail. The onus therefore is on the subcontractor to control internal costs and find internal productivity gains to increase margin or absorb rising costs

Froud et al (2012:20)

We could also add a further dimension to this argument. Foxconn is locked into its own supply chain where there is a significant reliance on bought-in components such as LCDs from firms like Sharp. A company which is currently financially unstable, even when subjected to the exercise of power relations, this would not necessarily guarantee ongoing supplies. In this instance both Foxconn and Apple must directly or indirectly intervene to sustain the network of component supply and this could impact negatively on Apple's value capture regime. According to Rathee (2102):

Foxconn chairman Terry Gou has been almost forced to ensure Sharp's survival because of Apple's reliance on the latter. 'Apple needs Sharp,' Sanford C. Bernstein analyst Alberto Moel told *Bloomberg*. 'Sharp's capacity is large enough that if it were taken offline, it could hurt Apple'.

<http://wallstcheatsheet.com/business/is-apple-driving-foxconns-sharp-deal.html/>

Apple has also relied upon Samsung for the supply of key memory chips, processors and screen technologies for its iPhones and LED displays used by other Apple products such as iMacs and MacBooks. Samsung is one of Apple's largest suppliers by value (\$8 billion in 2012). Yet Samsung has also become one of Apple's main direct competitors in the smartphone market and, in recent times, Apple has filed a series of patent infringement litigations against Samsung. Although the US courts agreed to fine Samsung (who are appealing as we write) the courts did not uphold crucial sales bans, in large part because the extraordinary profitability and market power of the iPhone made it all but impossible for Apple to show it was suffering irreparable harm, or that people chose Samsung phones rather than iPhones specifically because they used a patented feature of Apple's device. At the time of writing' Apple too is appealing in search of a ban. Industry experts argue that Samsung's move into the smartphone market was driven by the knowledge it gained from its relationship with Apple as a supplier. Specifically, the increase in demand for chips and LCD screens was a signal as to how the overall market was going and that migration into full manufacture was a sensible investment move. As Lee (2012) reports in the Wall Street Journal:

Apple started to lessen its dependence on Samsung for components since the latter half of last year when the two were fighting to win the spot for the world's largest provider of smartphones. But Apple's move to diversify its component vendors likely accelerated since early this year when the Apple-Samsung patent litigation escalated.

<http://online.wsj.com/article/SB10000872396390443686004577636511318503288.html>

As for Apple, it reaped the indirect benefit of Samsung's heavy investments in research and development, tooling equipment and production facilities. Samsung spent \$21bn (23 trillion won) on capital expenditures in 2012 alone, and plans to spend a similar amount in 2013. This investment out of cash from operations is significantly higher than that made by Apple in recent years: 73 percent of cash from operations, compared to Apple's, 12%. Whilst both firms have similar value retention rates² out of total income,

² Total income retained after covering external costs

the share of this fund paid to labour is much higher in Samsung and therefore the share of cash extracted out of total income lower (see table 5).

Table 5: Samsung and Apple key ratios (average 2005 to 2011)

	Value Retained in total income	Labour Costs in Total Income	Cash from operations in total income	Capital spend out of cash from operations
	%	%	%	%
Samsung	42	25	17	73
Apple	37	14	23	12

Source: Annual report and accounts, various years

Thus Samsung's relationship to Apple is not simply that of a supply chain supplicant in an adverse power relationship that straightforwardly works in favour of Apple's value capture. Samsung's high-end smartphones are segmented into price-product ranges similar to those offered by Apple, but are periodically retailed at substantial discounts. Samsung also runs its own manufacturing facilities and this account's for the relatively higher share of labour costs in value retained (see table 5). It manufactures screens, chips and other parts for its smartphones and tablets in comparison to Apple which designs its devices but relies on outsourcing. Samsung's policy of launching multiple smartphone models at regular intervals throughout the year, introducing a variety of features (such as a larger screen) compared to Apple's once in a year launch event. As at the end of 2012 Samsung was market leader in smartphone sales shipping double the number than Apple and taking one third of the overall market (see table 6).

Table 6: Smartphone market leaders end 2012

Rank	Maker	Units mill	Market Share %	Q1 in 2012 %
1	Samsung	50.4	32.9	30.6
2	Apple	26	17	24.2
3	Nokia	10.2	6.7	8.2
4	HTC	8.8	5.8	5.4
5	ZTE	8	5.2	3.4
6	RIM	7.8	5.1	7.6
7	Sony	7.5	4.9	5
8	Huawei	7	4.6	4.8
9	LG	6.5	4.2	3.8
10	Motorola	6	3.9	3.5
	Others	10.8	7.3	3.3

Source: TomiAhonen Consulting Estimates August 15, 2012 from vendor data and other sources

Samsung supplies Apple with A6 chips from its US manufacturing site and this component alone accounts for a significant 6-9 percent of the total cost of an iOS device. In the aftermath of the legal wrangles between Apple and Samsung it has been suggested that chip prices (to Apple) have been increased by 20 percent and this could reduce Apple product margins by 1 to 2 percentage points. This nicely illustrates the vulnerability of the Apple business model that relies upon the exercise of power over its supply chain. Samsung is currently the only supplier of the A6 chip and it will take up to a year to switch component supply to say an alternative company, for example, Taiwan semiconductor. Memory units are a big component in Apple products and this is where Samsung has been a major supplier. In May 2012 news broke that Apple was switching from Samsung to a Japanese supplier Elpida for Dynamic Random Access Memory (DRAM) for the iPhone 5. This consolidation of DRAM supply from Elpida was a direct response to the ongoing and troubled power relationship with Samsung but Elpida, at this time, was in bankruptcy talks and industry observers (Kim, 2012) note that this switch might also compromise Apple product performance:

A major shift away from Samsung could also be complicated and costly for Apple, analysts said, adding that Samsung currently supplied Apple with high-end DRAM chips which were faster and more power-efficient than Elpida's main chips.

<http://www.reuters.com/article/2012/05/17/us-elpida-idUSBRE84G01E20120517>

Molex Inc is a NASDAQ quoted company established in 1938 that manufactures, designs, and distributes electrical and electronic devices such as terminals, connectors, planer cables, cable assemblies, interconnection systems, fiber optic interconnection systems, backplanes, mechanical and electronic switches. It is also a supplier to Apple.

Molex supplies multiple connectors for the iPhone 5 and it is believed that each iPhone has connectors worth \$4 in them. Molex earns 5 % of its revenue from Apple and this has boosted investor's confidence.

<http://beta.fool.com/mpunnoose/2012/09/19/iphone-5-ripple-effect/11999/>

The global connector market is fragmented, with the top 10 firms supplying 54 percent of the total market and Molex Inc taking a 7.5 percent share. The ongoing struggle, for this supplier, is to preserve margins when prices are eroding at the rate of 3-5 percent per annum³. In recent years, Molex has off-shored and out-sourced an increasing share of its factory space into low labour cost economies. In 2002, only 30 percent of its factory space and 45 percent of employment were located outside of the US, but by 2009 the share of factory space outside the US increased to 60 per cent and employment roughly 70 percent. In 2005, 30 percent of net revenues originated in China and by 2012 this had reached nearly 50 percent.

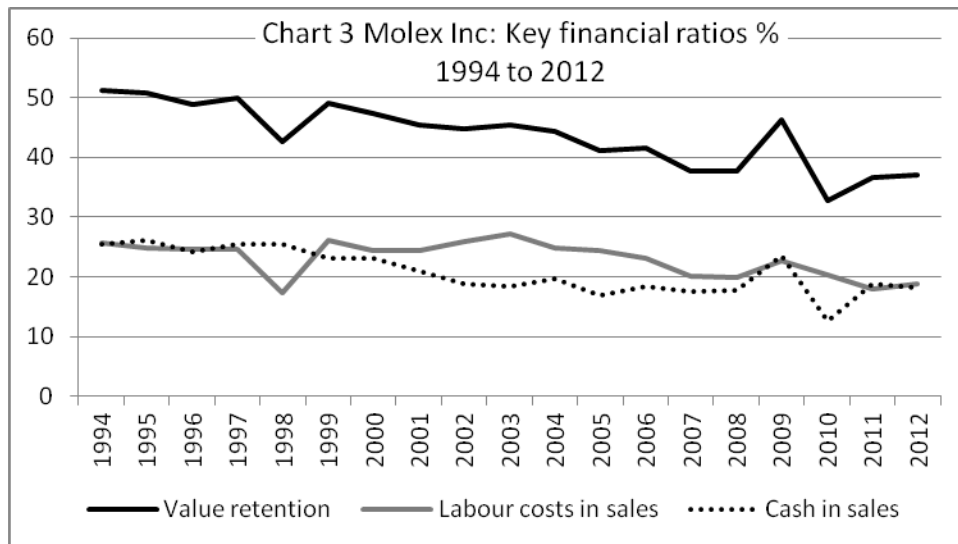
As of June 30, 2010, we had approximately 35,519 people working for us worldwide. Approximately 25,738 of these people were located in low cost regions.

<http://www.molex.com/images/financial/pdf/annual2010.pdf>

US Companies like Molex who supply Apple are forced, into a 'competition of all against all', to shave prices on new product that will go into the next iPad or iPhone. This

³ http://www.molex.com/documents/William_Blair_Conf.pdf

bidding behaviour has forced Molex to shift manufacture into lower labour cost regions, most significantly from Japan into China. And although Apple Inc has generated value capture from its suppliers firms like Molex are the losers where gain and loss are played out in the process of double entry accounting.



Source: Securities and Exchange Commission, Edgar datasets, 10-K annual reports

The Molex strategy of out-sourcing and off-shoring is the strategic response to price erosion in competitive product markets but this did not transform Molex’s key shareholder ratios. In 1994 the firm retained 50 percent of its total income and after paying labour costs at 25 percent of total income it was left with a cash margin of 25 per cent (Chart 3) During the period of rapid out-sourcing and off-shoring into China the share of labour costs in total income fell to 20 percent but this did not transform cash margins which fell from 25 to 18 percent. This paradox is explained by the fact that the value retention rate (Molex’s share of the financial value chain) fell from 50 to 40 percent. The change in Molex’s financial fortunes is summarised in table 7.

Table 7: Molex value retained, labour cost and cash margin

All as percent of total income	1992	2000	2012	Net effect on cash margin	US Overseas Affiliates (Computing and Electronic products)
Value retained in income ⁴	51	47	37	-14	18
Labour costs in total income	26	24	19	+7	8
Cash margin	25	23	18	-7	10

Source: Securities and Exchange Commission, Edgar datasets, 10-K annual reports

<http://www.bea.gov/international/usdia2010p.htm>

It is also noteworthy that US foreign affiliates in the Computer and Electronics product manufacturing sector operate with slim value retention rates (high levels of outsourcing) and even though labour costs are just 10 percent of total income cash margins are relatively thin at 10 per cent. US foreign affiliates that are involved in the manufacture of consumer electronics have a high dependency on bought-in materials and components from their global supply chains and this limits their potential to capture value. US parent companies manufacturing computer and electronics products find it difficult to convert off-shoring and out-sourcing into significantly superior returns on assets for shareholder value. Off-shoring and out-sourcing are motivated by the need to chase lower prices, but this calculation may not capture value and transform operating margins for shareholder value. In 2010 the average US foreign affiliate manufacturing computing and electronic products generated an average 13 percent cash return on total assets' compared to the 11 percent generated by their US parent companies⁵. All well below the average 33 percent cash return on assets generated by Apple's value capture business model driven by the exercise of power over its global value chain.

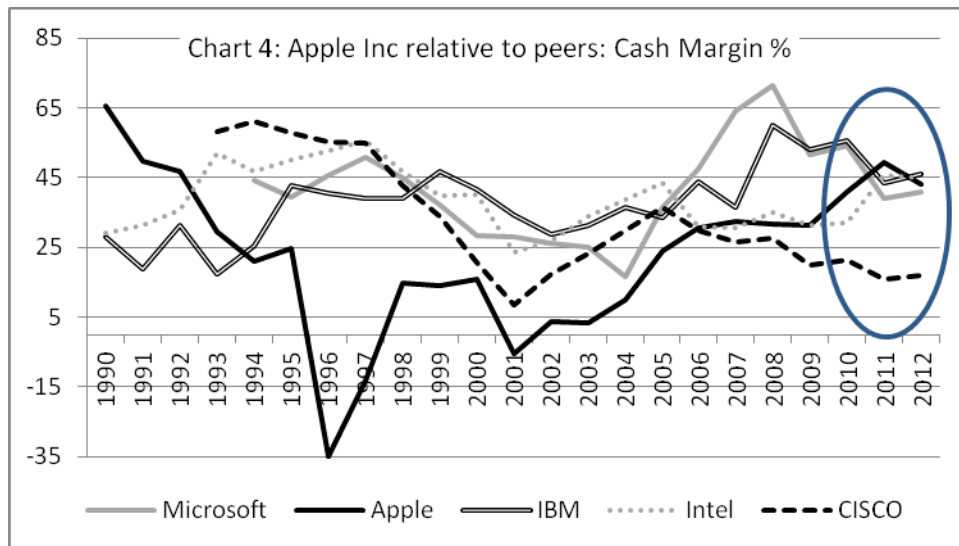
4. Apple: Relative financial performance

Our argument is that investment analysts employ point values to inform judgements about buy and sell recommendations. However, these aggregate financial point values not only disguise the complexity and variability of Apple's power relations across its

⁴ This is total income minus all external costs (purchases of goods and services)

⁵ <http://www.bea.gov/international/usdia2010p.htm>

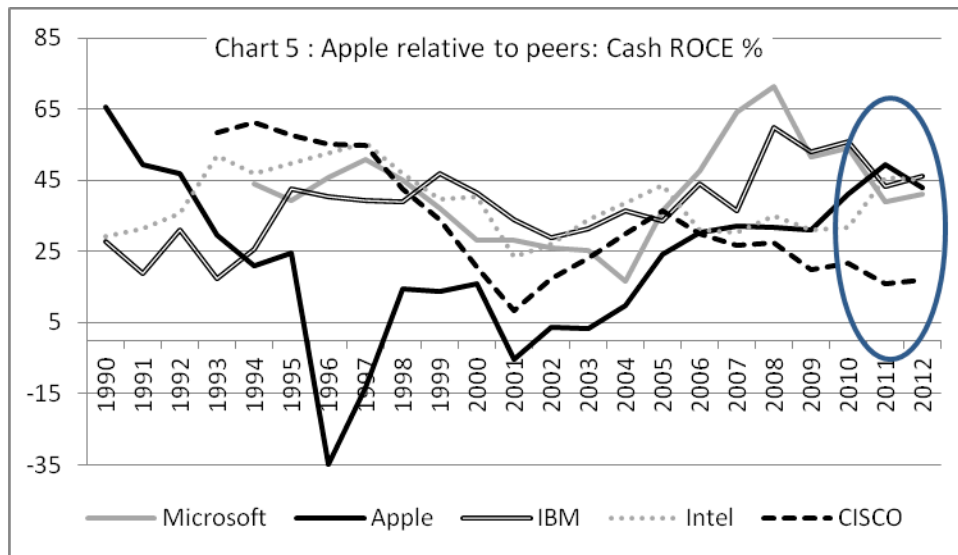
supply chain but, as we now argue they fail to inform us about trajectory and relative position. The question that cannot be answered from a single firm point value is ‘just how exceptional is Apple’s value capture’? We can only move on to answer this question by constructing some form of trajectory and relative financial performance analysis. To do this we have selected a few firms listed on the S&P 500 to undertake this relative benchmark comparison⁶. Our objective is to establish the extent to which Apple’s value capture has generated exceptional results or to what extent Apple is an average firm in the digital lifestyle business model (see Haslam et al, 2012). We start with a comparison of Apple’s cash margin with those of the benchmark group, and this is shown in chart 4.



Source: Securities and Exchange Commission, Edgar datasets, 10-K annual reports
 Chart 4 reveals that for the majority of the period 1990 to 2012, Apple underperforms the benchmark group we are using. It is only at the start of the period that Apple’s cash margin is above that of the benchmark group before falling off and into negative territory by 1996. The cash margin thereafter recovers and by 2012 is back to a level roughly equivalent to that of IBM and Microsoft. Supplementing point values with trajectory reveals a high degree of volatility: for example, CISCO falls from a 50 percent cash margin to a 10 percent margin in two decades. Whilst, Microsoft’s cash margin fluctuates between 45 and 25 percent; then moves back up to 65 percent, before falling

⁶ Microsoft, IBM, Intel and CISCO

back again to 45 percent in 2012. Chart 5 describes the cash return on capital employed⁷ for the same benchmark group of companies, where cash and capital employed are central elements in most shareholder value metrics.



Source: Securities and Exchange Commission, Edgar datasets, 10-K annual reports
 This analysis also reveals a substantial level of volatility with, for example, CISCO coming off its high of 55 percent Cash ROCE to roughly 17 percent in 2012. Apple’s return on capital also volatile, but recovers after the late 1990s to levels that are comparable with that of IBM and Microsoft in 2012.

5. Discussion/Summary

It could be argued that while it took Steve Jobs’ design and marketing genius to get Apple to back to the top, it is going to take Tom Cook’s supply chain management expertise to keep it there. There is no doubt that Apple has transformed its financial trajectory and key metrics after suffering financial distress in the late 1990s. The purpose of this working paper has been to argue that point values often used by analysts to inform buy and sell valuations conceals the precarious balancing act that underpins Apple’s financial transformation. This financial transformation, we argue, is the product of a financialized business model in which Apple has exercised power over

⁷ Cash from operations divided into capital employed (as long-term debt plus equity)

its global supply chain to capture value. Value capture is about how out-sourcing and off-shoring can modify the financial boundary of a reporting entity to capture value at the expense of supplying firms in the power relationship. In the Apple case, internal and relatively high labour costs can be substituted with relatively low labour costs embedded in purchases. This served to inflate value retention rates, while lowering internal labour costs simultaneous with increases in both cash margins and return on capital.

The power relation that Apple has over its global supply chain is variable and contingent rather than uniform in nature and we employ this position to argue that Apple's financial transformation is commendable, yet precarious. To develop this argument we consider Apple's power relation with three suppliers: Foxconn, Samsung and Molex. Foxconn is highly dependent upon Apple for its revenue (roughly 50 percent) and Apple takes full advantage, leaving the company vulnerable because its margins are so thin. Moreover, Foxconn is also itself located within a web of subcontractor relations notably with Sharp which supplies LCDs and this company is also in financial trouble. The relationship with Samsung has been described as "frenemy" after the recent legal disputes over intellectual property and designs. Samsung is a powerful player in its own right and is involved in so many aspects of Apple's business that removing it from the equation altogether may not be possible. Thus, every shift from Samsung (an established, profitable supplier) to a lesser known or troubled alternative, such as Sharp or Elpida, adds more financial risk into the Apple business model. Molex Inc is a US manufacturer is dependent for only 5 percent of its revenues from Apple and has pursued its own out-sourcing and off-shoring strategy to remain competitive in a market where annual price erosion of 3-7 percent is the norm. Unlike Apple, Molex (and coincidentally most US off-shore affiliates) have not managed to transform operating financials because these firms are not been in a position to capture value from adjustments to financial boundaries. However, its (Molex's) relative low dependency on Apple puts it in a position where it could switch supply relations to secure additional financial leverage. In recent years, Apple's financial trajectory and margins have been

transformed, as power over its global supply chain was deployed to capture value within the boundary of its own financial statements. Yet this transformation, we argue, only brings Apple into line with some of its peers within the digital lifestyle business model in the S&P500.

Fundamentally, the use of point values by analysts to construct valuations ignores how we get to a 'bottom line'. There are a number of issues associated with the process of value capture that need to be accounted for if we are to understand the precarious nature of Apple's financial transformation. First, the market for smartphones and tablets (substituting for PCs) is becoming more congested and fragmented as new firms enter and old firms struggle to rediscover their market positions. There is a distinct possibility that Apple will be forced to accept some cannibalizing of its product range, with the iPad mini trading off the iPad. For example, the iPad has an average selling price of \$590 and gross margin of 47 percent. Even if the iPad Mini makes the same margin, for every iPad customer who trades down, Apple must bring in one more iPad Mini customers. Intensified competition adds to product variety in terms of product design and functionality. Second, additional product variety (one display panel over another or memory chip for another) will put further pressure on a complex and highly fragmented global supply chain. Apple is not alone here: it is competing against other firms to secure component supply and assembly capacity with the added risk of parts shortages when component suppliers are concentrated and/or suffer downtime (such as the flooding that hit hard drive manufacturers in Thailand in 2011). Third, deteriorating relations with key suppliers such as Samsung, itself a powerful player in the smartphone market is forcing Apple to look elsewhere for memory chips, for example, Taiwan Semiconductor. Fourth, any shift away from Samsung, which is incidentally a financially stable supplier, takes Apple towards some of the world's most poorly performing consumer electronics companies, Sony and Sharp, to secure build capacity for key components. Finally, the technology that governs apps development is changing. According to Bernstein Researcher Toni Sacconaghi, the emergence of the HTML5 platform for apps is 'an important, longer-term issue for Apple investors to monitor'. HTML5 technology has the

potential to undermine profit margins and market share in Apple's iPhone and iPad franchises. HTML5 is appealing to developers and their businesses because it will be employed to build Web based apps that are simultaneously usable on all mobile platforms at once. This is more cost-effective and less labour-intensive than building different native apps for iOS, Android and Windows Phone. According to Essers (2011):

It also allows developers and publishers to circumnavigate the 30 percent commission charged by Apple and Google for selling apps through their app stores. Furthermore, Apple also takes a 30 percent cut on subscriptions sold through the App Store. Both cuts could be obviated with HTML5-based apps, the report pointed out.

<http://www.digitalartsonline.co.uk/news/interactive-design/html5-adoption-might-hurt-Apple's-profit-research-finds/>

Apple's complex power relationship with its suppliers seems like even more of a balancing act at a time when shareholder activism is putting additional pressure on the Apple senior executives to distribute stagnant cash balances as the share price comes under pressure. According to Bernstein Research analyst Sacconaghi (2010):

Apple's burgeoning cash balance creates the perception that the company may spend it on large acquisition(s) that shareholders believe might be value-destroying longer-term. While we acknowledge that Apple has been disciplined in this regard, with a history of making relatively small acquisitions for talent and technology only, this investor concern is longer term and based on what has historically transpired at other companies. A return of cash and/or a transparent policy around use of cash would help alleviate this investor concern and ensure financial discipline on current and future management teams at the company.

<http://pdf.cyberpresse.ca/lapresse/dufour/lettreadapple.pdf>

In 2012 Peter Oppenheimer, Apple's CFO announced that the company would be:

Combining dividends, share repurchases, and cash used to net-share-settle vesting RSUs (Restricted Stock Units), we anticipate utilizing approximately \$45 billion of domestic cash in the first three years of our programmes.

<http://www.apple.com/uk/pr/library/2012/03/19Apple-Announces-Plans-to-Initiate-Dividend-and-Share-Repurchase-Program.html>

Analysts are often concerned with the latest point value and use this to inform their buy or sell recommendations or adjust valuation estimates of the share price. This working paper suggests that we should be concerned with deconstructing point values and from this generate critical insight(s). Thus our focus has, instead, been on describing how variable power relations in Apple's global supply chain are deployed to capture value and transform operating financials. Apple's power relationship with its global suppliers is not a uniform phenomenon it is unstable and subject to a multiplicity of adaptations. The deconstructed road ahead for Apple is more volatile than a point value would suggest, and when Apple encounters these bumps more will be shaved off the bottom line.

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